Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

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Supplementary Appendix A

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A1. Initial Dataset

A1.1 Sample cohort

Genomic DNA was extracted from peripheral blood granulocytes or bone marrow mononuclear cells for 1,540 adult AML patients ascertained through three prospective multi-center clinical trials of the German-Austrian AML Study Group (AMLSG): AML-HD 98A, AML-HD 98B, and AMLSG 07-04[1-3]. In AML-HD98A, patients aged 18-60 years received induction chemotherapy with idarubicin, cytarabine and etoposide (ICE), with high-risk patients being offered allogeneic hematopoietic cell transplant; intermediate-risk patients offered allograft (if matched related donor available) or intensive chemotherapy; and low-risk patients offered intensive chemotherapy. AMLSG-07-04 followed a similar design, but induction randomized between ICE and ICE plus all-*trans* retinoic acid (ATRA). In AML-HD98B, patients ≥61 years were randomized to induction with ICE or ICE+ATRA, with further therapy dictated by response. All patients gave informed consent for treatment and genetic analysis according to the Declaration of Helsinki. Detailed cohort characteristics are provided in Supplementary Table 1 and Supplementary Figure 1.

A 1.2 Cytogenetic Data

Karyotypes for 1,356/1,540 (88%) samples were ascertained in accordance with the International System for Human Cytogenetic Nomenclature from diagnostic assessment. Recurrent alterations including fusion genes and copy number alterations were included in downstream analysis (Supplementary Table 2).

A 1.3 Clinical Data

A 1.3.1 Clinical variables

Demographic and diagnostic variables were ascertained at the time of diagnosis by the AMLSG Clinical Trial Center. The variables collected included: Age at diagnosis, gender, karyotype, cytogenetic risk, genetic risk according to the European LeukemiaNet (ELN) recommendations, AML type (AML: de novo AML, sAML: secondary AML, oAML: other AML indicates receipt of prior treatment other than chemotherapy, tAML: therapy-related AML for patients with prior chemotherapy) and performance status. Peripheral blood counts to include white blood cell (WBC) counts, lactate dehydrogenase levels (LDH), platelet counts, hemoglobin levels (Hb) and peripheral blood blast were provided. Additional variables included splenomegaly, clinical trial participation and treatment arm.

Outcome endpoints included status at last follow-up, time from diagnosis to time of last follow-up, event-free survival and time to event, relapse-free survival and time to relapse as well as whether complete remission was achieved, time to remission and time to transplant where transplant was received. Summary outcome for each patient at the time of last follow were assigned as follows:

- Refractory disease (RD) for patients who did not achieve remission following induction chemotherapy.
- Death in complete remission (DiCR) for patients who achieved CR and died whilst in complete remission.

- Death after relapse (DaR) for patients who achieved complete remission but subsequently relapsed and died.
- Alive after relapse (AaR) for patients who achieved complete remission, subsequently relapsed and were alive at last follow up.
- Alive in complete remission (AinCR), for patients who achieved complete remission after first induction therapy, remained in remission and were alive at last follow up.

A 1.3.2 Morphology – central review

Morphology was performed at local sites and reports were reviewed centrally in n=1,058 cases and in unclear cases BM slides were reanalyzed by the same investigators.

A 1.4 Sequencing Data

A 1.4.1 Library preparation and sequencing

Custom RNA baits were designed complementary to all coding exons of 111 genes (Supplementary table 2) as per manufacturers' guidelines (SureSelect, Agilent, UK). Whole genome amplification (WGA) with Phi 29 (Qiagen, UK) was performed to increase DNA quantity, as well as, to normalize concentrations and support high-throughput library production. A total of 125μl of 40ng/μl of WGA DNA was fragmented to an average insert size of 145bp (75-300) and subjected to Illumina DNA sequencing library preparation using the Bravo automated liquid handling platform. Individual samples were indexed using a unique DNA barcode via 6 cycles of PCR. Equimolar pools of 16 libraries were prepared and hybridized to custom RNA baits following the Agilent SureSelect protocol. Enriched pools of 96 cases were sequenced on a lane of an Illumina HiSeq machine using the 100-base pair paired-end protocol.

A 1.4.2. Sequencing data alignment

Raw sequence data were aligned to the human genome (NCBI build 37) using BWA[4]. Unmapped reads, PCR duplicates and reads mapping to regions outside of the target region (merged exonic regions + 10bp either side of each exon) were excluded from analysis. Bedtools® coverage v2.15.0[5] was subsequently used to determine the coverage depth at each base. Genes with median target coverage < 20x were removed from the study and samples with median overall coverage < 50x were also excluded from downstream analysis and are not reported in this study. Average gene and sample coverage metrics are provided in Table S2-13.

A 1.5. Expression array data

Gene expression was profiled in 18 *MYC* mutant and 28 *MYC* wildtype AML samples using GeneChip Human Genome U133 Plus 2.0 Arrays (Affymetrix, Santa Clara, CA, USA) as previously reported.[6] Analyses were performed using BRB-ArrayTools Version 4.3.2 developed by Dr. Richard Simon and BRB-ArrayTools Development Team (http://linus.nci.nih.gov/BRB-ArrayTools.html).

A 1.6 Data deposition

Targeted re-sequencing data will be deposited at the European Genome-Phenome Archive (https://www.ebi.ac.uk/ega/ at the EBI) with accession number EGAS00001000275. Expression array data will be deposited at Gene Expression Omnibus (GEO) http://www.ncbi.nlm.nih.gov/sites/GDSbrowser/ with accession number GSE70124.

A 2. Bioinformatics analysis

A 2.1 Variant calling

Beyond cytogenetic alterations, the spectrum of gene mutations in AML is composed by single base pair substitutions, indels and complex events such as the *FLT3* internal tandem duplication (ITD), which represents the second most frequent mutation in AML.

A 2.1.1 Substitutions

In the present study base substitutions were identified using two parallel bioinformatics approaches. Single base, somatic substitutions were called independently in each sample using an in-house algorithm CaVEMan: Cancer Variants through Expectation Maximisation. https://github.com/cancerit/CaVEMan . The algorithm compares sequence data from each tumor sample to an unrelated normal sample and calculates a mutation probability at each base-pair position locus. A number of post-processing filters were applied to improve specificity. Filters applied to targeted capture data required that:

1. At least a third of the alleles containing the mutant must have base quality >= 25.
2. If mutant allele coverage >= 10, there must be a mutant allele of at least base quality 20 in the middle 3rd of a read. If mutant allele coverage is < 10, a mutant allele of at least base quality 20 in the first 2/3 of a read is acceptable.

3. The mutation position is marked by <3 reads in any sample in the unmatched normal panel.
4. If the mean base quality is <20 then less than 96% of mutation-carrying reads are in one direction.
5. Variants were cross-referenced with approximately 300 unmatched normal samples sequenced internally to identify calls coinciding with high error rate loci.
6. Previously reported bona fide somatic variants presenting in the unmatched normal panel were not filtered out from the dataset.

Our second approach used a recently developed algorithm that incorporates information from multiple unrelated samples and prior knowledge to generate local error estimates and call mutations in unmatched targeted re-sequencing data[7] https://github.com/mg14/deepSNV.

For hotspot mutations Samtools mpileup was employed to specifically interrogate mutations in known hotspot regions (Supplementary Table 2).

A 2.1.2 Small insertions and deletions, including *FLT3*^{ITD}

Small somatic insertions and deletions (indels) were identified using an in-house modified version of Pindel[8]. Post-processing filters were applied as previously described[9,10]. The following steps were taken to improve specificity for calling non-coding indels:

1. 'SUM-MS' score (sum of the mapping scores of the reads used as anchors) >=200

2. ‘Previously Rejected Score’ (PRS) is ==0
3. Bidirectional (evidence in both read directions (forward and reverse) in Pindel or BWA reads)
4. Variant allele is not a unit within a homopolymer track presenting with variant allele fraction < 8%.
5. Variants did not present in approximately 300 unmatched normal samples and did not have a COSMIC ID with confirmed somatic status in the literature.
6. Artifactual indels occur at recurrent loci across multiple samples, often as a consequence of highly repetitive sequence. To ensure that such variants were not retained in our data we interrogated our in-house databases for recurrently rejected Pindel calls. All variants were visually inspected prior to removal.

Regions enriched for GC content and low target coverage were manually reviewed (i.e. *CEBPA, SRSF2)* and, where available, prior data derived by a CLIA approved diagnostic laboratory, were cross-referenced and for *FLT3*^{ITD}, *CEBPA* mutations and *NPM1* mutations incorporated in the dataset.

Additionally, for *FLT3*^{ITD} detection we developed custom analysis script that performs a localized query for reads consistent with an inverted tandem duplication within the *FLT3* locus (Table S3).

Visual inspection using visualisation software (Gbrowse®) was performed of all variants in the targeted gene screen dataset after applying these filters.

A 2.1.3 Correction of variant allele fraction.

We have previously reported that the size and complexity of an indel affects mapping efficiency of reads reporting indel variants[10] resulting in under-estimates of the absolute variant allele fraction for the mutant alleles.

To correct for this effect, the burden of each indel in all related samples was determined by counting both mapped and unmapped reads within the repeat range of the indel. This was achieved by generating a variant haplotype containing the reported indel followed by BLAT realignment of unmapped singleton reads anchored by a mapped read within the expected region of the indel (using average library size for sample as a reference). This was followed by PCR duplicate removal. All newly mapped reads reporting the indel were then added to the paired mapped reads, and unique allele counts for each indel were generated.

To test this approach we sequenced 14 in house samples (not part of the analysis dataset) for which viable cells were available using the same protocols as the samples in the study. The samples were enriched for *NPM1* mutations, characterized by a tetranucleotide insertion that is frequently underreported in NGS data as insertions and complex indels result in more profound effects to the overall mapping score of sequence reads, than simple <3 bp events or substitutions. Variant determination and correction was performed as detailed in section 2.1-2.3 of this Supplementary Appendix. Single cell targeted re-sequencing was performed in 14 samples to test the efficacy of our variant allele fraction estimates, as described in section 4 of this Supplementary Appendix.

A 2.1.4 *FLT3*^{ITD} ratio estimation

In *FLT3*^{ITD}–positive patients, the allelic ratio was quantified by GeneScan-based fragment-length analysis. Where present, in cases with >1 ITD mutation, the values of all *FLT3*^{ITD}s were added up to 1 value. The ratio was determined by collection of the mutated polymerase chain reaction fragment using a denaturing high-performance liquid chromatography analyzer (WAVE System) as previously described[11].

A 2.2 Variant curation

A 2.2.1 Assay specific artifacts

To remove assay specific sequence artifacts (arising as a consequence of sequence mis-mappings specific to target sequences in the assay and potentially affected by the depth size we sequenced 22 samples from normal individuals (all aged <50 years) using the same protocol and analytical pipelines. All variants found to be recurrently affected between this 22 sample control set and the sample set in the present study were removed from future analysis.

A 2.2.2 Control metrics – concordance to pre-existing data

Using pre-existing sequencing data generated by multiplex ligation PCR amplification (MLPA) or capillary sequencing[12-14] we examined the concordance rates of mutation detection using NGS. Overall our concordance rate was excellent (Supplementary Table 4), but slightly inferior for genes enriched in indels, which represent challenging variants to identify in most sequencing platforms.

Despite excellent coverage the *FLT3*$^{\text{ITD}}$ was only detected in 26% of the known carriers and in the majority of the cases the variant allele fraction was underestimated (range 1-5%). In our dataset (n = 301) the ITD median length is 45bp (range: 15-250). Following *FLT3*$^{\text{ITD}}$ retrieval our sensitivity was increased to 90% (Supplementary Table 3). *CEBPA* imposes a further challenge for variant detection as the high GC content of the gene results in low and variable coverage for sensitive detection of mutations.

With an increasing interest in the utility of NGS applications in molecular diagnostics, the caveats of these methodologies in identifying and quantifying important variants such as the *FLT3*$^{\text{ITD}}$, *CEBPA* mutations and other indels are therefore highlighted for further consideration and evaluation into experimental and computational methodologies, but is beyond the remits of the present study.

A 2.2.3 Retention of high confidence somatic variants

Each high confidence variant was annotated as oncogenic, possible oncogenic or unknown in accordance to prior evidence in the literature in respect to the variants or genes association with myeloid disease as previously described[10]. These approaches, previously implemented in a study of MDS patients using the same bait design and bioinformatics pipeline has been independently validated by Haferlach et al in their meta-analysis of our study and an independent cohort of 944 MDS patient sequenced for a related set of genes[15,16].

Broad variant annotation parameters are listed by variant type as follows:

a. Oncogenic

- Known oncogenic variants previously reported in the literature;
- Novel recurrent variants (n $\geq$ 2) that cluster with known somatic variants in well characterised myeloid driver genes;
- Truncating variants (nonsense mutations, essential splice mutations or frameshift indels) in genes implicated in myeloid malignancies through acquisition of loss of function mutations;
- Variants that map within functionally validated loci[17].

b. Possible oncogenic

- Previously unreported variants that cluster (±3aa) with known oncogenic variants in COSMIC[18] and track the clinical outcomes of bona fide somatic variants within the same gene.

Variants identified outside the range of frequent driver variants in genes with known oncogenic variants; Variants in genes whose role in myeloid disease is not yet established or variants presenting uniquely in the dataset were not considered in the study.

A 2.2.3 Driver variant frequency comparison with known datasets

We compared the frequency of gene mutations in our dataset with the mutations reported in The Cancer Genome Atlas (TCGA) AML dataset[19]. We observed a high degree of correlation in the reported frequencies (Figure S1). Two genes deviated in frequency between the two cohort- *SRSF2* and *NRAS*. This difference is most likely a consequence of the overall depth achieved with exome or whole genome sequencing (TCGA) in comparison to the present study (high depth targeted re-sequencing).

The hotspot mutations in *SRSF2* (P95*) fall within a region of high GC content and result in low overall depth sequencing in all three platforms. It is therefore likely that a proportion of *SRSF2* mutations were not identified in the TCGA data owing to technical limitations in sequencing that region. In the present study we find that *NRAS* mutations often occur in parallel leading in late subclonal diversification as evidenced by the acquisition of 2 or more subclonal *NRAS* mutations in the same patient. The ability to detect subclonal variants is also directly correlated to the overall depth and most likely accounts for this difference.

A 3. Statistical analysis

All statistical analysis and graphic generation was conducted in R version 3.1.3.

A 3.1 Gene Set enrichment analysis

Following standard data normalization and filtering by applying the RMA algorithm, a *MYC* mutation associated gene expression signature was determined by performing a Class Comparison analysis. Based on this signature, which comprised 433 probe sets ($p<0.001$; $FDR<0.05$), data were clustered using average linkage hierarchical clustering and results were visualized using Treeview as previously reported[6]. In addition to Pathway Class Comparison and Transcription Factor Class Comparison analyses using BRB-Array Tools, Gene Set

Enrichment Analysis (GSEA) was performed across the respective list of genes ranked by t statistic as previously reported using the GSEA online version accessible through the GenePattern tool (http://www.broadinstitute.org/cancer/software/genepattern/)[20].

A 3.2 Clonal heterogeneity analysis and mutation order

Analysis was restricted to genes with >15 occurrences in patients with 2 or more driver gene mutations (excluding *FLT3*^{ITD}, *CEBPA* mutations where these were derived by Sanger sequencing and *MLL*^{PTD}). Variant allele fraction estimates were adjusted for local ploidy status including (chromosomal loss, *LOH* or trisomy) and local depth by drawing 95% confidence intervals for the variant allele fraction, under a binomial distribution. Loss of one allele and trisomy information was derived directly from the cytogenetic data. LOH estimates were derived by drawing 95% confidence intervals for the variant allele fraction, under a binomial distribution. Putative region of LOH was assigned where the lower CI estimate was >0.65 and cut off for determining evidence of LOH restricted to $p \leq 0.05$. All genes reported to have putative LOH are well-documented targets of focal deletions in myeloid malignancies including *TET2, EZH2, FLT3* and *TP53*. Variants allele fractions of gene mutations mapping on the X chromosome of male patients were adjusted to account for a single copy

For each sample, to test whether mutations in each gene occurred in the same clone or whether they were spread in more than one clone, Fisher tests for each pairwise occurrence were calculated with a cut off of $p \leq 0.01$. This identified 690 patient samples with at least 2 gene mutations and evidence of clonal heterogeneity. Temporal precedences were then calculated for these samples, by applying the pigeonhole principle, as described[21] (Figure S6). From the set of genes in which 10 or more precedences were observed, we applied Bradley-Terry models[22] using maximum likelihood to the observed precedences.

A 3.3 Pairwise gene-by-gene and within gene hotspot interactions

Systematic evaluation of all putative pairwise associations between genes and/or cytogenetic abnormalities (including fusion genes) to identify pairs of genes and/or cytogenetic abnormalities that show a tendency to either co-occurrence (both genes mutated in more patients than expected by their individual frequencies) or mutually exclusive mutation (one or other gene mutated, but rarely both together relative to the expected co-occurrence by the individual frequencies) (Figure S3). Analysis was restricted to gene mutations/cytogenetic lesions that had at least 8 occurrences in the cohort. 2x2 contingency tables were generated for each potential pair followed by Fishers exact tests and adjustment for multiple hypothesis testing using the Benjamini and Hochberg approach[23].

A 3.4 Class assignment

We performed an *ab initio* evaluation of molecular classification in AML. We used a Dirichlet process (DP), which defines a potentially infinite prior distribution for the number and proportions of clusters in a mixture model. Using this process -

the optimal number of clusters is be learned from the data by Markov chain Monte Carlo (MCMC) methods.

Let $\boldsymbol{X} = (X_1,\ldots,X_g)$ denote the genotype in a given patient; g is the number of all genes considered. The entries of $\boldsymbol{X}$ are integers denoting the number of mutations in a given gene for a given patient. In our dataframe X_i will be 0 or 1, denoting presence or absence of a mutation in gene i. We assume that mutations within a class are distributed according to a multinomial distribution with parameter $\boldsymbol{\theta} = (\theta_1,\ldots, \theta_g)$. The typical choice for the prior distribution of $\boldsymbol{\theta}$ is the Dirichlet distribution $\mathrm{Dir}(\boldsymbol{\alpha})$, with parameter $\boldsymbol{\alpha}$.

$$\boldsymbol{X} \mid \boldsymbol{\theta}, n \sim \mathrm{Mult}(\boldsymbol{\theta}, n)$$

$$\boldsymbol{\theta} \sim \mathrm{DP}(\mathrm{Dir}(\boldsymbol{\alpha}), \alpha_0)$$

Here we treat the number of mutations in each patient as fixed. For the prior distribution we chose a uniform Dirichlet distribution with parameter $\boldsymbol{\alpha} = (1/g,\ldots,1/g)$.

Our analysis is based on an implementation of the Dirichlet process mixture model, available at https://github.com/nicolaroberts/hdp. This package implements the so-called hierarchical Dirichlet process[24], which also contains the (non-hierarchical) Dirichlet process applied in our study.

Briefly we used 5,000 burnin iterations and subsequently sampled 10,000 realisations at intervals of 20 iterations. From this collection of samples, we computed optimal number of clusters, demanding that 99% of the data can be explained. A detailed step-by-step protocol with R code of all clustering analysis steps can be found in Supplementary Methods part B.

To ensure high confidence class assignment, for each patient we applied a number of post-processing criteria. These include:

- Patient must harbor dominant class defining lesions which include t(15;17), t(8;21), inv(16)/t(16;16), t(6;9), inv(3)/t(3;3), *MLL*-rearrangements bi-allelic *CEBPA* or *NPM1* mutations.
- For the *TP53*/aneuploidy class patient must harbor either *TP53* mutation, complex karyotype and/or chromosomal aneuploidies (not considering minus Y or plus 8).
- For the chromatin/spliceosome class patients must include at least 2 of the class defining genes. We appreciate that this parameter is stringent.
- Patients with probability of class assignment was similarly distributed for >1 class – were annotated as Ambiguous/Overlap cases.
- For t(15;17) and t(6;9) translocations, which were assigned in a single class owing to the shared patterns of co-mutation (Supplementary Results), these were separated into two distinct classes, one for t(15;17) one for t(6;9).

Distribution of gene mutations by class can be seen in Figure S 7 and Figure 1c.

A 3.5 Regression models

A 3.5.1 Genotype phenotype correlations

Diagnostic peripheral blood counts and bone marrow/peripheral blood blast counts were modelled by regularized generalized linear models using the glmnet R package[25]. The value of each variable k, Z_{ik} in patient i by the generalized linear function:

$$Z_{ik} = f(\Sigma_{j=1..n} X_{ij} \beta_{jk} + \beta_{0k}) + \varepsilon, \quad \text{subject to:} \quad \Sigma_j|\beta_{jk}| < \lambda$$

The function f is a transformation depending on the range of $Z_{.k}$. For real $Z_{.k}$ it is the identity, for positive $Z_{.k}$ the logarithm, and for $Z_{.k}$ in [0,1] or dichotomous $Z_{.k}$ it is the logit transform. The optimal penalty λ was chosen to be the value maximising the fivefold cross-validated generalised coefficient of determination R^2, which is defined as

$$R^2 = 1 - (L(\beta_{jk};0)/L(\beta_{jk};\lambda))n/2,$$

where $L(\beta_{jk};\lambda)$ denotes the likelihood function.

A 3.5.2 Predictors of clinical outcome - Survival models

A 3.5.2.1 Survival analysis

Overall survival was used as the primary endpoint, measured from the date of diagnosis and to the date of last follow-up or death. Univariate analysis was performed using the Kaplan-Meier procedure.

A 3.5.2.2 Cox proportional hazards and random effects model

We implemented sparse random effects for the Cox proportional hazards model in the CoxHD R package available at http://github.com/mg14/CoxHD. In a Cox proportional hazards model[26], the logarithmic hazard is given by

$$\boldsymbol{h} = \mathbf{X}\boldsymbol{\beta}^{\mathrm{T}}, \qquad (1)$$

where $\mathbf{X}$ defines the table with all data variables and $\boldsymbol{\beta} = (\beta_1, \ldots, \beta_{230})$ being the vector describing the contribution of each of the p=230 parameters. Inferring a model incorporating all available genomic and clinical variables requires regularization to avoid overfitting. One possible solution to achieve this are random effects models, in which the parameters are assumed to arise from a shared normal distribution[27.] This assumption effectively penalizes against large parameter values and instead shrinks the estimates towards a shared mean.Hence the parameters $\boldsymbol{\beta}$ are assumed to follow a multivariate normal distribution,

$$\boldsymbol{\beta} \sim \mathrm{N}(\boldsymbol{\mu}, \boldsymbol{\Sigma}), \qquad (2)$$

where we assume that the covariance matrix $\boldsymbol{\Sigma}$ is a diagonal with its entries identical within either of the 8 variable categories: point mutations (p=58), fusion genes (p=8), copy number alterations (p=18), gene:gene interaction terms (p=126, see below for details), clinical variables (p=11), demographics (p=2), treatment (p=3) and nuisance (p=4), $\boldsymbol{\Sigma} = \mathrm{diag}(\sigma^2_{\mathrm{pointmut}}\,\mathbf{1}_{58}, \ldots, \sigma^2_{\mathrm{nuisance}}\mathbf{1}_4)$. The symbol $\mathbf{1}_p$ denotes the p-dimensional unity matrix. Likewise we assume that the shared means have the same structure, $\boldsymbol{\mu} = (\mu_{\mathrm{pointmut}}, \ldots, \mu_{\mathrm{nuisance}})$. Hence the model has only 8 variance parameters σ^2_g as well as 8 mean parameters μ_g.

Give the assumption (2) we use the maximum a posteriori (MAP) estimate of $\boldsymbol{\beta}$,

$$\boldsymbol{\beta}^* = \arg\max \mathrm{L}(\boldsymbol{\beta} \mid \mathbf{X}, \boldsymbol{\mu}, \boldsymbol{\Sigma}), \qquad (3)$$

where $L(\boldsymbol{\beta} \mid \mathbf{X}, \boldsymbol{\mu}, \boldsymbol{\Sigma}) = P(\boldsymbol{\beta} \mid \mathbf{X})P(\boldsymbol{\beta}|\boldsymbol{\mu}, \boldsymbol{\Sigma})$ denotes the penalized partial likelihood. Note that in the limit of $\sigma^2{}_g \to \infty$, this procedure corresponds to the normal maximum likelihood estimate. The procedure described in Eq.(3) is equivalent to a ridge estimate with penalty $1/\sigma^2{}_g$. The parameters $\boldsymbol{\Sigma}$, $\boldsymbol{\mu}$ are subsequently estimated in an iterative expectation-maximization type algorithm[28].

In all cases age was considered as an independent variable (clinical parameters) and therefore all reported variables retain independent prognostic significance in the presence of age as well as all other clinical and demographic variables.

All of the following steps are implemented in the CoxHD R package, available at http://www.github.com/mg14/CoxHD. It can be installed using the devtools::install_github("mg14/CoxHD/CoxHD") .

A 3.5.3 Predictor variables

Random effects are modelled as realizations of independently distributed Normal variables with identical mean and variance across 8 variable categories: *point mutations* (p=58), *fusion genes* (p=8), *copy number alterations* (p=18), *clinical variables* (p=11), *demographics* (p=2), *treatment* (p=3), *nuisance* (p=4) and *gene:gene interaction* terms (p=126; defined as non-additive effects on survival between two genes when both are mutated). *Clinical* variables included performance status; bone marrow blast percentage; blood blast percentage; peripheral blood leucocytosis; presence of anemia; presence of thrombocytopenia; presence of splenomegaly; and whether the AML was secondary or therapy-related. *Nuisance* variables included which trial a patient was enrolled in; what year they entered the clinical trial; and whether cytogenetic data was missing or not. *Demographic* variables were age and sex.

As noted above, we included 126 product terms of point mutation (gene) variables. Here, this is defined as an effect in which the presence of mutations in both genes is different to the sum of the main effect (parameter estimate) for each gene. These included all 125 pairs of genes for which there were at least 8 observations (0.5% recurrence). Additionally, we included the NPM1:DNMT3A:FLT3^{ITD} triplet product term, as this constellation (n=93, 6% recurrence) appeared four-fold overrepresented given the marginal frequencies of these three lesions, which if occurred independently would only yield an expected frequency of the triplet of 1.5% (OR=4.1, P = 3×10-30, binomial tail distribution).

Interaction terms were included into the model as a separate variable category and hence the model inferred a separate variance term σ2gene:gene and therefore a different level of regularisation for these product terms. Of note, we also assessed the possibility of including cytogenetic, gene:treatment and cytogenetic:treatment interactions terms, but neither substantially improved the cross-validated model accuracy.

A 3.5.4 Significance tests

We use a Wald-type test for testing the significance of individual coefficients β*I, as outlined in[27]. Briefly, the test uses the test statistic $z_i^2 = \beta^*{}_i{}^2/V_{ii}$. V_{ii} denotes the i-th diagonal entry of the covariance $\mathbf{V}$ of the estimator $\boldsymbol{\beta}^*$, for which we use the expression $\mathbf{V} = \mathbf{H}^{-1}\ \boldsymbol{I}\ \mathbf{H}^{-1}$, where $\mathbf{H}$ denotes the Hessian matrix of the full likelihood L($\boldsymbol{\beta}$ | $\mathbf{X}$, $\boldsymbol{\mu}$, $\boldsymbol{\Sigma}$), and $\boldsymbol{I}$ the Hessian matrix of the unpenalized partial likelihood $P(\boldsymbol{\beta} \mid \mathbf{X})$, as defined in Ref. 29 and discussed in Ref. 27. Under the null-hypothesis z_i^2 is χ^2-distributed with 1 degree of freedom, which is used to calculate all P-values. We have assessed the validity of this assumption using both bootstrapping and parametric simulations. The method of Benjamini-Hochberg[23] was used to control the false discovery rate (threshold 10%) among all 230 tests performed.

We note that the tests within each group are not independent due to the shared means $\boldsymbol{\mu}$. It is therefore possible that a variable β_i violates the null-hypothesis due to the mean μ_i being different from zero.

A 3.5.5 Computing variance components

Given the additivity of the logarithmic hazard (1), the hazard may be decomposed into the contributions from different variable categories

$$\boldsymbol{h} = \mathbf{X}\,\boldsymbol{\beta}^\mathrm{T} = \Sigma_g\, \mathbf{X}_g\, \boldsymbol{\beta}_g^\mathrm{T} =: \Sigma_g\, \boldsymbol{h}_g \tag{4}$$

where $\mathbf{X}_g$ denotes the subset of the data matrix including only the columns corresponding to either of the 8 variable categories indicated by g. Likewise $\boldsymbol{\beta}_g$ is the subvector of the effects of variables in category g, and $\boldsymbol{h}_g$ denotes the aggregated logarithmic hazard resulting from variables in g. The variance of the logarithmic hazard, which quantifies the magnitude of inter-individual differences in risk, can be written as

$$\mathrm{Var}[\boldsymbol{h}] = \mathrm{Var}[\, \Sigma_g\, \boldsymbol{h}_g\,] = \Sigma_g\, \Sigma_{g}'\, \mathrm{Cov}[\boldsymbol{h}_g, \boldsymbol{h}_{g'}] =: \Sigma_g\, V_\mathrm{g}. \tag{4}$$

Therefore the variance (taken across all individuals) can be expressed as the sum over all elements of the covariance matrix, $V_g = \Sigma_{g'} \mathrm{Cov}[\boldsymbol{h}_g, \boldsymbol{h}_{g'}]$. We define V_g as a (generalized) variance component of category g, noting that the values can be negative in cases of strong anti-correlation between categories.

To evaluate the contribution to variance in overall survival estimates by variable category to include: Fusion genes, Copy number changes, Point mutations, Gene-gene interactions, Clinical variables, Demographics and Treatment) we first calculated the sum of: co-efficients x variable (i.e. for continuous variables) for each patient and then calculated the variance of aggregated risk in each category across our dataset (Figure 2e, Figure S14). Nuisance denotes the contribution of potential confounding parameters such year of diagnosis, trial entry etc.

A 3.5.6 Cross validation

We used the following cross-validation steps to assess the reliability of our model.

1. Random cross validation splitting the data into 80% training and 20% validation. This was repeated 100 times.
2. Inter-trial validation. We used 2/3 trials (AMLHD98, AMLHD98B, AMLSG07/04) to train the model and evaluated the performance on the third trial.
3. Validation on TCGA data. We downloaded TCGA mutation and clinical data from a recent publication [30]. We annotated mutations according to

the same criteria as in our data set and extracted the same sets of clinical information, if available. Missing information was imputed based on the covariance of variables in our cohort.

The primary measure for evaluating model performance was the concordance C[31] (Supplementary Results, Figure S14).

A 4. Validation of variant allele fraction estimates

To evaluate the accuracy of variant allele fractions reported in the present study we applied the same library preparation, sequencing protocol and bioinformatics analysis on an additional sample set of 14 AML cases that were available locally and for which we had stored viable cells readily available. This sample cohort served as control for our analysis pipelines and was not included in the study. Variant identification and variant allele correction was conducted for 84 putative variants. Of these we optimized genotyping assays for 39 independent variants (of which some where recurrent in the sample subset) for single cell genotyping analysis.

A 5.Single cell sorting

Single-cell sorting was performed on a BD FACSAria I (SORP) instrument (BD) equipped with an automated cell deposition unit as previously described. Single cells selected on the basis of CD33+ CD34- (myeloid blasts) and CD3+CD34- (T-cell controls) were sorted into lysis buffer, followed by targeted amplification of the region reporting the allele, and allele specific genotyping of the wildtype and variant alleles as previously described[32] for a total of 39 variants including 19 substitutions, 20 indels, of which 15 were represented the tetranucleotide *NPM1* insertion in independent samples). 95% confidence intervals for both the single cell data and next generation sequencing data were derived using a bionomial distribution. Pearson's correlation tests were used to test correlation between the variant allele fraction estimates and sequencing data for the entire dataset, the substitutions only and the indels only (Figure S19).

Supplementary Methods Part B - Analysis, code and figures for Dirichle classification.

B1. Analysis package

https://github.com/nicolaroberts/hdp. This package implements the so-called hierarchical Dirichlet process[24], which also contains the (non-hierarchical) Dirichlet process applied in our study.

B2. Preparation of data

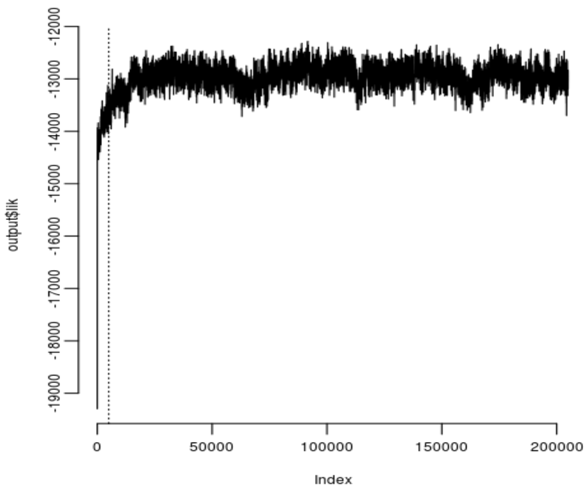
A dataframe (d) was prepared where every row was each patient and every column was each of the molecular variables to include gene mutations, fusions and copy number alterations. Missing genotypes were imputed.

```
genotypesImputed <- Matrix(round(ImputeMissing(d)))

n <- ncol(genotypesImputed)
```

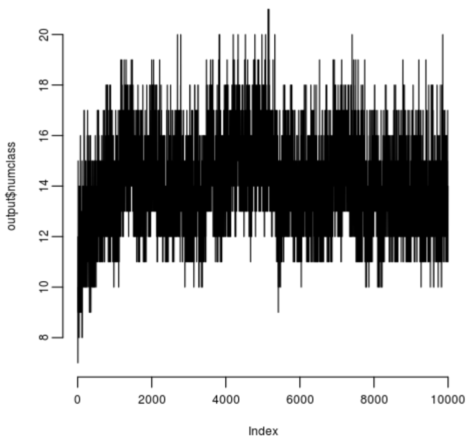
B3. Hierachical Dirichlet Process (HDP) Setup

```
shape <- 1
invscale <- 1
hdp <- hdp_init(ppindex=0, #index of the parent DP for initial DP
      cpindex=1, #index of alphaa and alphab for initial DP
      hh=rep(1/n,n), #params for base distn (uniform Dirichlet)
      alphaa=shape,
      alphab=invscale)

hdp <- hdp_adddp(hdp,
      numdp=nrow(genotypesImputed), # one DP for every sample in that cancer t
ype
      pp=1, # parent DP for group i is the i-th+1 overall DP because of the grandpare
nt at position 1
      cp=1) # index of alphaa and alphab for each DP

# Assign the data from each patient to a child DP
hdp <- hdp_setdata(hdp = hdp, dpindex=1:nrow(genotypesImputed)+1, data=g
enotypesImputed)

# Activate the DPs with specified number of classes (signatures)
hdp <- dp_activate(hdp, 1:(nrow(genotypesImputed)+1), 5)
```

```
burnin <- 5000
postsamples <- 10000
spacebw <- 20
cpsamples <- 10

set.seed(42)
output <- hdp_posterior(hdp, #activated hdp structure
      numburnin=burnin,
      numsample=postsamples,
      numspace=spacebw,
      doconparam=cpsamples)

plot(output$lik, type='l'); abline(v=burnin, lty=3)
```




```
plot(output$numclass, type='l')
```



B4. Classes

```
posteriorMerged <- hdp_extract_signatures(output, prop.explained=0.99, cos.m
erge=0.95)
```

```
#posteriorMeans <- Reduce("+",posteriorMerged$sigs_qq)/length(posteriorMerged
$sigs_qq)
posteriorSamples <- array(unlist(posteriorMerged$sigs_qq), dim=c(dim(poster
iorMerged$sigs_qq[[1]]), length(posteriorMerged$sigs_qq)))
rownames(posteriorSamples) <- colnames(genotypesImputed)
colnames(posteriorSamples) <- 1:ncol(posteriorSamples) -1
posteriorMeans <- rowMeans(posteriorSamples, dim=2)
posteriorQuantiles <- apply(posteriorSamples, 1:2, quantile, c(0.025,.5,0.975))
posteriorMode <- apply(posteriorSamples, 1:2, function(x) {t <- table(x); as.nu
meric(names(t)[which.max(t)])})
kable(posteriorQuantiles[2,,], "html", table.attr = 'id="posteriorMedian"') # Post
erior median
```

	0	1	2	3	4	5	6	7	8	9	10
ASXL1	0	0	56	0	0	0	0	12	0	0	0
ATRX	1	3	0	0	0	0	0	0	0	0	0
BCOR	0	0	20	0	0	0	0	8	0	6	0
BRAF	0	0	0	0	0	0	0	0	0	0	0
CBL	9	16	0	0	0	0	0	0	0	0	0
CBLB	0	0	0	0	0	0	0	0	0	0	0
CDKN2A	0	0	0	2	0	0	0	0	0	0	0
CREBBP	0	0	0	0	0	0	0	0	0	10	0
CUX1	0	0	6	0	0	0	0	0	0	0	0
DNMT3A	0	304	25	0	0	0	0	0	0	27	0
EP300	0	0	0	0	0	0	13	0	0	0	0
ETV6	0	0	0	0	0	0	0	12	0	0	0
EZH2	0	0	32	0	0	0	0	3	7	0	0
FBXW7	1	0	0	0	0	0	6	0	0	0	0
GATA2	0	0	0	0	0	0	33	0	0	0	0
GNAS	0	0	2	0	0	0	0	0	0	0	0
IDH1	0	78	27	0	0	0	0	0	0	0	0
IKZF1	0	0	0	0	0	0	0	0	0	0	0
JAK2	0	0	8	0	0	0	0	0	2	0	0
KDM5A	0	0	0	0	0	0	0	0	0	0	0
KDM6A	0	0	0	0	0	0	0	0	9	0	0

KIT	0	0	0	0	0	18	9	0	36	0	0
KRAS	0	27	0	0	0	14	0	21	0	0	0
MLL	0	0	64	0	0	0	0	0	0	5	0
MLL2	3	7	0	0	0	0	0	0	0	0	0
MLL3	0	0	0	0	0	0	2	0	4	0	0
MLL5	0	2	0	0	0	0	0	0	0	0	0
MPL	0	0	2	0	0	0	0	0	0	0	0
MYC	0	27	0	0	0	0	0	0	0	0	0
NF1	0	17	5	6	0	0	0	0	0	0	0
NPM1	0	436	0	0	0	0	0	0	0	0	0
NRAS	0	93	31	0	0	66	32	27	0	0	0
PHF6	0	0	30	0	0	0	0	12	0	0	0
PRPF40B	0	0	0	0	0	0	0	0	3	0	0
PTEN	3	0	0	0	0	0	0	0	0	0	0
PTPN11	0	86	0	11	0	0	0	21	0	0	0
RAD21	0	44	0	0	0	0	0	0	8	0	0
RB1	1	0	0	0	0	0	0	0	0	0	0
RUNX1	0	0	109	0	0	0	0	15	0	1	0
SF1	0	0	0	0	0	0	0	0	0	0	0
SF3A1	0	0	0	0	0	0	0	0	0	0	0
SF3B1	8	0	0	0	0	0	0	13	0	0	0
SFRS2	0	0	89	0	0	0	0	0	0	0	0
SH2B3	0	0	0	0	0	0	0	1	0	0	0
STAG2	0	0	65	0	0	0	0	0	0	0	0
TET2	0	99	53	0	0	0	0	0	0	0	0
TP53	0	0	0	98	0	0	0	0	0	0	0
U2AF1	0	0	26	0	0	0	0	9	0	0	0
U2AF2	0	0	0	0	0	0	0	0	0	0	0
WT1	0	0	0	0	44	0	28	0	0	0	0
ZRSR2	0	0	12	0	0	0	0	0	0	0	0
CEBPA_mono	0	36	4	0	0	0	14	0	0	0	0
CEBPA_bi	0	0	0	0	0	0	72	0	0	0	0
FLT3_ITD	0	239	23	0	70	0	0	0	0	0	0
FLT3_TKD	0	72	0	0	21	23	0	0	0	0	0
FLT3_other	0	43	16	0	14	0	0	0	0	0	0
IDH2_p172	0	0	0	0	0	0	0	0	0	36	0
IDH2_p140	0	71	35	0	0	0	0	0	0	0	0
inv3_t3_3	0	0	0	0	0	0	0	23	0	0	0
t_9_22	0	0	0	0	0	0	0	0	0	0	0

minus5_5q	0	0	0	107	0	0	0	0	0	0	0
minus7	0	0	0	50	0	0	0	38	0	0	0
minus7q	0	0	0	23	0	10	0	0	0	8	0
abn7other	0	0	0	17	0	0	0	0	0	0	0
plus8_8q	0	0	42	26	29	21	0	0	0	10	16
minus9q	0	0	0	24	0	0	11	0	17	0	0
mono12_12p_abn12p	0	0	4	42	0	0	0	0	0	0	0
plus13	0	0	12	1	0	2	0	0	0	0	0
mono17_17p_abn17p	0	0	0	77	0	0	0	0	0	0	0
minus18_18q	0	0	0	24	0	0	0	0	0	0	0
minus20_20q	0	0	9	24	0	0	0	0	0	0	0
plus21	0	0	0	17	0	7	6	0	0	0	0
plus22	0	0	0	7	0	18	0	0	0	0	0
minusY	0	0	0	0	0	0	0	0	39	0	0
t_15_17	0	0	0	0	65	0	0	0	0	0	0
t_8_21	0	0	0	0	0	0	0	0	63	0	0
inv16_t16_16	0	0	0	0	0	82	0	0	0	0	0
t_6_9	0	0	0	0	14	0	0	0	0	0	0
abn3q_other	0	0	0	43	0	0	0	0	0	0	0
plus11_11q	0	0	4	15	0	0	0	0	0	0	0
mono4_4q_abn4q	0	0	0	20	0	0	0	0	0	0	1
complex	0	0	0	161	0	0	0	0	0	0	0
t_9_11	0	0	0	0	0	0	0	0	0	0	0
t_v_11	0	0	0	0	0	0	0	0	0	0	14

B5. Top genetic contributions to class

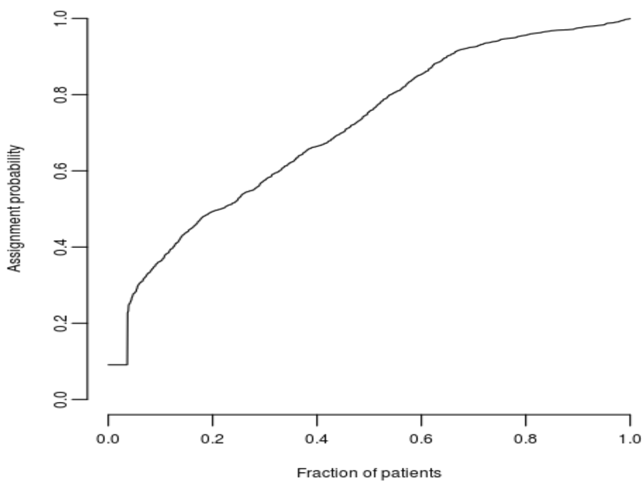
```
genes <- apply(posteriorMeans, 2, function(x) paste(ifelse(x>10,rownames(posteriorMeans),"")[order(x, decreasing = TRUE)[1:5]], collapse=";"))
genes <- gsub(";+$","",genes)
```

```
data.frame(Prob=rowMeans(posteriorProbability), genes)
```

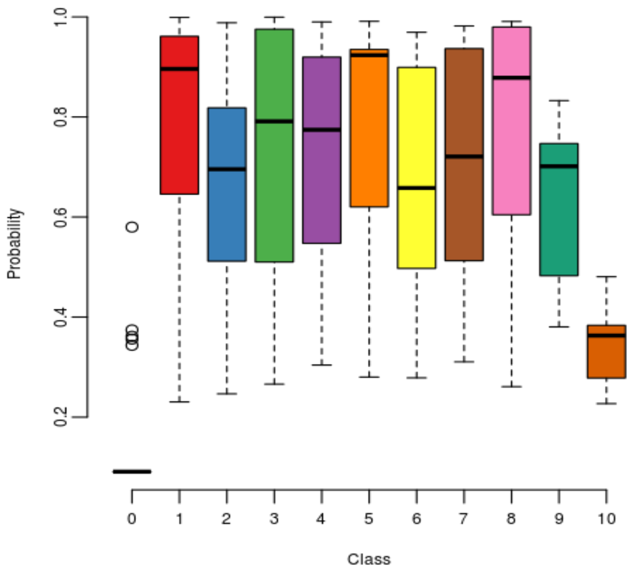
```
##        Prob                                 genes
## 0  0.02328939                                 ;;;;
## 1  0.34539304            NPM1;DNMT3A;FLT3_ITD;TET2;NRAS
## 2  0.16095975              RUNX1;SFRS2;MLL;STAG2;ASXL1
## 3  0.11540795 complex;minus5_5q;TP53;mono17_17p_abn17p;minus7
## 4  0.07735374        FLT3_ITD;t_15_17;WT1;plus8_8q;FLT3_TKD
## 5  0.06724567       inv16_t16_16;NRAS;FLT3_TKD;plus8_8q;KIT
## 6  0.05975650          CEBPA_bi;NRAS;GATA2;WT1;CEBPA_mono
## 7  0.04668765           minus7;NRAS;inv3_t3_3;PTPN11;KRAS
## 8  0.04712021                t_8_21;minusY;KIT;minus9q;
## 9  0.03151327                     IDH2_p172;DNMT3A;;;
## 10 0.02527283                       plus8_8q;t_v_11;;;
```

B6. Patient Class assignment probabilities

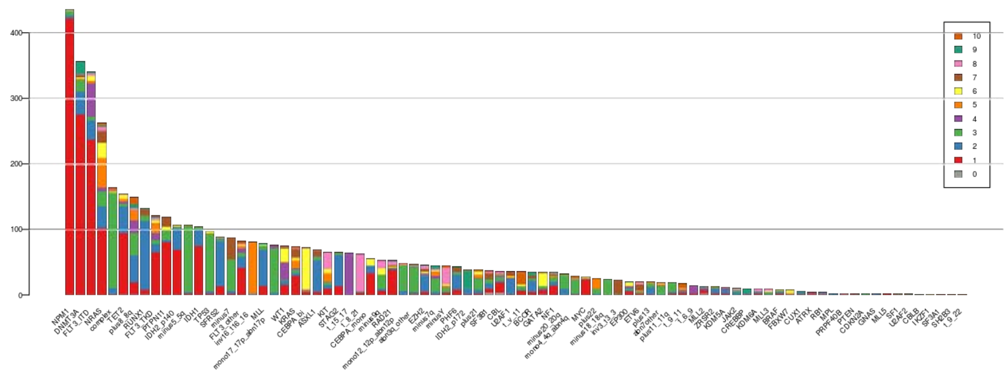
```
dpClass <- factor(apply(posteriorProbability, 2, which.max)-1)
plot(seq(0,1,l=ncol(posteriorProbability)),sort(apply(posteriorProbability,2,max)), type='l', ylim=c(0,1) , xlab="Fraction of patients", ylab="Assignment probability")
```




```
boxplot(apply(posteriorProbability,2,max) ~ dpClass, col=col, ylab="Probability", xlab="Class")
```




```
par(mar=c(6,3,1,1)+.1, cex=.8)
o <- order(colSums(genotypesImputed), decreasing=TRUE)
driverPrevalence <- t(sapply(split(as.data.frame(as.matrix(genotypesImpute
d)), dpClass), colSums)[o,])
b <- barplot(driverPrevalence, col=col, las=2, legend=TRUE, border=NA, args.leg
end=list(border=NA), names.arg=rep("", ncol(genotypesImputed)))
abline(h=seq(100,500,100), col="white")
rotatedLabel(b, labels=colnames(genotypesImputed)[o])
```



Supplementary Results S

S1: Driver mutation landscape of AML

We identified 5,234 driver mutations involving 77 loci in 1,540 patients (Figure 1a, Table S5-6). The landscape showed a typical 'long tail' distribution in which few genes were mutated in more than 5-10% of patients with AML, but there were many genes mutated only infrequently in the disease. Interestingly, seven loci (*FLT3*, *NPM1*, *DNMT3A*, *NRAS*, *CEBPA*, *TET2* and complex cytogenetics) were mutated in >10% of the patients contributing approximately 40% of all driver mutations observed (2237/5234). A further 12 loci were mutated in 5-10% of patients in our cohort. The remaining 58 loci were mutated in <5% of patients but contributed approximately a third of the total driver mutations found in our cohort (1692/5234). Thus, although individually rare, the genes in the long tail in aggregate comprise a large fraction of all driver mutations in AML.

The distribution of mutation types was broadly as expected, with base substitutions and indels accounting for 73% (3,824) of all drivers (Figure S1c). On a gene-by-gene basis, mutation frequencies were in agreement with previous studies[33,34] (Figure S1d). There was a significant increase in the number of driver mutations with age (p<0.001; Figure S16a-c). Patients with normal karyotypes had on average more point mutations in driver genes.

Overall, 62 patients (4%) had no identified driver mutations. Several possible explanations for this might be applicable. It could be that they have driver mutations in leukemia genes discovered since our gene set was put together; or they have variants in genes sequenced here that were actual driver mutations but did not meet our criteria for calling them as such; or their blood sample had low levels of leukemia cells reducing our sensitivity for mutation detection. On this last point, patients with no driver mutations had lower blast and white blood cell counts (WBC) than those with identified drivers and more favorable outcomes (Figure 2, Figure S18).

Large re-sequencing studies offer the opportunity to identify rare but pathogenic driver mutations in genes not previously implicated in AML. We found a cluster of base substitutions in *MYC* (n=28, 1.8%), targeting a specific N-terminus threonine phosphorylation motif (aa59-75) (and16). We have previously shown these to be somatic[35], replicated in one patient in the TCGA study, and the median variant allele fraction in these 28 samples was 36 (range: 8-57), suggesting they are unlikely to be germline polymorphisms. These same hotspot mutations in *MYC* are seen in non-Hodgkin's lymphoma, known to be somatically acquired, and are proposed to abolish phosphorylation, preventing MYC degradation[36]. We performed gene expression profiling in blasts from 18 samples with *MYC* mutations and 28 without (Table S11). Although MYC levels did not differ, there was up-regulation of MYC/MAX target genes in patients with *MYC* mutations (Figure S17), suggesting that these mutations are functional. In terms of class membership 14 (50%) co-occurred with *NPM1*, 1 with bi-allelic CEBPA mutations, 3 with *TP53* and/or aneuploidies, one with an *MLL* rearrangement and one with a t(6;9) translocation. 5 of these cases were not classified using our analysis.

S2: Pairwise patterns of co-mutation and mutual exclusive mutation

Any pair of genes can be mutated together more frequently than expected by chance (co-mutation) or less frequently (mutually exclusive), such associations reflecting underlying biological interactions among driver mutations. We identify many known and many novel gene-gene interactions in the dataset (Table S7; Figure S3). Mutations in the early drivers *DNMT3A* and *ASXL1* are rare in patients with one driver (Figure S4b). *DNMT3A* mutations are predominantly observed in *NPM1*-AML and less frequently in patients with mutations in chromatin genes or genes involved in spliceosome function. *ASXL1* mutations are mutually exclusive to *DNMT3A* and are enriched for in the chromatin/spliceosome group. Mutations in *TET2* were enriched for in *NPM1*-mutated AML and the chromatin/spliceosome group as were mutations in *IDH1* and *IDH2*. These early and predominantly clonal events were absent from AML defined by fusion genes, bi-allelic CEBPA mutations and *TP53* mutation or chromosomal aneuploidies (Figure 1c). Combined with analysis on temporal order (Figure S4, Figure S6), these patterns suggest that the "early" mutations preconfigure distinct pathways of future molecular evolution[37].

Rare drivers, such as *RAD21* and *MYC*, are often enriched within specific subgroups (Figure 1c), suggesting that they are more oncogenic in particular genomic contexts. Rare drivers (<2-5%) may therefore be considerably more frequent in particular molecular subgroups. For example, mutations in *RAD21* are found in 3% of the patients in our cohort overall, but are found in 8% of *NPM1*-mutated AML and 11% of patients with t(8;21). Other driver mutations, such as those in the RAS-signalling pathway, *WT1* and trisomy 8, were rather promiscuous across classes of AML.

We also found surprising differences in the patterns of co-mutation for different hotspots within genes (Figure S3b). *FLT3*$^{\mathrm{ITD}}$ co-occurred with *DNMT3A* and *NPM1,* whereas *FLT3*$^{\mathrm{TKD}}$ occurred with inv(16) and +22. *NPM1* preferentially associated with *NRAS*$^{\mathrm{G12/13}}$ but eschewed *NRAS*$^{\mathrm{Q61}}$. Distinct patterns of co-mutation were also observed for *IDH2*$^{\mathrm{R140}}$ and *IDH2*$^{\mathrm{R172}}$. These findings suggest that the functional consequences of distinct hotspot mutations within genes may not be equivalent. It also highlights that any clinical associations with mutation hotspots/clusters could be modulated by differences in co-mutated genes[38-40]. With ongoing investigations on *FLT3* and *IDH1/2* inhibitors, both genes affected by differential patterns of co-mutation, this is potentially of translational importance.

S3: Clonal and subclonal driver mutations in AML

Leukemia samples are frequently heterogeneous mixtures of cells, which, although derived from a single ancestral blood cell, can show much genetic divergence across different subclones. The fractions of sequencing reads reporting a point mutation estimate the proportion of mutated cells in that sample, and therefore whether the mutation is clonal or subclonal. The subclonal admixtures seen in AML have been well documented in exome and whole genome studies[34,41,42] but the sample sizes have been generally too small to systematically address whether driver mutations in particular genes are more frequently early or late events in the evolution of AML. With 1,540 patients, we have considerably greater statistical power to address this question on a gene-by-gene basis.

Across AML genes, we found striking differences in distribution of variant allele fractions, indicating that the timing of mutation of individual genes can vary (Figure S4). We applied statistical approaches to distinguish subclonal from clonal mutations, and infer the order of mutation acquisition[34,42-44]. From 690 samples with ≥2 gene mutations presenting in distinct clones, we found that driver mutations in AML often follow a preferred order of acquisition (Figure S4, Figure S6, Table S9). Mutations in the epigenetic modifiers *DNMT3A*, *ASXL1* and *TET2* tend to be acquired earliest. These are the same genes that appear to be most frequently mutated in the blood of normal elderly individuals[45-49], suggesting that AML evolution can indeed be a stepwise process with early driver mutations causing clonal expansions but no impairment of blood cell numbers. Whilst the strong association of these mutations with clonal but normal hematopoiesis is well established, that these mutations consistently represent early founder events in AML, each with preferred co-operating lesions, has not been previously described.

Mutations in *IDH1/2* appear to be early events[12], whereas transcription factor, RNA-splicing and chromatin modifiers occurred at intermediate time points. Mutations in receptor tyrosine kinase (RTK)/RAS signaling genes (*NRAS*, *KRAS*, *PTPN11, KIT, FLT3*$^{\mathrm{TKD}}$*, NF1*) were found in 55% of samples and in most molecular subgroups occurred late in AML evolution[50]. In 215 patients, ≥2 RTK/RAS mutations co-occurred in the same sample. In these cases, RAS/RTK mutations had lower allele fractions and presented in distinct alleles (Figure S5) suggesting that RTK/RAS mutations often occur in parallel, late in disease evolution.

With a number of therapeutics targeting early (*DNMT3A*, *IDH1*/2), intermediate *(EZH2)* and late lesions (*RAS, RAF*, *FLT3*, *KIT*) under investigation[51-53], delineating these temporal relationships is central to the design of combination therapeutic interventions tailored to the genetic and clonal landscapes in AML. Additionally, the fraction of cells carrying a mutation warrants consideration whilst evaluating outcomes for targeted therapies. This is particularly important in the context of *FLT3* mutations. Whilst these represent the most frequent abnormalities in AML, they are frequently found in just a subclonal cellular fraction which may account for the variable responses seen in clinical trials. *IDH1/2* mutations on the other hand are predominantly clonal, suggesting that inhibitors of these mutations will target the whole population of leukemic cells. Considering such parameters may prove useful to the identification of patient subsets that benefit from these targeted therapies.

We recognize that this analysis is based on a single snapshot in time, and that these clonal relationships could shift over time or with therapy. The limited breadth of our genomic sequencing means that formal reconstruction of the phylogenetic tree in these samples is not feasible – instead, we are restricted to making inferences about the relative timing of the driver mutations we observe. Nonetheless, the high sequence coverage for the sequencing we performed does afford considerable statistical power for comparing timings of pairs of driver mutations, even if the full phylogenetic tree remains mysterious.

S4: A classification of AML based completely on driver mutations

The biological and clinical heterogeneity of AML emerged with careful microscopy analysis of blood and bone marrow smears, prompting the French-American-British (FAB) classification of the disease. This was an exclusively morphological classification, predating the explosion in information about the causative genetic lesions underpinning AML. As the recurrent chromosomal translocations and fusion genes were characterized, more genetic information was included into classification schemes for AML. The current WHO classification defines categories by non-overlapping genomic features, including t(15;17), t(8;21), inv(16)/t(16;16), t(6;9), inv(3)/t(3;3), *MLL*-rearrangements and, provisionally, *CEBPA* or *NPM1* mutations[54].

Since the current WHO classification was published, systematic exome and whole genome sequencing studies have uncovered considerably greater numbers of leukemia genes. Furthermore, there is a sense from these studies that most of the frequently mutated genes in AML have now been discovered (although there may be many more genes in the 'long tail' of rare events still to be characterized[55]). This is, to an extent, supported by our observation that we can find at least one driver mutation in >98% of AML patients, and most patients have three or more drivers.

Thus, this seems an opportune moment to revisit the possibility of a fully genomic classification of AML. Such a classification has considerable advantages over one based on clinical or histological features – by being based on causative genetic lesions, it is likely to be more robust and reproducible than classification based on epiphenomena such as morphological changes.

The optimal classification scheme would identify mutually exclusive groups of patients with minimal ambiguity. Ideally, the rules for categorizing patients would be straightforward and reflect true biologically (and clinically) different disease subtypes. With so many genes mutated in AML, and the complex patterns of co-mutation and mutual exclusivity described above, developing a classification scheme manually is not straightforward.

We developed a Bayesian statistical approach for the identification of clusters of patients based on patterns of driver mutations (see Supplementary Methods for details of the algorithm and the code for implementation). The key properties of this model are that:

(1) the classification is built only on genomic data, exploiting patterns of mutually exclusivity and co-operation among genes;

(2) the goal is to find the optimal compartmentalization of patients into mutually exclusive clusters;

(3) the clusters are configured such that there is minimal ambiguity in classification of individual patients;

(4) the number of clusters is not fixed, allowing the number of meaningful groups to be discovered; and

(5) there is an in-built penalty for creating too many small clusters.

On examining the contributing genes in the clusters predicted by the statistical analysis, 11 easily defined subgroups capture the high-level genomic structure of AML (Table 1; Figure 1c; Figure S3; Figure S7). Due to the small numbers of patients with t(6;9) translocations (15 patients; 1%), the statistical model had lumped them together with the t(15;17) translocations (based on similar high rates of *FLT3* driver mutations with both fusion genes). Based on prior clinical and genomic knowledge, we split this subgroup into one for t(15;17) translocations and one for t(6;9) translocations.

Reassuringly, this *ab initio* clustering recaptures much of the genomic structure that is already present in the current WHO classification. In particular, the balanced chromosomal rearrangements of inv(16), t(15;17), t(8;21), t(11q23;x), inv(3) and t(6;9) each represent small, individual subgroups (≤5% each). Our clustering approach also confirms that *NPM1*-mutated and *CEPBA*$^{\text{bi-allelic}}$ patients represent two distinct subtypes – these entities are currently recorded as 'provisional' in the WHO classification.

The major new entities that emerge from our analysis are (1) a subgroup comprising driver mutations in genes involved in chromatin modification or RNA-splicing, which we call the 'chromatin-spliceosome' group; (2) a subgroup comprising patients with *TP53* mutations and/or copy number aneuploidies; and (3) a small subgroup representing patients with *IDH2*$^{\text{R172}}$ mutations and no other class-defining lesions. In the next few sections, we review these groups in turn, focusing on the clinical and biological aspects of patients in each group and contrasting this classification with other proposals for new AML subgroups.

We find that mutations in DNA hydroxymethylation genes (*DNMT3A, IDH* mutations and *TET2* are frequent in the NPM1 mutated AML (73%) and less so in the chromatin/spliceosome group. Importantly mutations in these genes are mutually exclusive to AML defined by fusion genes and TP53/aneuploidy AML. On the contrary mutations in signaling activating genes are more promiscuous, with mutations present across classes. These are often defined by preferential patterns of co-mutation at a gene level and importantly at a hotspot level (Figure S3).

S5: The TP53/aneuploidy subgroup

The *ab initio* model for classifying the genomic landscape of AML identifies a subgroup comprising patients with *TP53* mutations and/or one or more cytogenetically visible chromosomal aneuploidies (copy number alterations). This subgroup emerges because of the strong correlations across chromosomal gains and losses; the strong association between *TP53* mutations and chromosomal aneuploidies (as described previously[56]); and the mutual exclusivity of these chromosomal copy number changes with many other class-defining lesions. Patients in this subgroup were older, with lower blasts and dismal response to induction therapy (Figure 2c, S8-9).

Previous studies have argued for subgroups of AML such as 'monosomal karyotype'[57], defined by the loss of one or more whole chromosome, or 'complex karyotype' AML, defined by various groups as either ≥3 or ≥4 cytogenetically defined abnormalities[58]. The subgroup we propose is more inclusive than these previous suggestions because all patients with *TP53* point mutations are captured, even in the absence of complex aneuploidies, and because the aneuploidy definition extends to arm level losses, not just whole chromosome losses.

The major justification for proposing a more inclusive subgroup here is that all chromosomal aneuploidies show strong correlations with one another, irrespective of whether they are gains or losses of whole chromosomes, chromosome arms or large interstitial chromosomal regions. There is little biological evidence in this dataset for monosomies being biologically or genomically distinct from other large-scale chromosomal copy number alterations. Furthermore, the aneuploidies are clearly intimately linked with *TP53* mutations. Of 199 samples in this subgroup, 21 (10%) had *TP53* loss (monosomy-17/mutations) alone, 51 (25%) had complex karyotype alone, whilst 89 (42%) had both. The remaining 38 (19%) patients classified in this subgroup had one or two chromosomal aneuploidies without meeting criteria for a 'complex' karyotype. 24/38 if these cases had monosomy 7, which in our cohort retains independent significance for unfavorable outcomes (HR = 1.3; $CI_{95\%}$ 1.1-1.5; q=0.03; Table 2). The generally poor outcomes of patients with isolated aneuploidies (Figure S18a-b) and the lack of other class-defining lesions suggest that they too represent part of the same spectrum as patients with *TP53* mutations and/or complex karyotype.

Nonetheless, with a more inclusive definition for patients classified into this subgroup, we do find some heterogeneity in clinical outcomes within the group. In multivariate analysis, *TP53* and complex karyotype contributed independently and additively to poor prognosis (Figure 2c), suggesting that they cannot proxy for one another in predicting outcome and warranting independent consideration as prognostic variables[56]. Furthermore, survival deteriorated as the number of copy number alterations increased, independent of *TP53* status (Figure S18b). Last, we observe that approximately 50% of patients with *TP53* mutations could also be defined as monosomal karyotype pateients as per Breem definition (n=95). Cox proportional hazards analysis considering these two parameters show that monosomal karyotype does not reach prognostic significance (*P*=0.74) when *TP53* mutations are included in the model.

S6: The chromatin/spliceosome subgroup

Overall, 18% (n=275) patients were classified in the chromatin/spliceosome class. In this group, mutations in chromatin modifiers (*ASXL1, EZH2, STAG2, MLL*^{PTD}) form a molecular backbone[59] and co-occur with mutations in spliceosome factors (34%), *RUNX1* (23%) or both (16%). Patients in this group were older, with lower WBC/blasts, inferior response rates to induction chemotherapy, poor long-term clinical outlook (Figure S9) and higher rates of antecedent myeloid disorders. Intriguingly, this molecular cluster is frequently observed in high-risk MDS[15,44], in secondary AML[59] and a high-risk subset of myeloproliferative neoplasms[60]. These observations extend recent reports of shared clinical and molecular features among patients with splicing factor mutations across high-risk MDS and AML[61].

To investigate whether this subgroup represents a class that transcends conventional diagnostic boundaries[61], we re-evaluated bone marrow morphology for 1064 patients in the cohort. Of the 139 AML patients with myelodysplasia-related features, 55 (40%) were classified within the chromatin/spliceosome group and 24 (12%) in the *TP53*/complex karyotype group. Nonetheless the majority 80% of patients in this group did not have an antecedent myeloid disorder nor did they have any evidence of myelodysplasia related morphology.

Of the 55 patients in the chromatin/spliceosome group that had myelodysplastic marrow morphology, 32 (58%) had splicing factor mutations, 12 had *RUNX1* mutations (in the absence of splicing factor mutations) and 8 were co-mutated. The other 11 patients had mutations in other chromatin regulators.

Currently, 85% of chromatin/spliceosome patients are classified as intermediate risk (49% inter-1, 36% inter-2)[62]. We find, however, that patients in this class typically have an adverse prognosis. Within this subgroup, in multivariate analysis, *ASXL1* and *SRSF2* are associated with the most unfavorable outcomes, with evidence of additive risk effects (Figure 2d; Figure S13; Table 2).

The heterogeneity within this group and striking inter-correlation amongst the genetic variables (Figure S3) makes dissection of true clinical associations for each gene challenging (Figure S13). This is of particular relevance to the upcoming WHO revision, which considers *RUNX1*-AML as a distinct category (Gaidzik *et al*, in preparation). In our dataset, *RUNX1* does not maintain prognostic significance when the co-occurring mutations are considered, yet mutations in *RUNX1* are clearly associated with the cardinal diagnostic features in this group (Figure S9). Whilst partially overlapping, mutations in *ASXL1*, splicing factor genes (*SRSF2, SF3B1, ZRSR2, U2AF1*) and *RUNX1* have a very similar clinical presentation (Figure S18c) and show comparable responses to induction chemotherapy and long-term clinical outcomes.

S7: The NPM1-mutated subgroup

Current WHO criteria define *NPM1*-AML as a provisional entity. 73% (319/436) of patients with *NPM1* have mutations in DNA methylation/hydroxymethylation genes (*DNMT3A*, *IDH1, IDH2*^{R140}, *TET2*). In the majority of cases, *NPM1* occurred later than these mutations (Figure S4, Figure S6). Using single-cell analysis, we confirmed that VAFs for *NPM1* in bulk sequencing correctly estimated the proportion of *NPM1*-mutated cells (Figure S19; Table S12). Thus, of 228 patients with *DNMT3A* and *NPM1* mutations, *NPM1* mutations were subclonal to *DNMT3A* in 177, in the same clone in 49, and earlier than *DNMT3A* in just 2 (Figure S6). These data are consistent with studies of relapsing *NPM1*-AML, where some recurrences are *NPM1* wild-type[63], suggesting that the relapsing clone has branched from an earlier stage of disease evolution.

It may seem counter-intuitive to use a late event as a class-defining driver mutation, especially since many of the class-defining fusion genes observed in AML are believed to be initiating lesions. However, it is notable that the early mutations that co-operate with *NPM1*, such as the DNA methylation/hydroxymethylation genes *DNMT3A*, *TET2* and *IDH1/2*, do not specify a phenotype. In fact, these genes are often mutated in myeloproliferative neoplasms and myelodysplastic syndromes, as well as healthy elderly individuals with normal hematopoiesis[44-46,49,64]. In contrast, *NPM1* mutations are considerably more specific to AML. The model that emerges therefore is one in which a general hematopoietic stem cell advantage is conferred by driver mutations in the DNA methylation/hydroxymethylation genes, but the leukemic phenotype is specified by the subsequent acquisition of *NPM1* mutations.

NPM1-mutated AML is considered "favorable", while concomitant *FLT3*$^{\mathrm{ITD}}$ is classified as intermediate risk[62]. We find that *NPM1*:*DNMT3A*:*FLT3*$^{\mathrm{ITD}}$ is the most frequent (6%) and significantly enriched ($p<0.0001$) three-gene co-occurrence in AML. Whilst *NPM1*:*DNMT3A* retain favorable outcomes, *NPM1*:*DNMT3A*:*FLT3*$^{\mathrm{ITD}}$ genotype picks out an especially poor prognosis disease, significantly worse than would be predicted from additive effects conferred by these genes ($p=0.009$ for three-way interaction; Figure 3a).

We explored these conditional effects across common genotypes in this subgroup. We found that the *NPM1:DNMT3A:NRAS*$^{\mathrm{G12/13}}$ combination carries an unexpectedly benign prognosis ($p=0.04$ for three-way interaction; Figure 3b

S14). Previous reports have suggested that *NPM1:NRAS* is a favorable association[65], something we find to be specific to *DNMT3A* and NRAS$^{G12/13}$ mutations. Notably the different effects between the *NPM1*:*DNMT3A*:*FLT3*^{ITD} and *NPM1:DNMT3A:NRAS*$^{G12/13}$ genotypes is further underlined by the mutual exclusivity between these two triplet genotypes. Thus, in a multivariate model the effect of this is attributed to the *NPM1*:*DNMT3A*:*FLT3*^{ITD} genotype. *NPM1:RAD21* is a significantly co-mutated gene pair with an especially favorable subset, whilst overlap of *NPM1* mutations with the chromatin/spliceosome group does not retain favorable outlook (Figure S15).

S8: Validation of class assignment

We tested the reproducibility of our classification parameters on the TCGA AML[2] cohort (n=200). The average age at diagnosis in the TCGA AML cohort is 55 years, with 43% of patients over the age of 60 years, and the cohort is therefore an excellent resource to evaluate whether the classification of AML as presented in our study is reflective of all patients. For the 200 patients in the TCGA cohort we find: 17 t(15;17) (8%), 7 t(8;21) (3.5%), 9 inv(16) (4.5%), 52 *NPM1*-mutated AML (52%), 5 *CEBPA* bi-allelic AML(2.5%), 29 chromatin/spliceosome (14.5%), 32 no class (16%), 14 with no drivers detected (7%) and 2 Ambiguous classification (1%). These distributions are equivalent to the ones reported in the study (Figure 1). In our dataset we find that the chromatin/spliceosome group accounts for 18% of patients in our study and correlates with older age and lower blast count. In TCGA, which has more older patients than our cohort, the chromatin/spliceosome class represents 14.5% of patients, a frequency not statistically different to that in our cohort (p=0.2).

Importantly in our study, we fail to identify at least one driver mutation in 4% of the patients. Whilst our panel did not include at least 6 of the recurrently mutated genes identified by TCGA (*FAM5C, HNRPK, SETBP1, SMC1A, SMC3, SMG1*), collectively these mutations account for less than 5% of the total driver mutations in TCGA, and when they occur, with the exception of one case, they co-occur with a gene captured in our panel. The proportion of patients in TCGA without driver events (as annotated using the same stringent criteria applied to our cohort) is 7%. Thus, even exome sequencing is not able to detect driver mutations in all AML patients. The 'missing' driver mutations could include:

- Rare variants in the known leukemia genes that we did not have sufficient evidence to call as drivers;
- Variants missed by our sequencing study due to inaccurate bioinformatic mutation calling or inadequate sequencing depth;
- Driver mutations in leukemia genes yet to be discovered;
- Mutations in non-coding regions of the genome;
- Focal copy number alterations or other structural variants.

The independent validation of the classification parameters on the TCGA cohort suggest that the classification proposed in the present study is robust, reproducible and applicable to less "selected" patient cohorts than the ones reported in our study.

S9: Survival models and variance decomposition

Overall survival is modelled using Cox proportional hazards model with the effect of each parameter treated as a random effect. Random effects are considered under 8 categories: *point mutations* (p=58), *fusion genes* (p=8), *copy number alterations* (p=18), *gene:gene interaction* terms (p=126), *clinical* variables (p=11), *demographics* (p=2), *treatment* (p=3) and *nuisance* (p=4) variables. *Clinical* variables included performance status; bone marrow blast percentage; blood blast percentage; peripheral blood leucocytosis; presence of anemia; presence of thrombocytopenia; presence of splenomegaly; and whether the AML was secondary or therapy-related. *Nuisance* variables included which trial a patient was enrolled in; what year they entered the clinical trial; and whether cytogenetic data was missing or not. *Demographic* variables were age and sex.

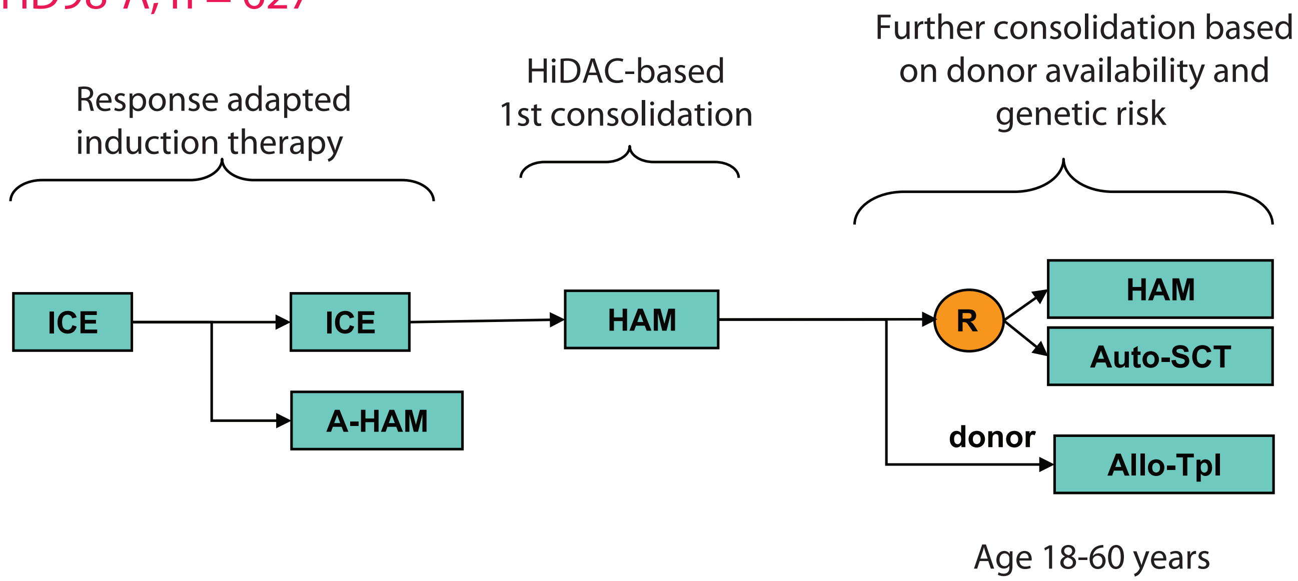
To assess the reliability of our model and predictive accuracy of the parameters reported we performed a series of internal and external validations including – internal cross validation (repeated 100 times), an inter-trial validation where we trained the model in 2 of the 3 trials (AMLHD98A, AMLHD98B, AMLSG07/04) and evaluated the performance on the third trial as well as validation on TCGA AML data[30]. We found that the concordance in our model was outperforming the current diagnostic and risk stratification criteria as dictated by the ELN guidelines (Figure S14a). Importantly, with incorporation of all diagnostic and clinical parameters such as age (as a continuous variable), all reported significant associations retain significance in the presence of age, which is also selected as an adverse prognostic indicator. Additionally, 2 of the three trials included patients younger than 60 (AMLHD98A, AMLHD98B) whereas the third trial (AMLSG07/04) included patients older than 60 (Figure S2). Thus, our inter-trial cross validation demonstrates that many of the apparent differences in outcome between trials can be explained by systematic differences in demographic and clinical factors that can be regressed out, if modeled properly. Last our model validates on the TCGA cohort, which represents an independent and unselected older AML cohort than the one represented in our study, demonstrating that our comprehensive model generalizes to other cohorts, as it is capable of accounting for systematic demographic and clinical differences (Figure S14a). In Figure S20, we show the effect of age for patients in class as well as patients not in class for each of the classes presented (with the exception of the *IDH2* R172, owing to small numbers). These curves highlight that both age and class confer independent and additive effects to clinical outcome (Figure S20).

We further tested our variance decomposition analysis on the TCGA AML cohort. We found that the individual variance components were broadly comparable and overlapping (considering 95% confidence intervals) with the ones reported in our study. This is mainly a reflection of the equivalent genomic architecture between the two datasets (Figure S14b). With only 200 individual cases, the TCGA cohort did not have sufficient representation of the fusion genes nor enough data to evaluate gene-gene interactions. The larger demographic and somewhat smaller treatment component in the TCGA dataset may both be a consequence of the broader and overall higher age range in the TCGA cohort.

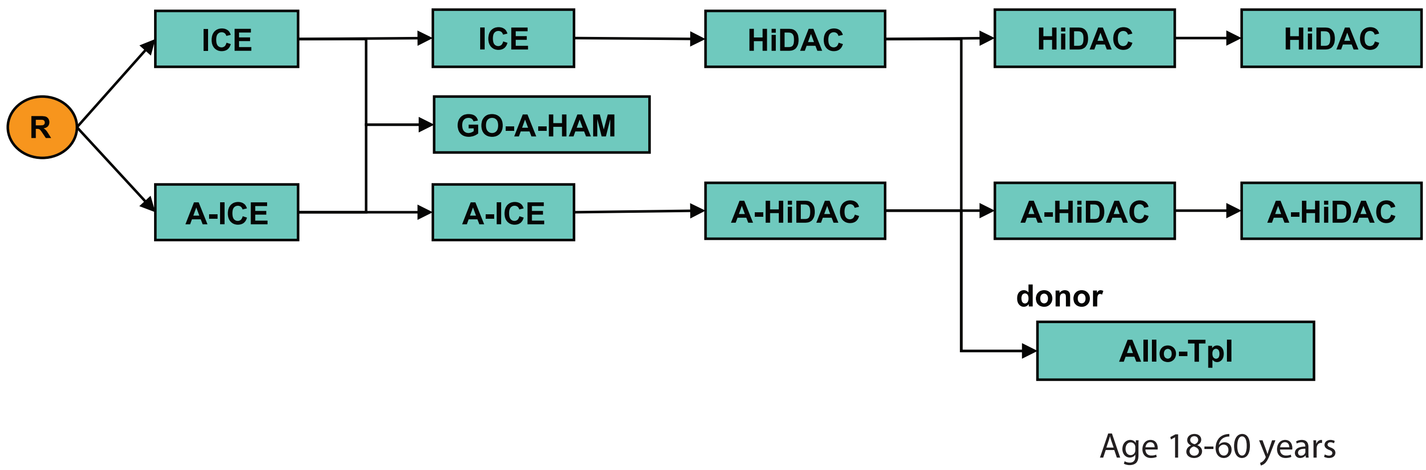
Supplementary Figures List of Contents

Figure S1: Pictogram representing each one of the three trials used in the present study. (A) AML HD98-A (B) AML 07-04 (C) HD98-B.

AML HD98-A, n = 627



AMLSG 07-04, n = 740



AML HD98-B, n = 173

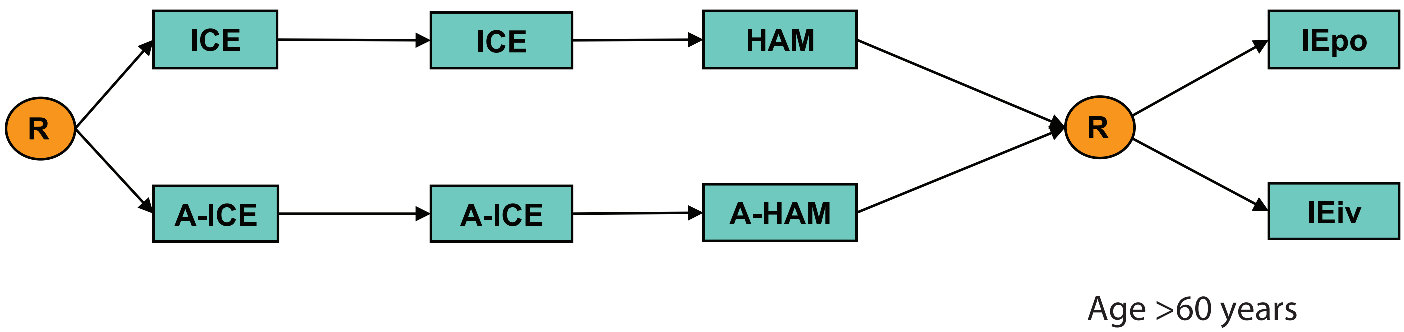


Figure S2: (A) Density plots indicating age range of samples within each clinical trial cohort. **(B)** Pie charts representing distribution of samples in cohort by: clinical trial, AML type, genetic risk according to the European LeukemiaNet recommendations and cytogenetic risk. **(C)** Concordance of mutation frequencies, using absolute mutation counts in cohort between TCGA (y –axis) and present study (x – axis). The majority of gene mutations for which driver mutations were annotated for, fall upon the diagonal axis indicating a high degree of concordance. Deviating from the diagonal are mutations is *SRSF2* and *NRAS* indicated in red. This deviation is explained by the fact that in our study we achieve greater depth when compared to whole genome and whole xome data in the TCGA and we thus have greater power to identify subclonal mutations in *NRAS* as well as increased sensitivity to detect *SRSF2* mutations – which owing to the high-GC content associate with poor coverage in exome and whole genome sequencing data. **(D)** Stacked barplot representing total number of oncogenic events in dataset separated by fusion genes (FG), *MLL* partial tandem duplication (PTD), chromosomal aneuploidies (CA), small deletions (D), small insertions (I), complex indels (ID), *FLT3* internal tandem duplication (ITD).
(E) Barplot indicating number of driver events by patient for all patients in our cohort. Each bar represents the number of patients with no identified driver events, number of patients with 1 event, 2 events etc.

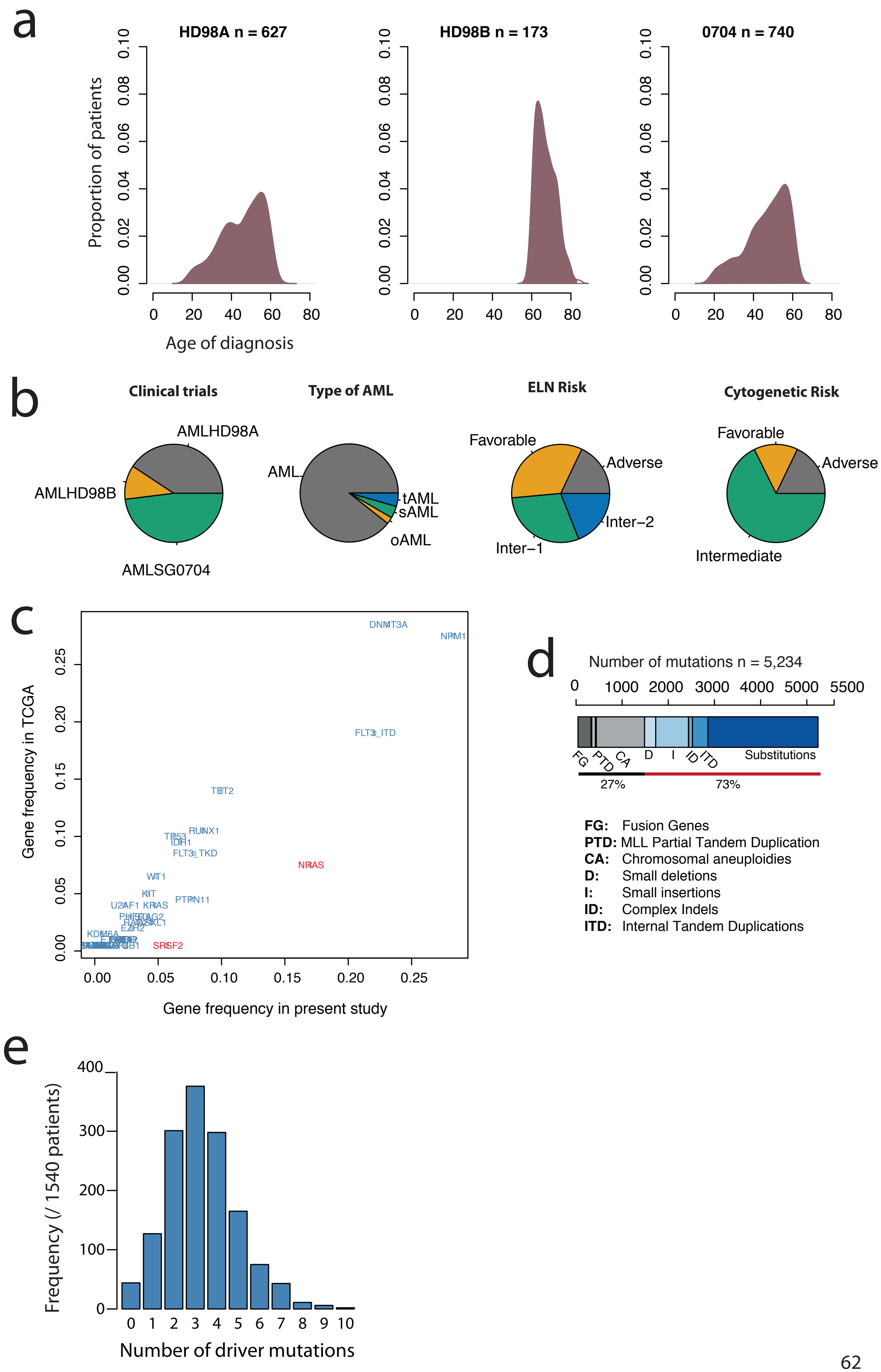
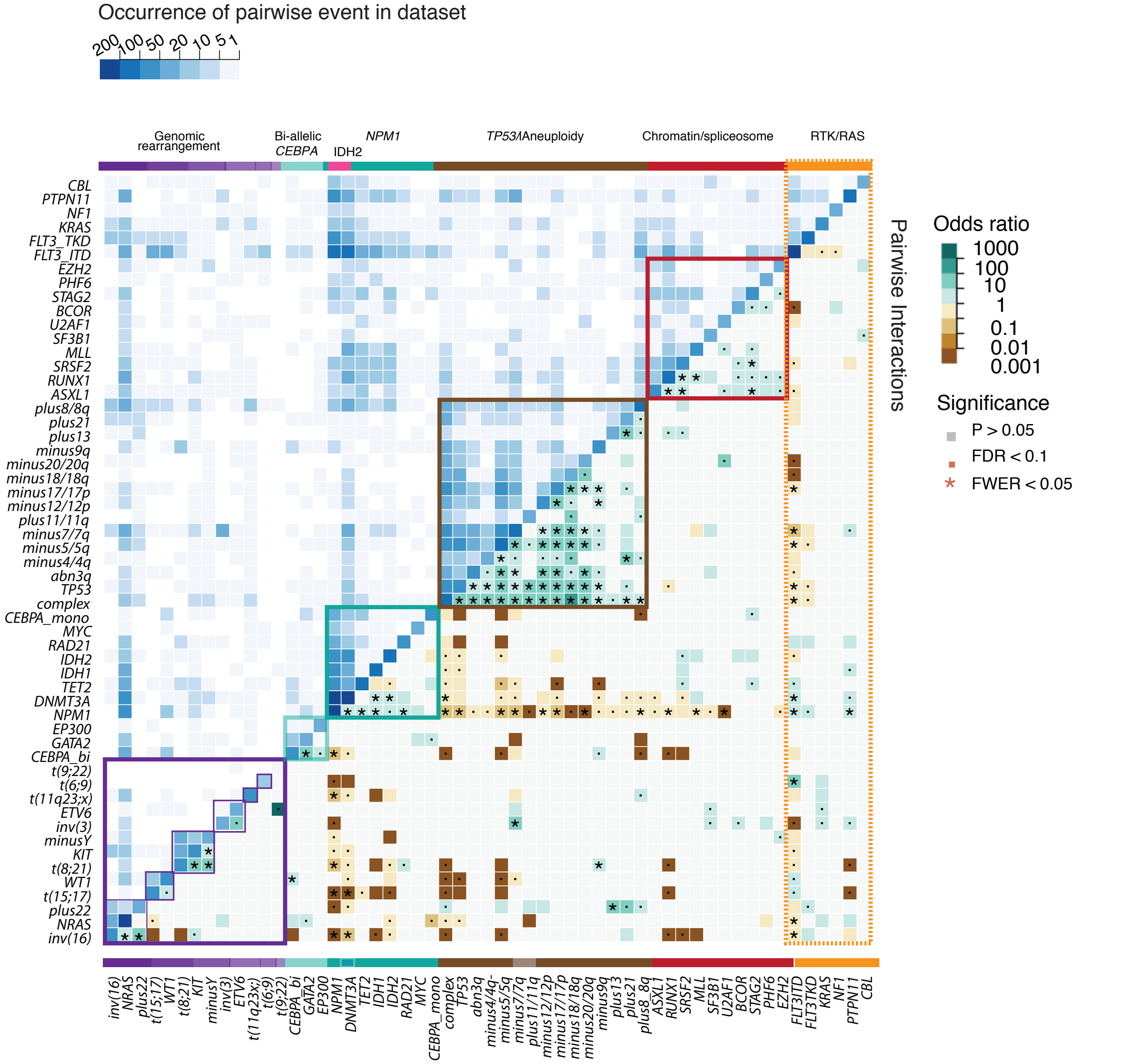

a
HD98A n = 627
HD98B n = 173
0704 n = 740
Proportion of patients
Age of diagnosis
b
Clinical trials
AMLHD98A
AMLHD98B
AMLSG0704
Type of AML
AML
tAML
sAML
oAML
ELN Risk
Favorable
Adverse
Inter−2
Inter−1
Cytogenetic Risk
Favorable
Adverse
Intermediate
c
Gene frequency in TCGA
Gene frequency in present study
DNMT3A
NPM1
FLT3_ITD
TET2
RUNX1
TP53
IDH1
FLT3_TKD
NRAS
WT1
KIT
PTPN11
U2AF1 KRAS
STAG2
ASXL1
EZH2
KDM6A
SRSF2
d
Number of mutations n = 5,234
Substitutions
27%
73%
FG: Fusion Genes
PTD: MLL Partial Tandem Duplication
CA: Chromosomal aneuploidies
D: Small deletions
I: Small insertions
ID: Complex Indels
ITD: Internal Tandem Duplications
e
Frequency (/ 1540 patients)
Number of driver mutations

Figure S3: Genetic interactions across 55 loci in our dataset mutated in > 15 patients. (A) Lower triangle shows pairwise associations among genes mutations, cytogenetic alterations and CAs ordered by molecular class. The color of each tile reflects the odds ratio for each pair whereby brown indicates mutual exclusivity (observed, relative to the expected co-mutation based on each alterations gene frequency) and green indicates pairs that are co-mutated (found together more frequently than would be expected by each genes individual frequency). Colored tiles indicate significant relationships, tile annotation by star (*) indicates family wise error rate (FWER<0.05), or box (n) indicates false discovery rate (FDR < 0.1). Tiles of the upper triangle indicate the absolute number of occurrences of each molecular pair, shown in blue gradient and divided in intervals of 0-5, 5-10, 10-20, 20-50, 50-100, 100-200. (B) Correlation heatmap – for pairwise interactions among gene hotspots (or mutation types) for $FLT3_{ITD}$ and $FLT3_{TKD}$, $CEBPA_{monoallelic}$ and $CEBPA_{bi\text{-}allelic}$, $NRAS_{G12/13}$ and $NRAS_{G61}$, $KRAS_{G12/13}$ and $KRAS_{G61}$, $IDH2_{R140}$, $IDH2_{R172}$, $DNMT3A_{R882}$, mutations excluding codon 882, *TET2* missense against nonsense. Red boxes indicate significant differential pairwise relationships amongst hotspots within the same gene.

a


Occurrence of pairwise event in dataset
200 100 50 20 10 5 1
Genomic rearrangement
Bi-allelic CEBPA
IDH2
NPM1
TP53/Aneuploidy
Chromatin/spliceosome
RTK/RAS
Pairwise Interactions
Odds ratio
1000
100
10
1
0.1
0.01
0.001
Significance
P > 0.05
FDR < 0.1
FWER < 0.05

b

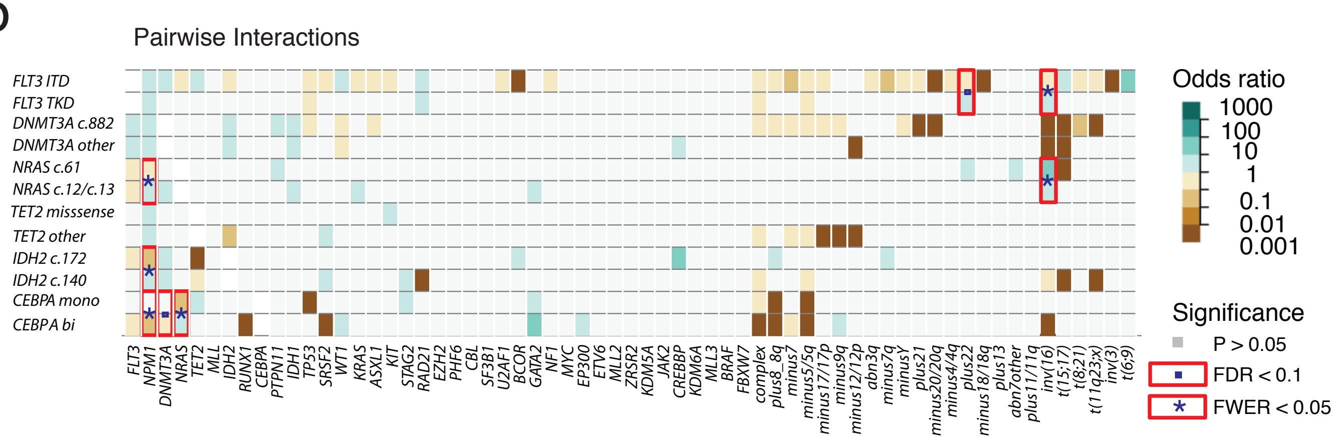

Pairwise Interactions
FLT3 ITD
FLT3 TKD
DNMT3A c.882
DNMT3A other
NRAS c.61
NRAS c.12/c.13
TET2 misssense
TET2 other
IDH2 c.172
IDH2 c.140
CEBPA mono
CEBPA bi
Odds ratio
1000
100
10
1
0.1
0.01
0.001
Significance
P > 0.05
FDR < 0.1
FWER < 0.05

Figure S4: Relative order of mutation acquisition based on pairwise precedences amongst genes shown in Bradley-Terry plot. Only samples with 2 or more gene mutations and statistically significant clonal heterogeneity where included in the model. X axis reflects relative order of acquisition. Squares indicate the point estimate and black lines indicate 95% confidence intervals of gene ordering in time. Genes are positioned along the y-axis on the basis of their relative order (Gene A dominant to Gene B, Vs Gene A subclonal to Gene B) when compared to each of the other genes in the dataset. For example, in most pairwise precedences, *DNMT3A* occurred prior to the genes in the panel and is therefore positioned on the top of the stacked plot. *RTK*/RAS mutations were most frequently acquired subsequent to other gene mutations and are therefore positioned on the lower part of the stacked chart. *NPM1*, though the median VAF is greater than the median VAF of *NRAS*, when they cooccurred, *NRAS* mutations were clonal to the *NPM1* mutations, which are consequently positioned lower to *NRAS* mutations. (B) For three of the early driver genes, found to be frequently mutated as the sole driver lesions in older adults with clonal but non-malignant hematopoiesis (*DNMT3A*, *ASXL1* and *TET2*), we draw barplots representing the number of samples (y – axis) that fall within patients grouped by the number of oncogenic driver events (x-axis). Within each barplot we show in red the proportion of patients that have mutations in *DNMT3A*, *ASXL1* or *TET2* respectively and show that thee mutations rarely present as the only mutated drivers in AML.

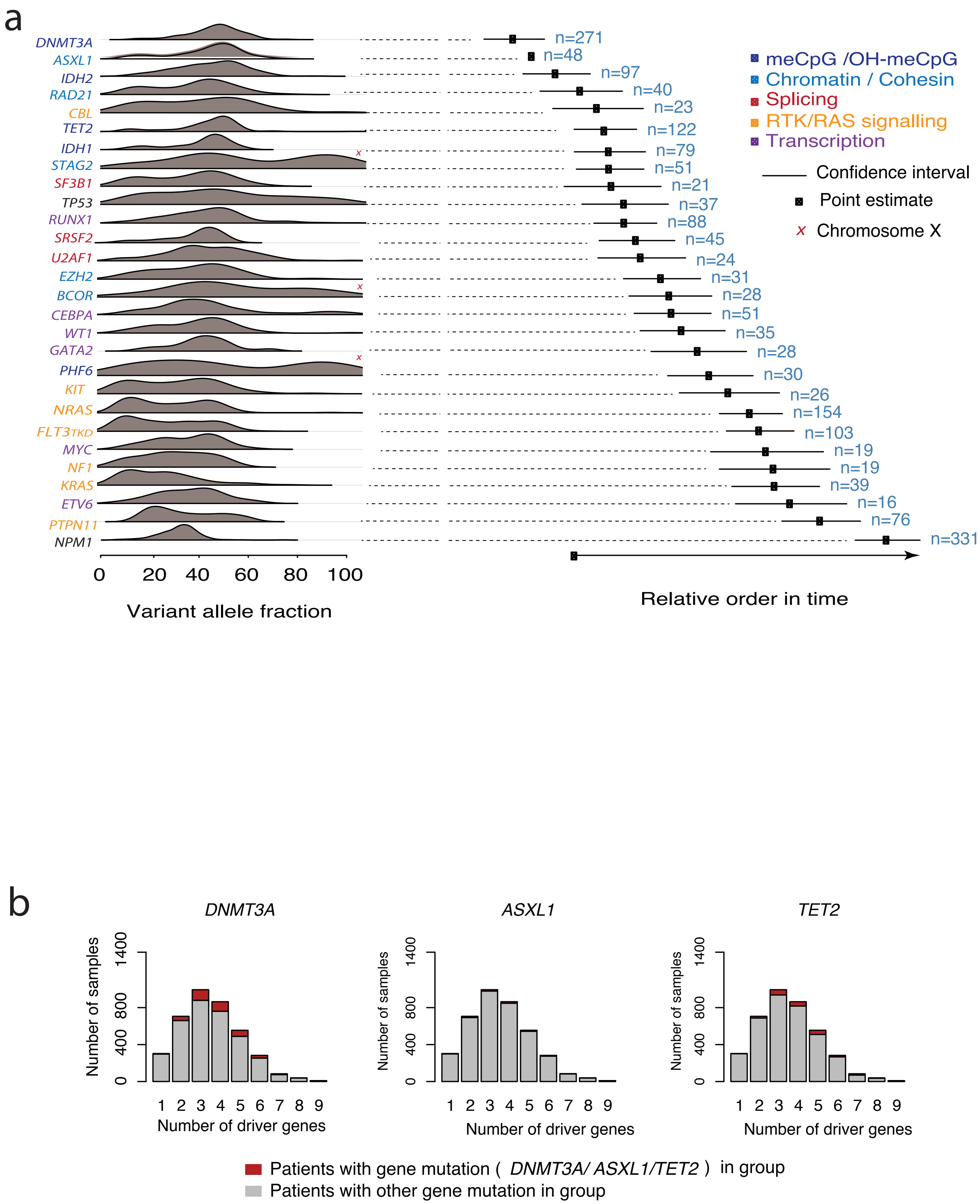
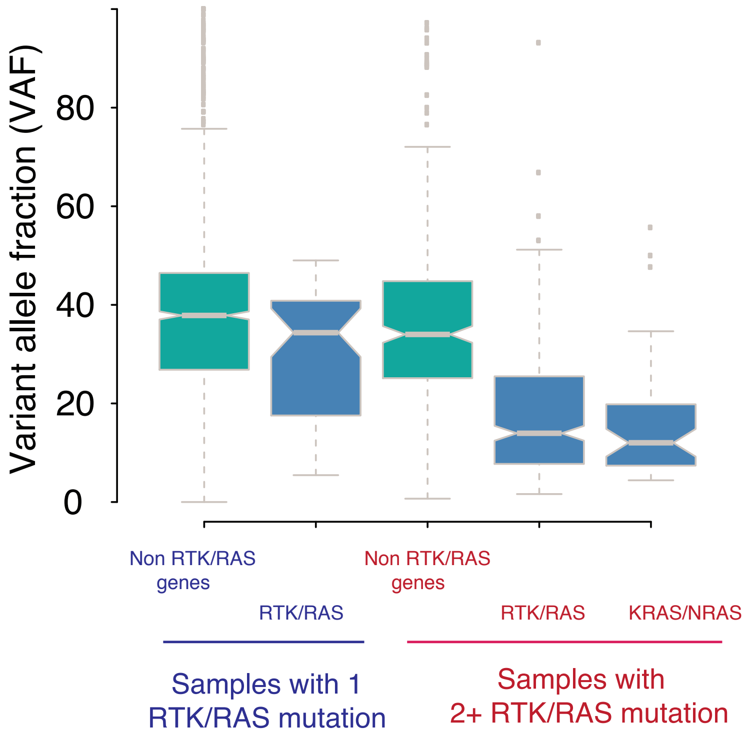

a
DNMT3A
ASXL1
IDH2
RAD21
CBL
TET2
IDH1
STAG2
SF3B1
TP53
RUNX1
SRSF2
U2AF1
EZH2
BCOR
CEBPA
WT1
GATA2
PHF6
KIT
NRAS
FLT3TKD
MYC
NF1
KRAS
ETV6
PTPN11
NPM1
0 20 40 60 80 100
Variant allele fraction
n=271
n=48
n=97
n=40
n=23
n=122
n=79
n=51
n=21
n=37
n=88
n=45
n=24
n=31
n=28
n=51
n=35
n=28
n=30
n=26
n=154
n=103
n=19
n=19
n=39
n=16
n=76
n=331
Relative order in time
meCpG /OH-meCpG
Chromatin / Cohesin
Splicing
RTK/RAS signalling
Transcription
Confidence interval
Point estimate
Chromosome X
b
DNMT3A
ASXL1
TET2
Number of samples
0 400 800 1400
1 2 3 4 5 6 7 8 9
Number of driver genes
Patients with gene mutation (DNMT3A/ ASXL1/TET2) in group
Patients with other gene mutation in group

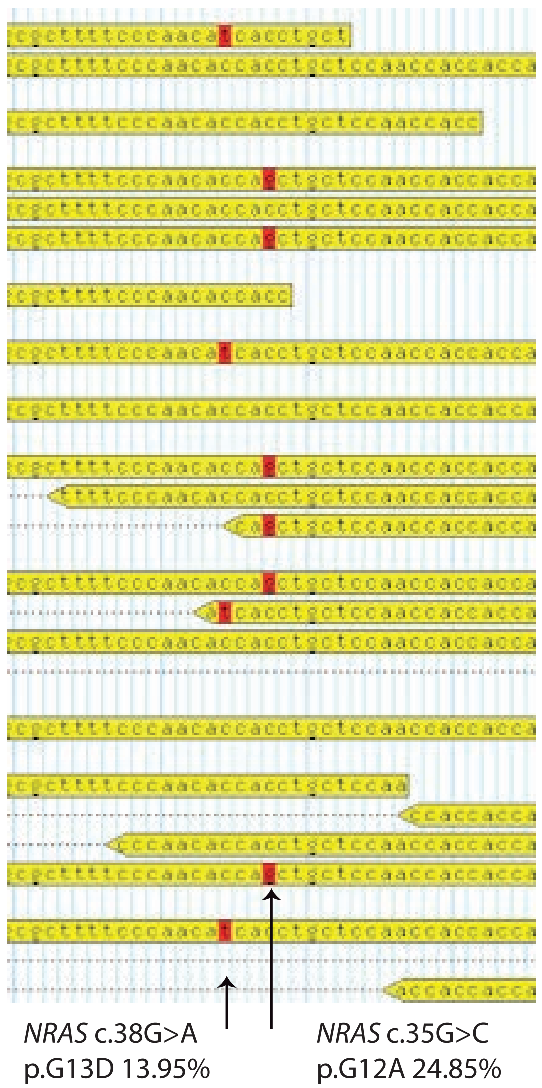
Figure S5: (A) Variant allele fraction boxplots comparing the VAF ranges in all other driver genes and RTK/*RAS* genes in samples with one RTK/*RAS* mutation as well as the VAF ranges in all other driver genes and in RTK/RAS genes in samples with at least 2 RTK/*RAS* mutations. Though VAF ranges for non-RTK/RAS genes appear constant, the proportion of read representation of RTK/RAS mutations in cases with 1 or >1 RTK/RAS mutations is markedly different. (B) Paired end read data in a sample with two *NRAS* mutations (p.G13D, and p.G12A) shown to be individually acquired in distinct alleles.

a



Variant allele fraction (VAF)
0
20
40
60
80
Non RTK/RAS genes
RTK/RAS
Non RTK/RAS genes
RTK/RAS
KRAS/NRAS
Samples with 1 RTK/RAS mutation
Samples with 2+ RTK/RAS mutation

b



NRAS c.38G>A p.G13D 13.95%
NRAS c.35G>C p.G12A 24.85%

Figure S6: (A) Global pairwise gene mutation precedences in our study. Heatmap showing each of the gene mutations evaluated in our cohort along the x and y-axis. For each pairwise event, the size of each tile indicates number of occurrences summarized as (<50, 50-100, 100-150, 150-200). Colouring indicates the fraction of cases in occurrence that support the precedence of Gene 1 occurring before Gene 2. Thus, green tiles indicate pairwise relationships where Gene 1 has statistically significant evidence of occurring on a dominant to Gene2 clone. These calculations have considered 95% confidence intervals accounting for depth in each position, and have adjusted for copy number events overlapping the lesion. (B) Relative order of mutation acquisition for 4 gene pairs across patients with both genes mutated. 'Unresolved' refers to those patients in whom we cannot determine which mutation occurred earlier (usually because both mutations are in the dominant clone). pts: patients.

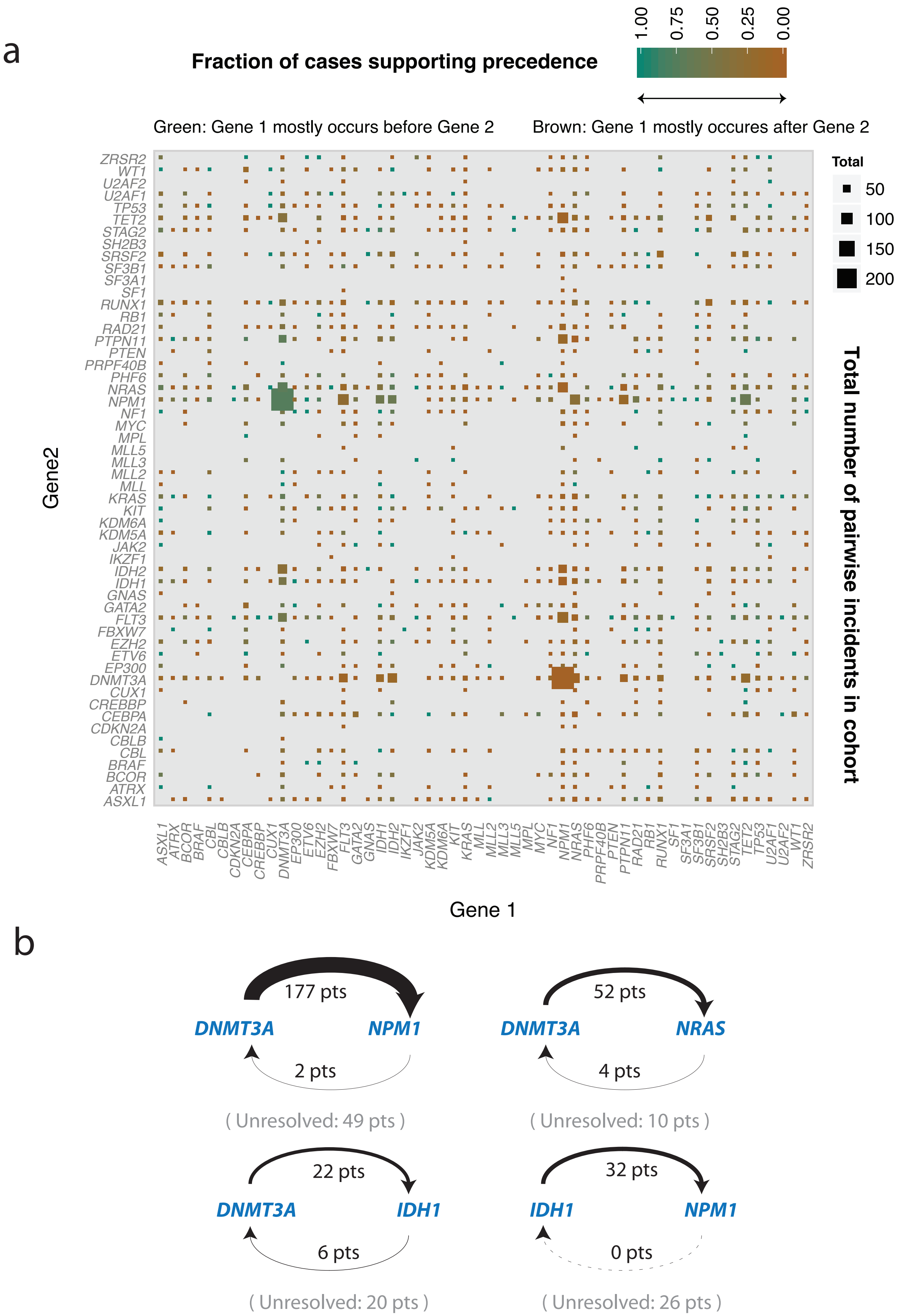

a
Fraction of cases supporting precedence
1.00
0.75
0.50
0.25
0.00
Green: Gene 1 mostly occurs before Gene 2
Brown: Gene 1 mostly occures after Gene 2
Total
50
100
150
200
Total number of pairwise incidents in cohort
Gene2
Gene 1
b
177 pts
DNMT3A
NPM1
2 pts
(Unresolved: 49 pts)
52 pts
DNMT3A
NRAS
4 pts
(Unresolved: 10 pts)
22 pts
DNMT3A
IDH1
6 pts
(Unresolved: 20 pts)
32 pts
IDH1
NPM1
0 pts
(Unresolved: 26 pts)

Figure S7: Clusters as defined by the Dirichlet process mixture model. Shown as bars are the median posterior probability of each lesion in each of the 11 classes. The thin error bars indicate the 2.5 and 97.5 quantiles respectively. The numbers on the top indicate the number and fraction of patients in which the given class is most prevalent. These numbers reflect direct output from the Dirichlet process rather than the final class assignment following post-processing criteria – for further information refer to Supplementary methods.

a

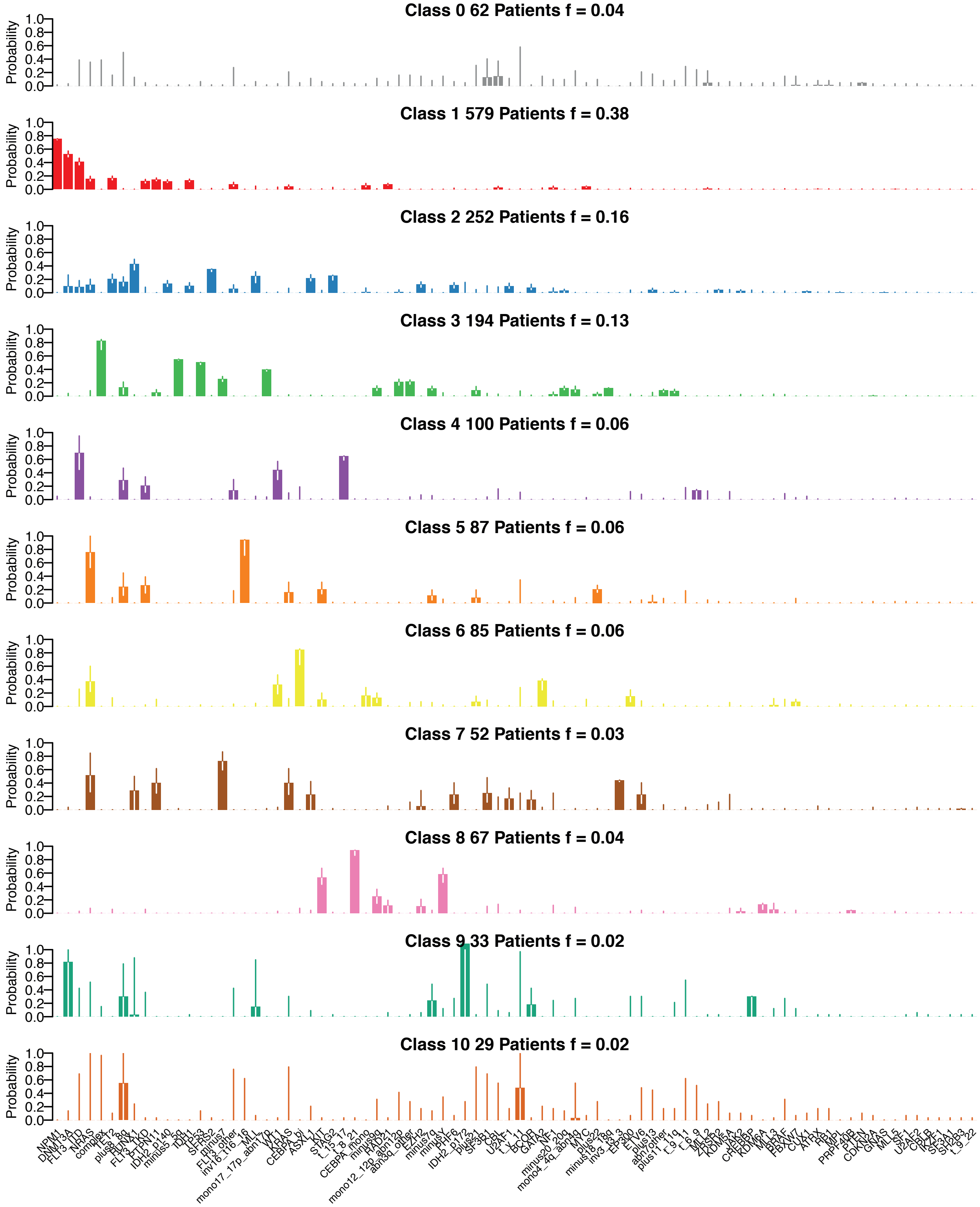
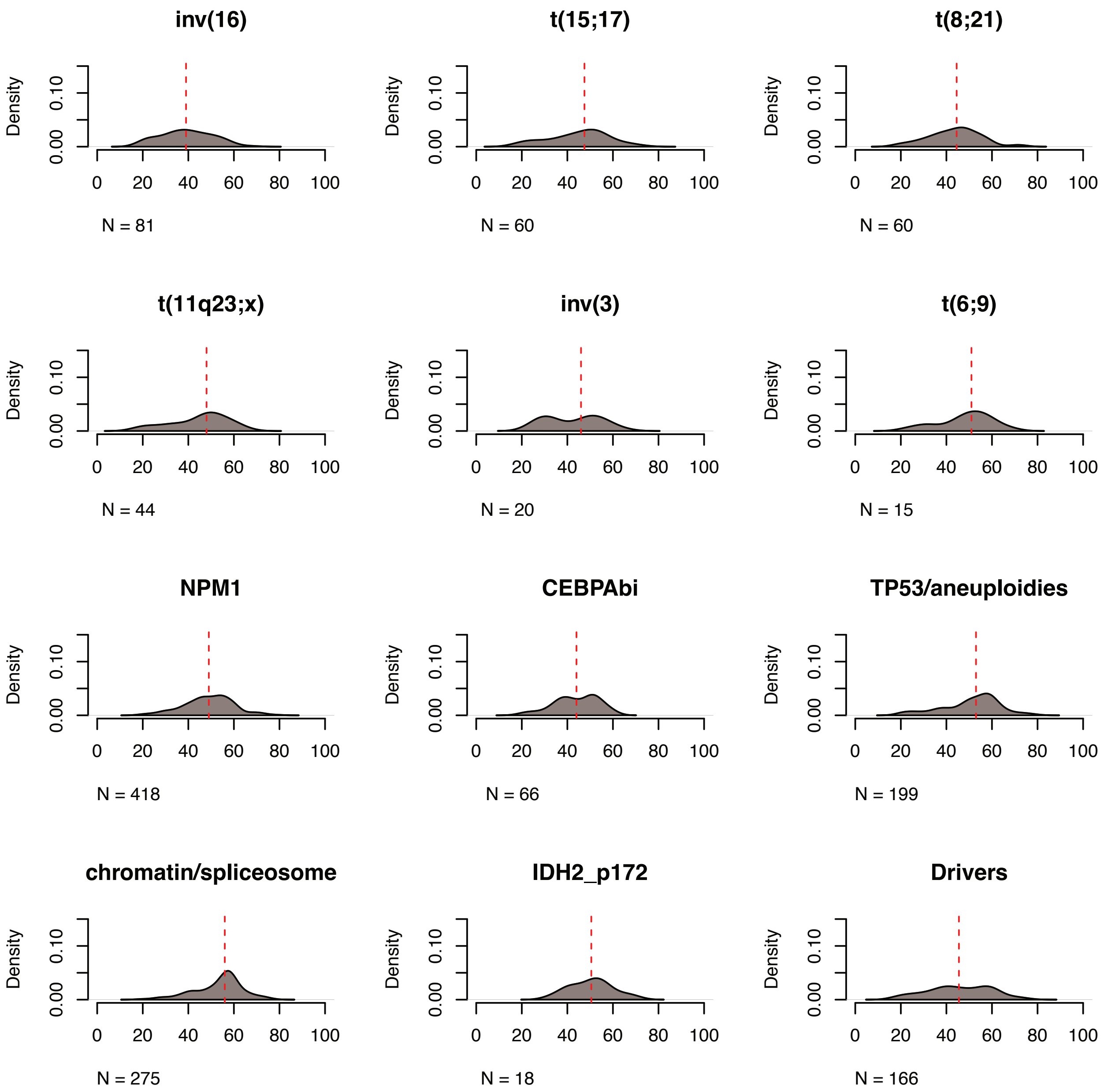

Class 0 62 Patients f = 0.04
Class 1 579 Patients f = 0.38
Class 2 252 Patients f = 0.16
Class 3 194 Patients f = 0.13
Class 4 100 Patients f = 0.06
Class 5 87 Patients f = 0.06
Class 6 85 Patients f = 0.06
Class 7 52 Patients f = 0.03
Class 8 67 Patients f = 0.04
Class 9 33 Patients f = 0.02
Class 10 29 Patients f = 0.02
Probability
0.0
0.2
0.4
0.6
0.8
1.0

Figure S8: Density plots indicating distribution of clinical parameters for each class. Red dotted line indicates median in category. N indicates the number of evaluable cases for which we had complete information for this variable. (A) Age of diagnosis (B) Bone marrow blast counts by class (C) Peripheral blood blast counts by class (D) White blood cell counts by class.

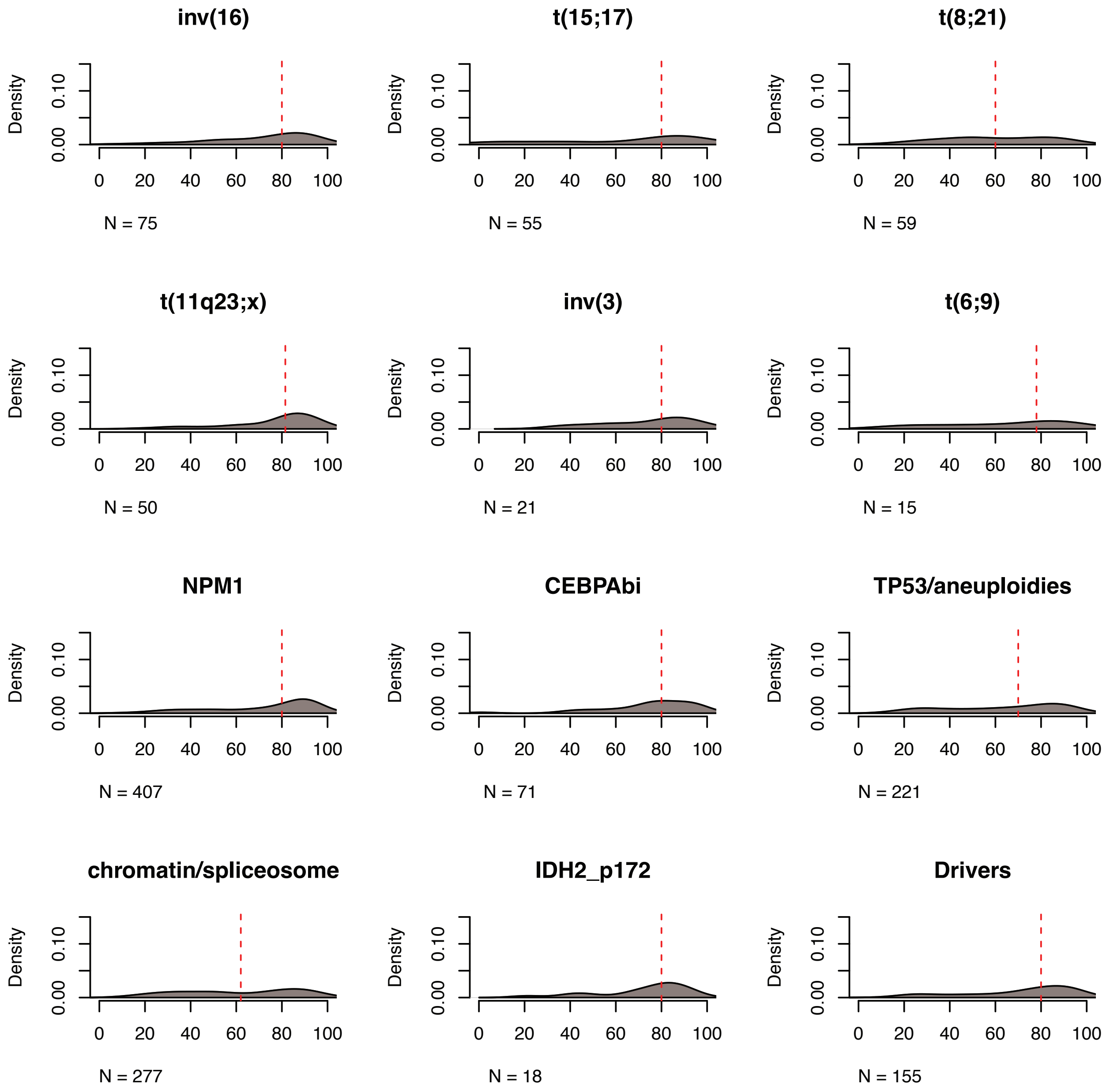
a Age of Diagnosis by class



Median

N= Number of evaluable cases in class

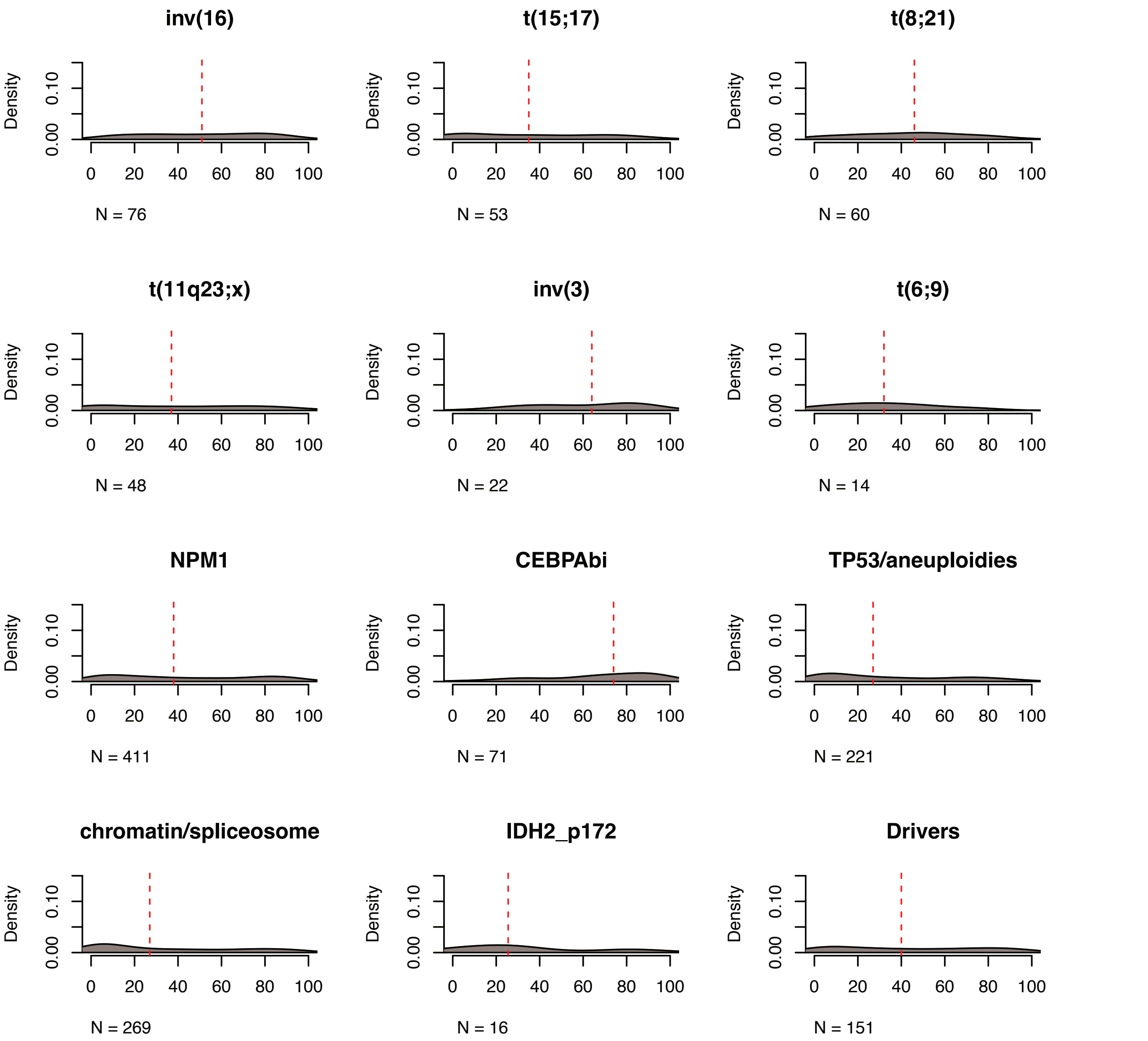
b Bone marrow blast counts(%) by class



Median

N= Number of evaluable cases in class

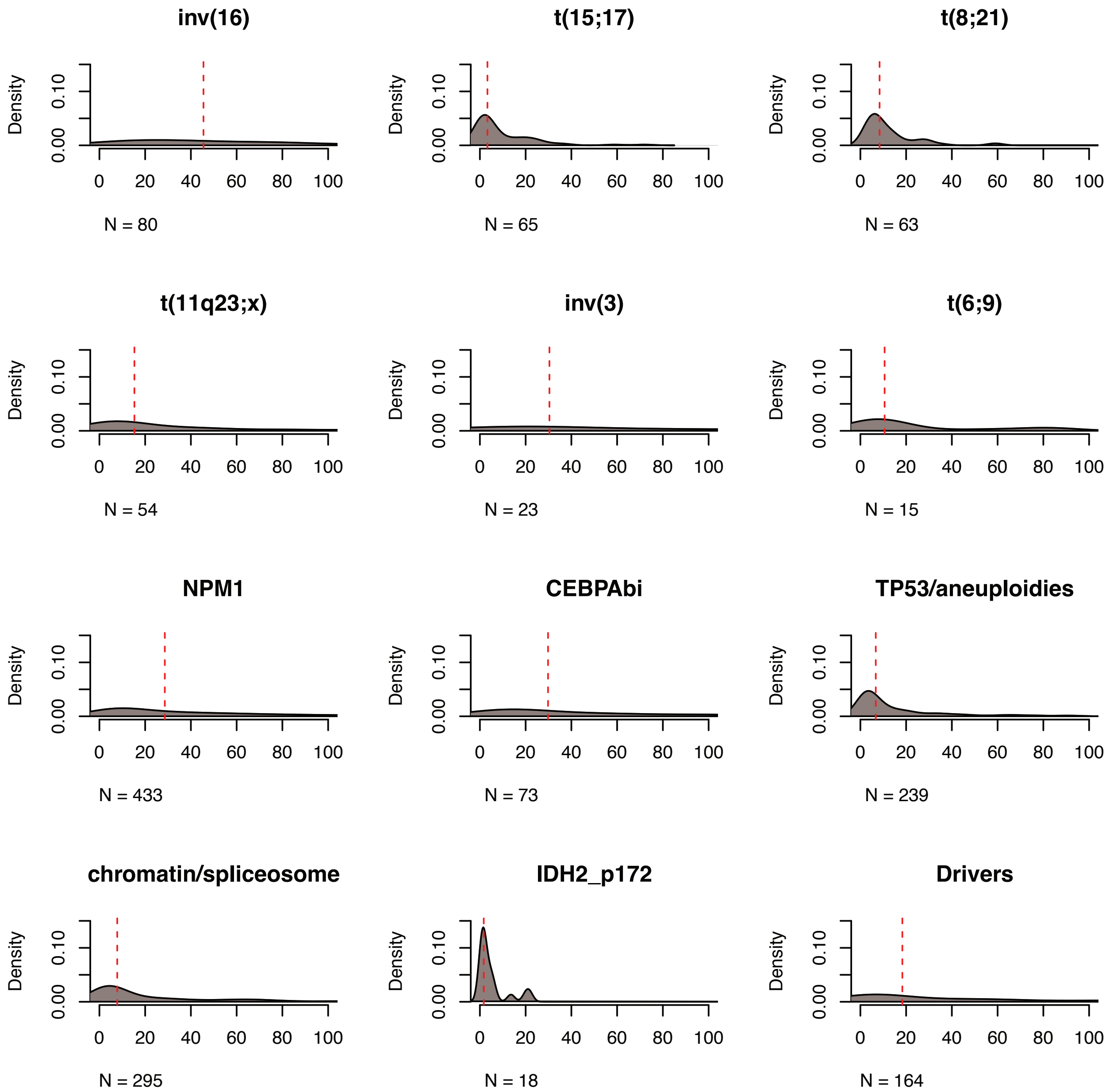
C Peripheral blood blast counts(%) by class



- - - - - - Median

N= Number of evaluable cases in class

d White Blood Cell counts(%) by class



- - - - - - - Median

N= Number of evaluable cases in class

Figure S9: Stacked barplots summarizing complete remission rates following induction chemotherapy as well as broad uncensored long term clinical summary outcomes for class bearing (+ve) and non class bearing (-ve) lesions. These are summarized as follows CR: Complete remission, RD: Refractory disease, DiCR: Death in CR, DaR: Death after Relapse, AaR: Alive after relapse, AinCR: Alive in CR.

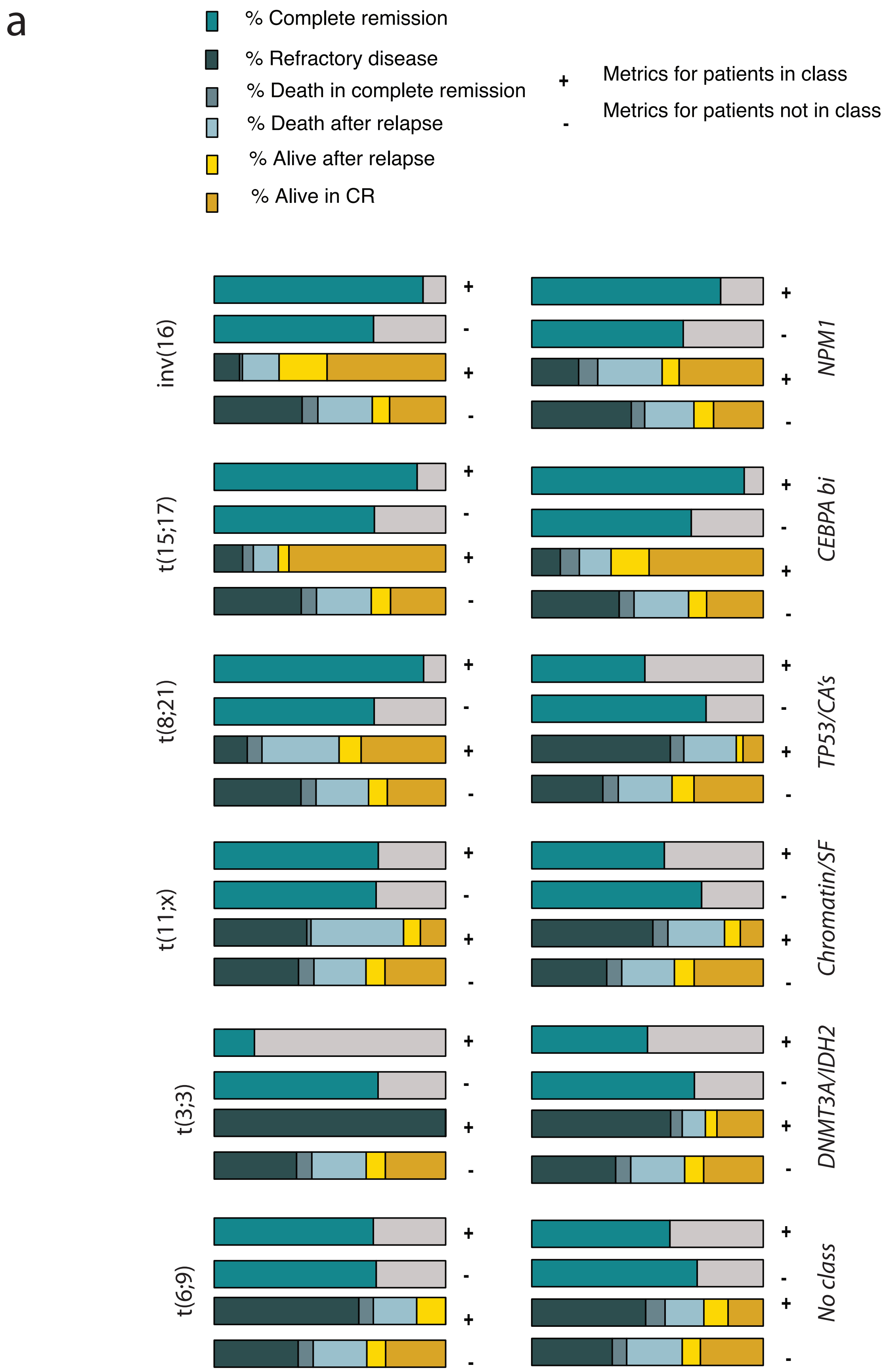
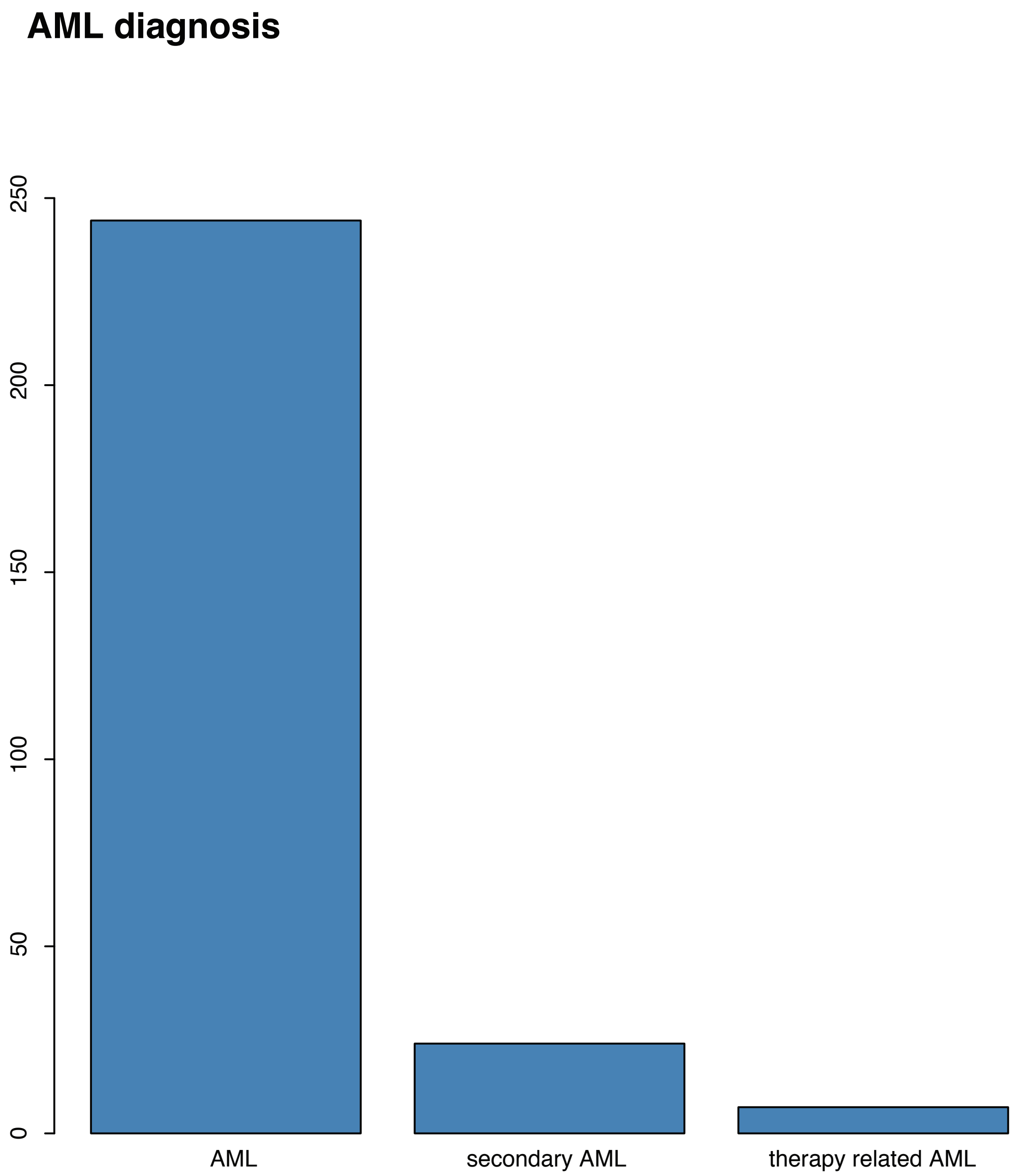

a
% Complete remission
% Refractory disease
% Death in complete remission
% Death after relapse
% Alive after relapse
% Alive in CR
+ Metrics for patients in class
- Metrics for patients not in class
inv(16)
t(15;17)
t(8;21)
t(11;x)
t(3;3)
t(6;9)
NPM1
CEBPA bi
TP53/CA's
Chromatin/SF
DNMT3A/IDH2
No class

Figure S10: Barplots summarizing the distribution of de-novo AML patients, secondary AML and therapy related AML patients in the chromatin/spliceosome class.

a



AML diagnosis
250
200
150
100
50
0
AML
secondary AML
therapy related AML

Figure S11: (A) Pie charts representing class distribution in the 139 patients in which MDS pre-phase or MDS related morphology (topleft), patients (fusion gene negative) that did not show evidence of bone marrow dysplasia or MDS prophase. Patients evaluated were mostly normal karyotype AML. (B) Barplots indicating proportion of patients in each class with MDS related morphology or MDS prophase. (C) Occurrence of splicing factor mutations in the chromatin spliceosome cases with MDS prophase or MDS related morphology.

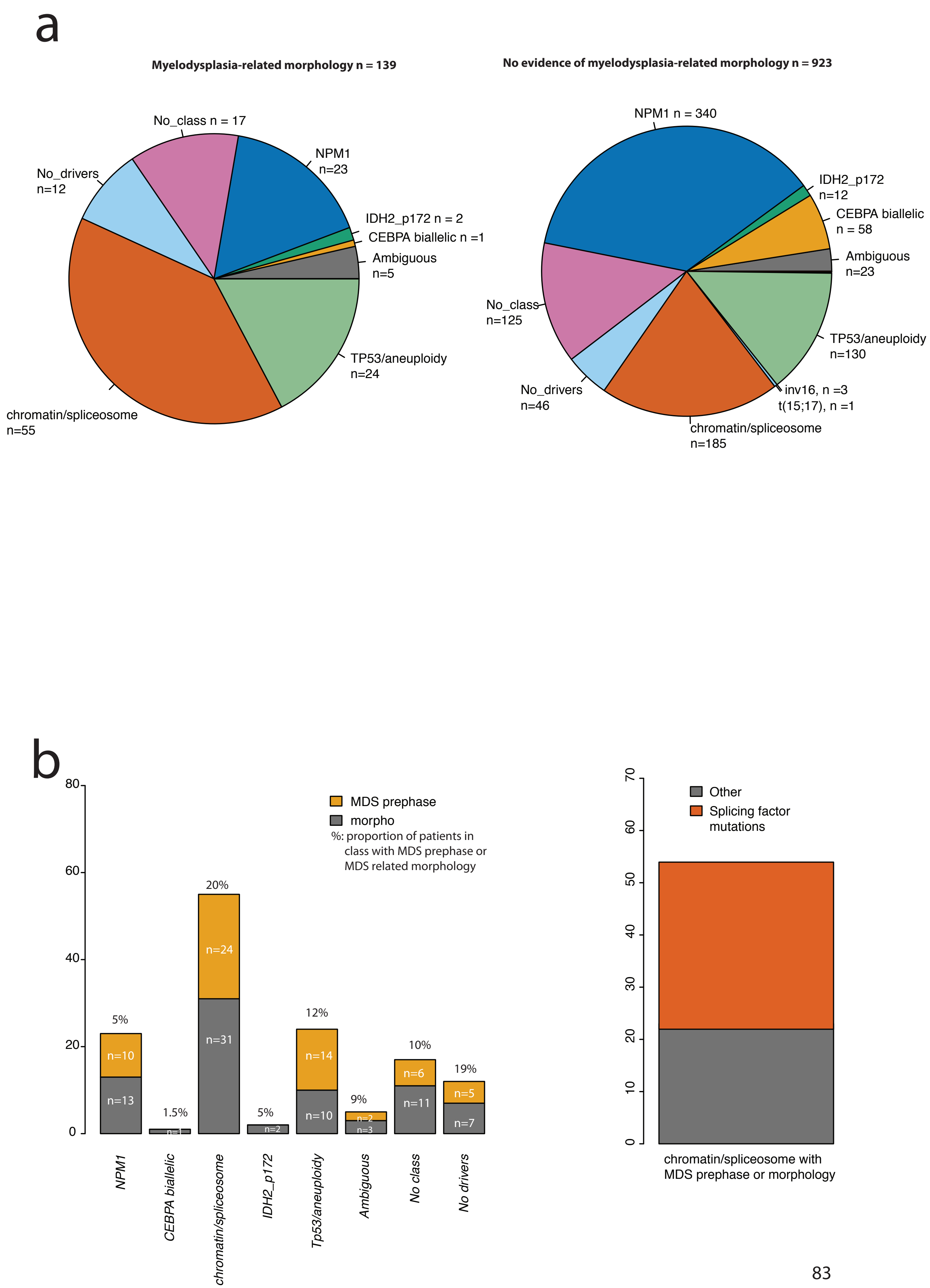

a
Myelodysplasia-related morphology n = 139
No_class n = 17
NPM1
n=23
No_drivers
n=12
IDH2_p172 n = 2
CEBPA biallelic n =1
Ambiguous
n=5
TP53/aneuploidy
n=24
chromatin/spliceosome
n=55
No evidence of myelodysplasia-related morphology n = 923
NPM1 n = 340
IDH2_p172
n=12
CEBPA biallelic
n = 58
Ambiguous
n=23
No_class
n=125
TP53/aneuploidy
n=130
No_drivers
n=46
inv16, n =3
t(15;17), n =1
chromatin/spliceosome
n=185
b
MDS prephase
morpho
%: proportion of patients in
class with MDS prephase or
MDS related morphology
80
60
40
20
0
5%
n=10
n=13
1.5%
n=1
20%
n=24
n=31
5%
n=2
12%
n=14
n=10
9%
n=2
n=3
10%
n=6
n=11
19%
n=5
n=7
NPM1
CEBPA biallelic
chromatin/spliceosome
IDH2_p172
Tp53/aneuploidy
Ambiguous
No class
No drivers
Other
Splicing factor
mutations
70
60
50
40
30
20
10
0
chromatin/spliceosome with
MDS prephase or morphology

Figure S12: (A) Clinical characteristics of patients with no mutations. Stacked beanplots representing range of bone marrow blast counts, peripheral blast counts, white blood cell counts, hemoglobin, platelet and age in blue for cases with no driver mutations identified, and in grey for cases with mutations identified. B) Kaplan Meier curves by number of driver mutations including 0 events, 1-2 driver events, 3-4 driver events, 5-6 driver events and > 7 events.

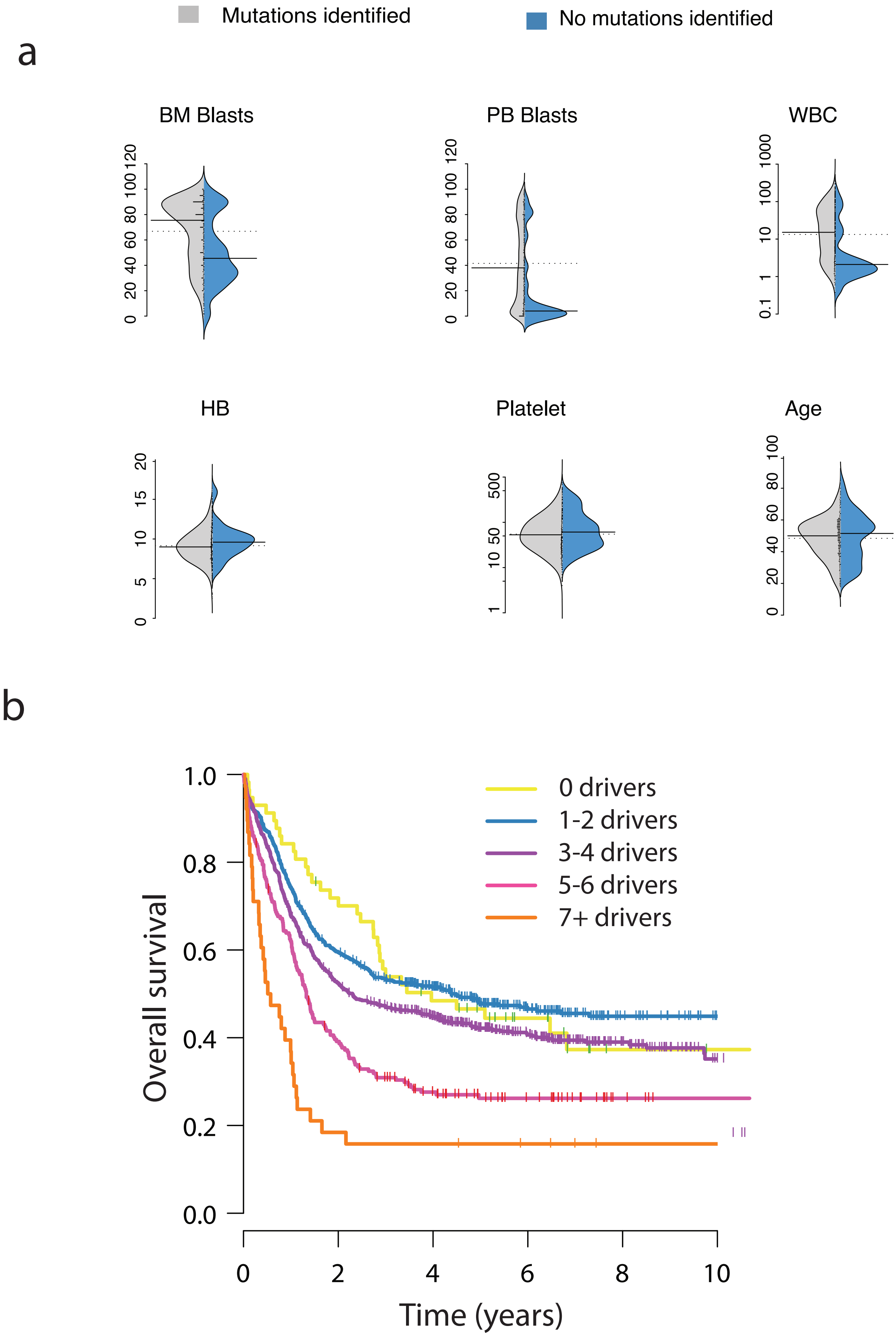
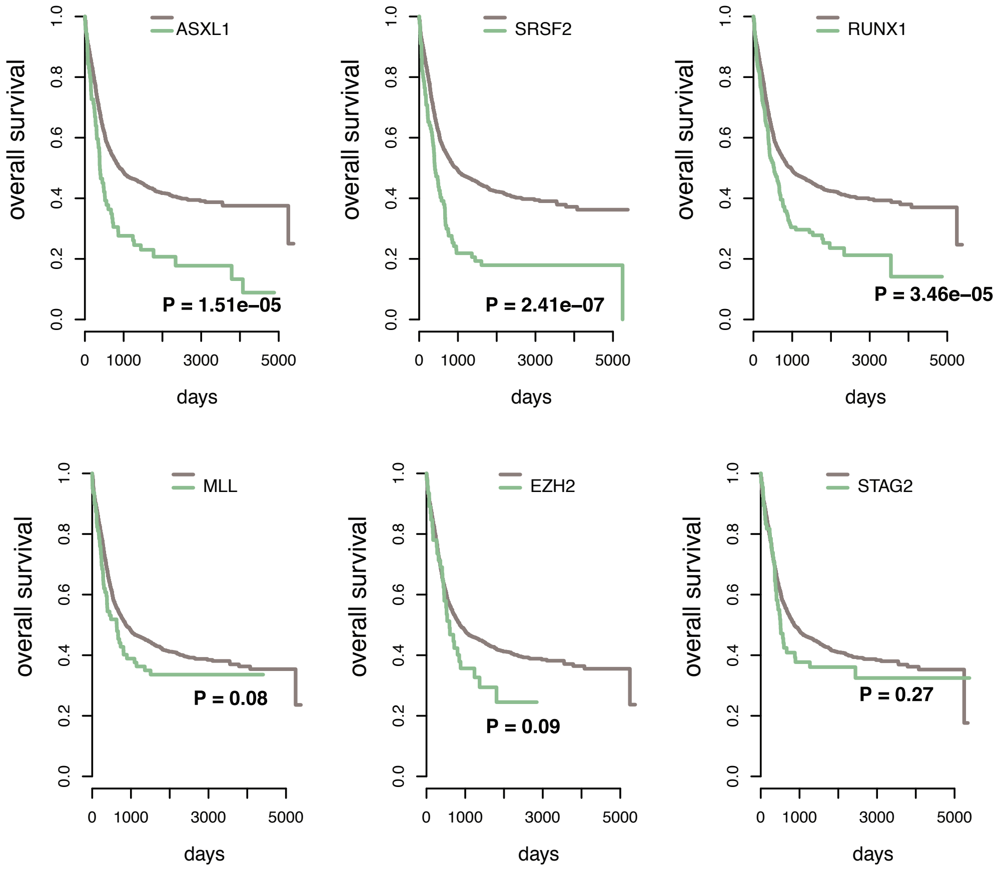
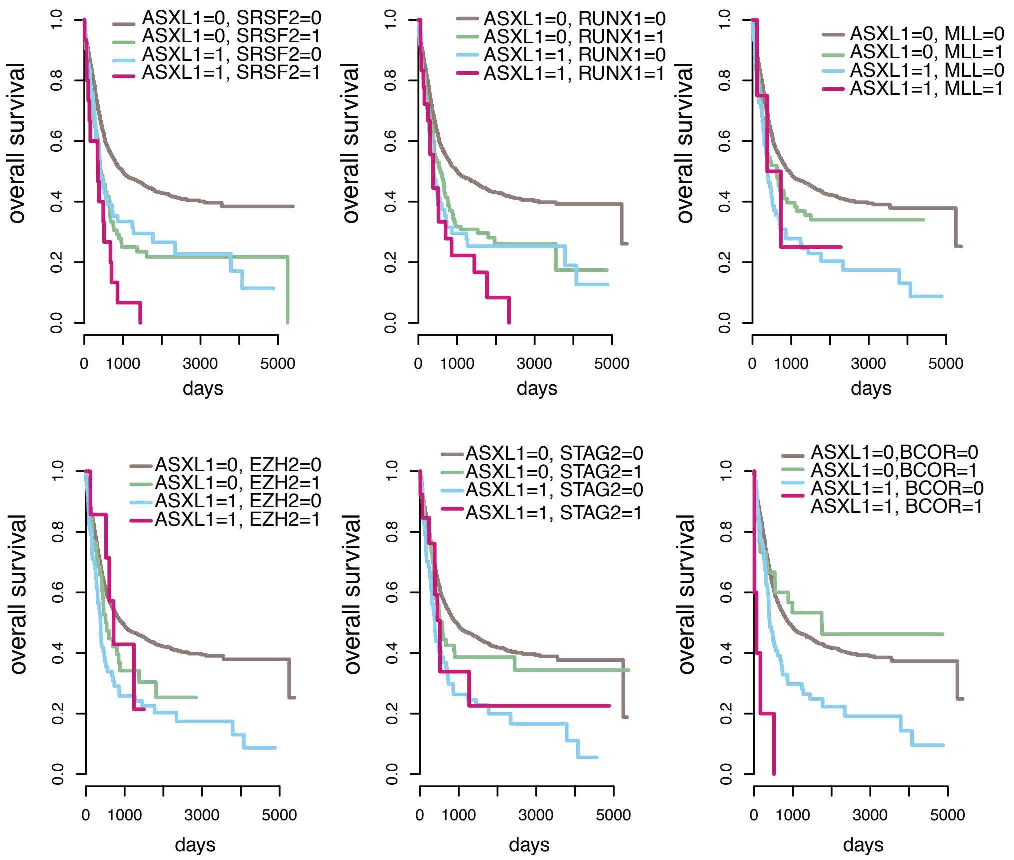

Mutations identified
No mutations identified
a
BM Blasts
0 20 40 60 80 100 120
PB Blasts
0 20 40 60 80 100 120
WBC
0.1 1 10 100 1000
HB
0 5 10 15 20
Platelet
1 10 50 500
Age
0 20 40 60 80 100
b
1.0
0.8
0.6
0.4
0.2
0.0
Overall survival
0 drivers
1-2 drivers
3-4 drivers
5-6 drivers
7+ drivers
0 2 4 6 8 10
Time (years)

Figure S13: (A) Univariate analysis of class defining genes in chromatin/spliceosome class. (B) Kaplan Meier curves for combined genotypes with *ASXL1* across the entire cohort in the study. (C) Kaplan Meier curves for combined genotypes with *SRSF2* across the entire cohort in the study. (D) Multivariate Kaplan Meier curves for most contributing lesions in the class (*ASXL1, SRSF2, RUNX1*) and the corresponding pairwise interactions (*ASXL1*:*RUNX1*, *RUNX1*:*SRSF2*, *ASXL1*:*SRSF2*, *ASXL1*:*SRSF2*:*RUNX1*) all shown in grey with individual panels highlighting a different subgroup in red or dark blue across the entire cohort in the study. (E) Kaplan Meier curves for each of the most frequent contributing genes, within the chromatin/spliceosome group shows distinct patterns for each of the contributing genes to those observed in the entire cohort. Restriction to this subset, in part accounts for shared and significant variables that contribute to overall risk including the genetic inter-correlation as well as the significant association with older age for the patients within this subgroup. (F) Kaplan Meier curves for combined genotypes with *ASXL1* restricted to patients within the chromatin/spliceosome group.

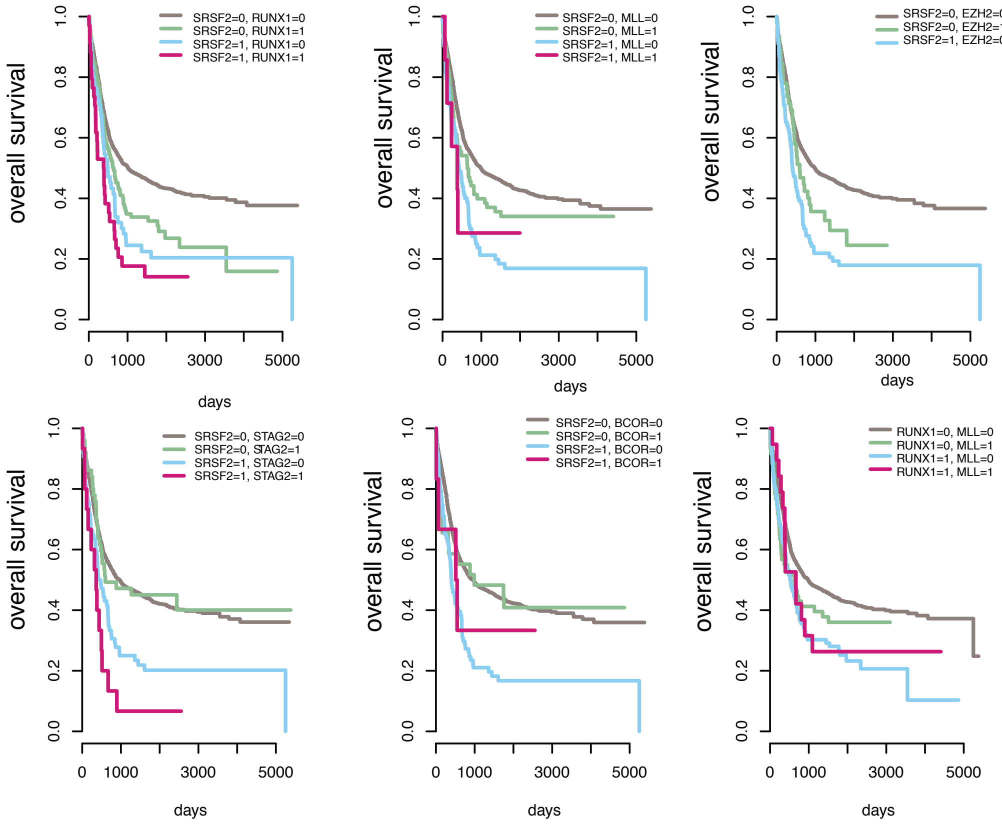
a


ASXL1
P = 1.51e–05
SRSF2
P = 2.41e–07
RUNX1
P = 3.46e–05
MLL
P = 0.08
EZH2
P = 0.09
STAG2
P = 0.27
overall survival
days

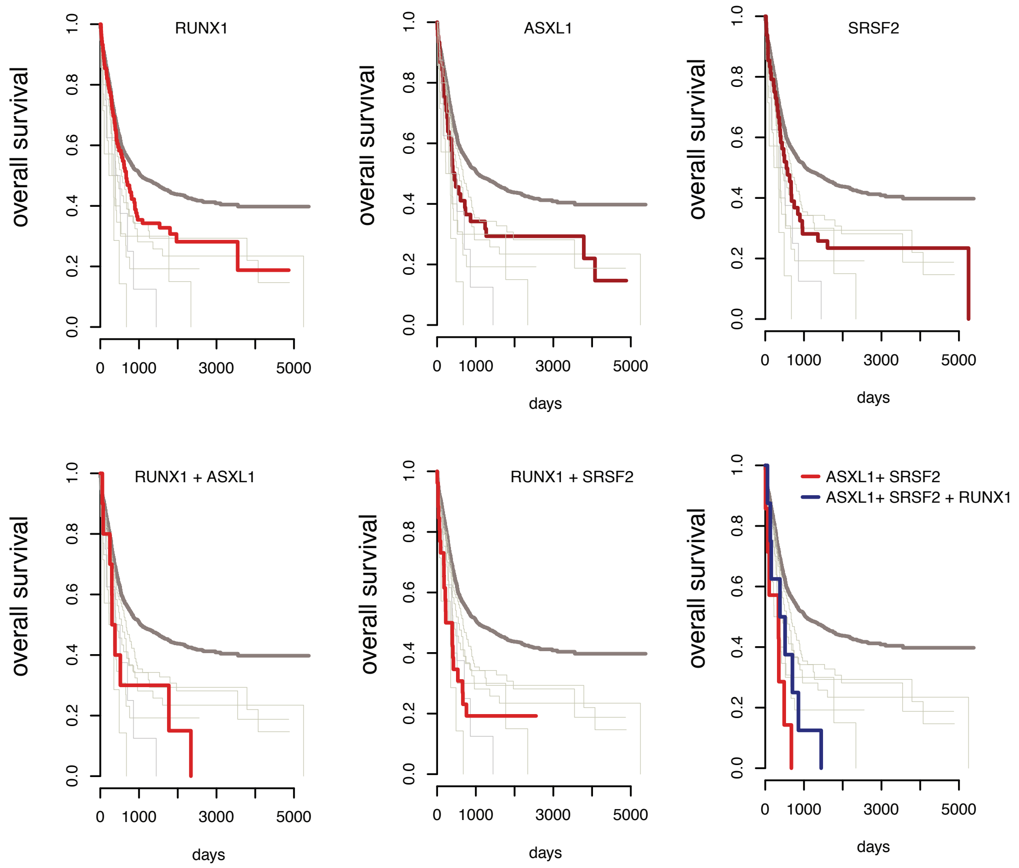
b


ASXL1=0, SRSF2=0
ASXL1=0, SRSF2=1
ASXL1=1, SRSF2=0
ASXL1=1, SRSF2=1
ASXL1=0, RUNX1=0
ASXL1=0, RUNX1=1
ASXL1=1, RUNX1=0
ASXL1=1, RUNX1=1
ASXL1=0, MLL=0
ASXL1=0, MLL=1
ASXL1=1, MLL=0
ASXL1=1, MLL=1
ASXL1=0, EZH2=0
ASXL1=0, EZH2=1
ASXL1=1, EZH2=0
ASXL1=1, EZH2=1
ASXL1=0, STAG2=0
ASXL1=0, STAG2=1
ASXL1=1, STAG2=0
ASXL1=1, STAG2=1
ASXL1=0,BCOR=0
ASXL1=0,BCOR=1
ASXL1=1, BCOR=0
ASXL1=1, BCOR=1
overall survival
days

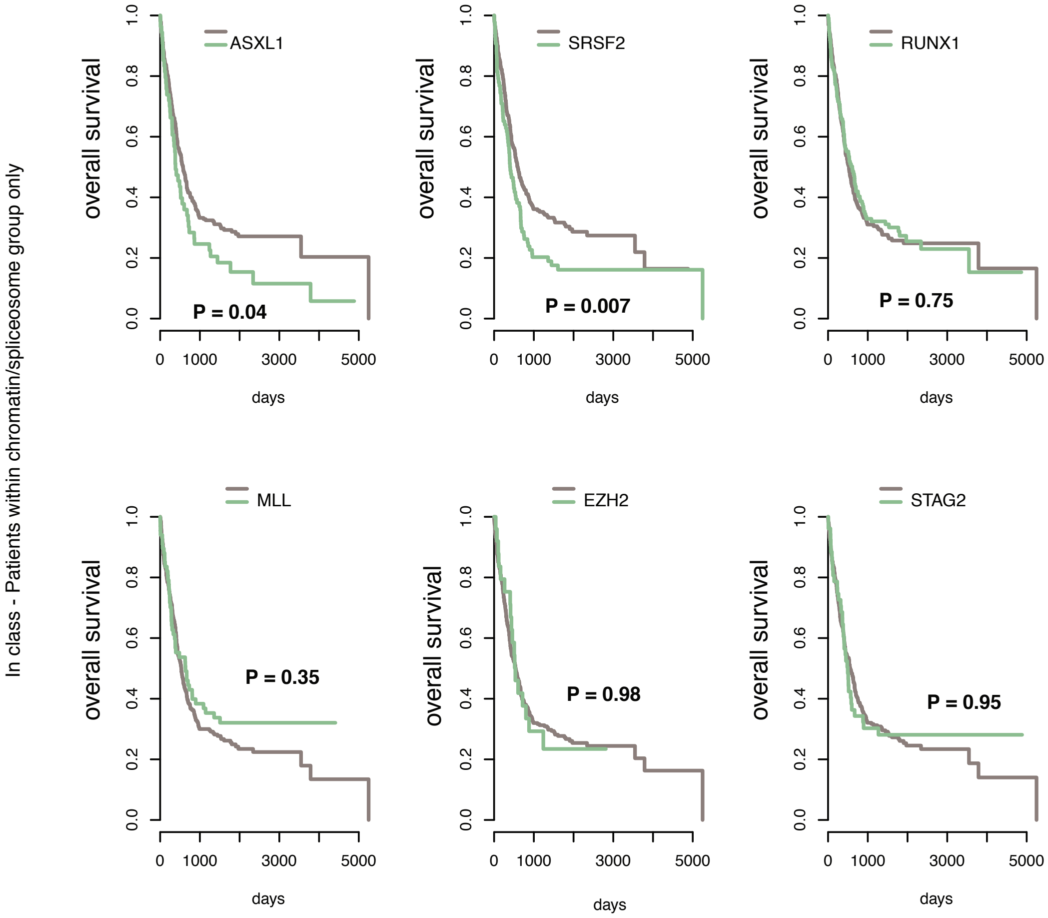
c


overall survival
days
SRSF2=0, RUNX1=0
SRSF2=0, RUNX1=1
SRSF2=1, RUNX1=0
SRSF2=1, RUNX1=1
SRSF2=0, MLL=0
SRSF2=0, MLL=1
SRSF2=1, MLL=0
SRSF2=1, MLL=1
SRSF2=0, EZH2=0
SRSF2=0, EZH2=1
SRSF2=1, EZH2=0
SRSF2=0, STAG2=0
SRSF2=0, STAG2=1
SRSF2=1, STAG2=0
SRSF2=1, STAG2=1
SRSF2=0, BCOR=0
SRSF2=0, BCOR=1
SRSF2=1, BCOR=0
SRSF2=1, BCOR=1
RUNX1=0, MLL=0
RUNX1=0, MLL=1
RUNX1=1, MLL=0
RUNX1=1, MLL=1

d

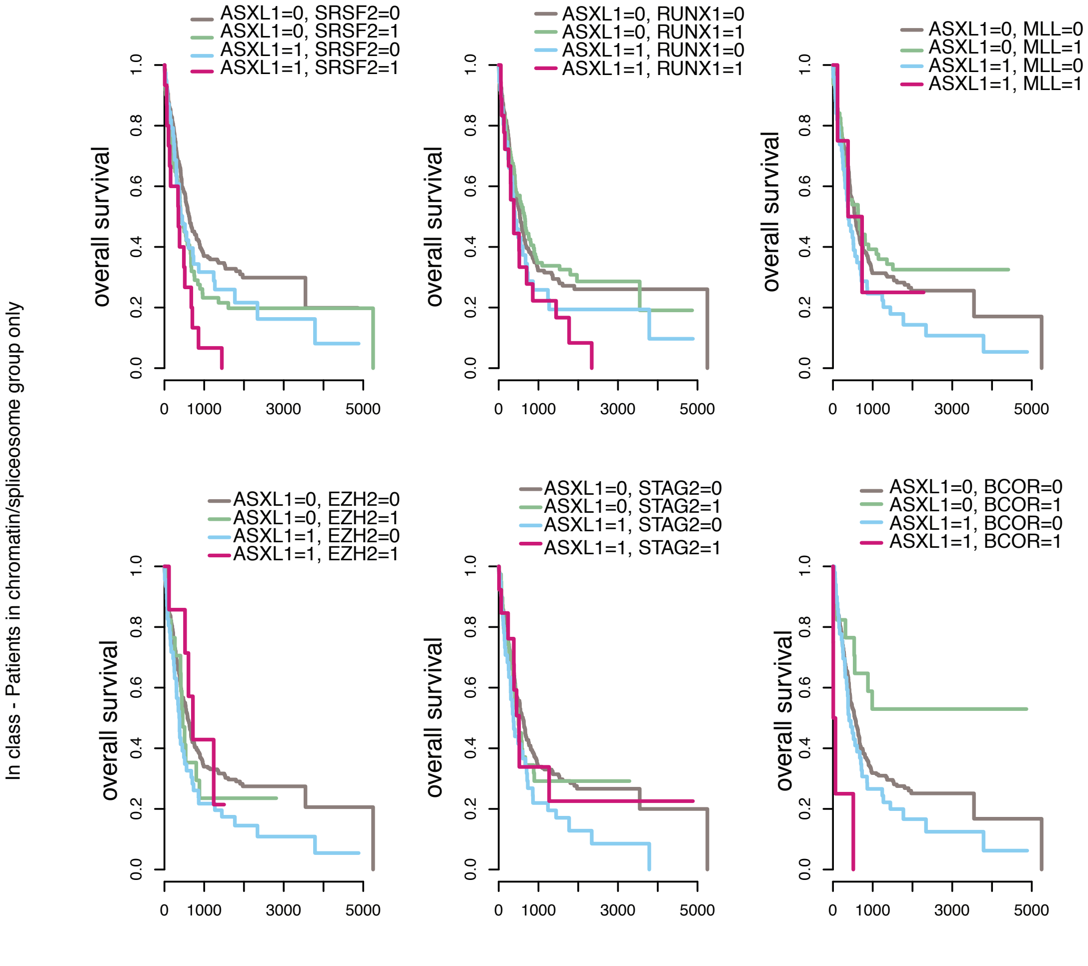

overall survival
days
RUNX1
ASXL1
SRSF2
RUNX1 + ASXL1
RUNX1 + SRSF2
ASXL1+ SRSF2
ASXL1+ SRSF2 + RUNX1

e



In class - Patients within chromatin/spliceosome group only
ASXL1
P = 0.04
SRSF2
P = 0.007
RUNX1
P = 0.75
MLL
P = 0.35
EZH2
P = 0.98
STAG2
P = 0.95
overall survival
days

f



In class - Patients in chromatin/spliceosome group only
ASXL1=0, SRSF2=0
ASXL1=0, SRSF2=1
ASXL1=1, SRSF2=0
ASXL1=1, SRSF2=1
ASXL1=0, RUNX1=0
ASXL1=0, RUNX1=1
ASXL1=1, RUNX1=0
ASXL1=1, RUNX1=1
ASXL1=0, MLL=0
ASXL1=0, MLL=1
ASXL1=1, MLL=0
ASXL1=1, MLL=1
ASXL1=0, EZH2=0
ASXL1=0, EZH2=1
ASXL1=1, EZH2=0
ASXL1=1, EZH2=1
ASXL1=0, STAG2=0
ASXL1=0, STAG2=1
ASXL1=1, STAG2=0
ASXL1=1, STAG2=1
ASXL1=0, BCOR=0
ASXL1=0, BCOR=1
ASXL1=1, BCOR=0
ASXL1=1, BCOR=1
overall survival

Figure S14: (A) Comparison of ELN risk strata and the random effects model performed in the present study. Show is the cross-validated concordance C (y-axis) of the ELN model and the random effects 9rFX0 model using three different validation approaches. In Grey we show the distribution of C across 100 random splits of this dataset into 80% training and 20% test partitions. In red we show the point estimate of C (considering +/- 1 standard deviation) validated on TCGA data. In red/green and blue we show point estimate of C using inter trial training were we trained on each of the 2 trials and evaluated C on the third trial for each possible combination. In all cases the RFX model performs substantially better than the ELN. (B) Variance decomposition pie charts for our study compared to the TCGA study. Each wedge represents on of the class variables to include gene mutations, gene-gene interactions, clinical (diagnostic counts, morphology), demographics to include (age and gender), treatment to include Transplant, Fusion genes and copy number alterations. For each wedge we show the point estimate (as per figure 2) and adjacent we display the 95% confidence intervals. The same metrics are shown on the right for the TCGA cohort.

a

b

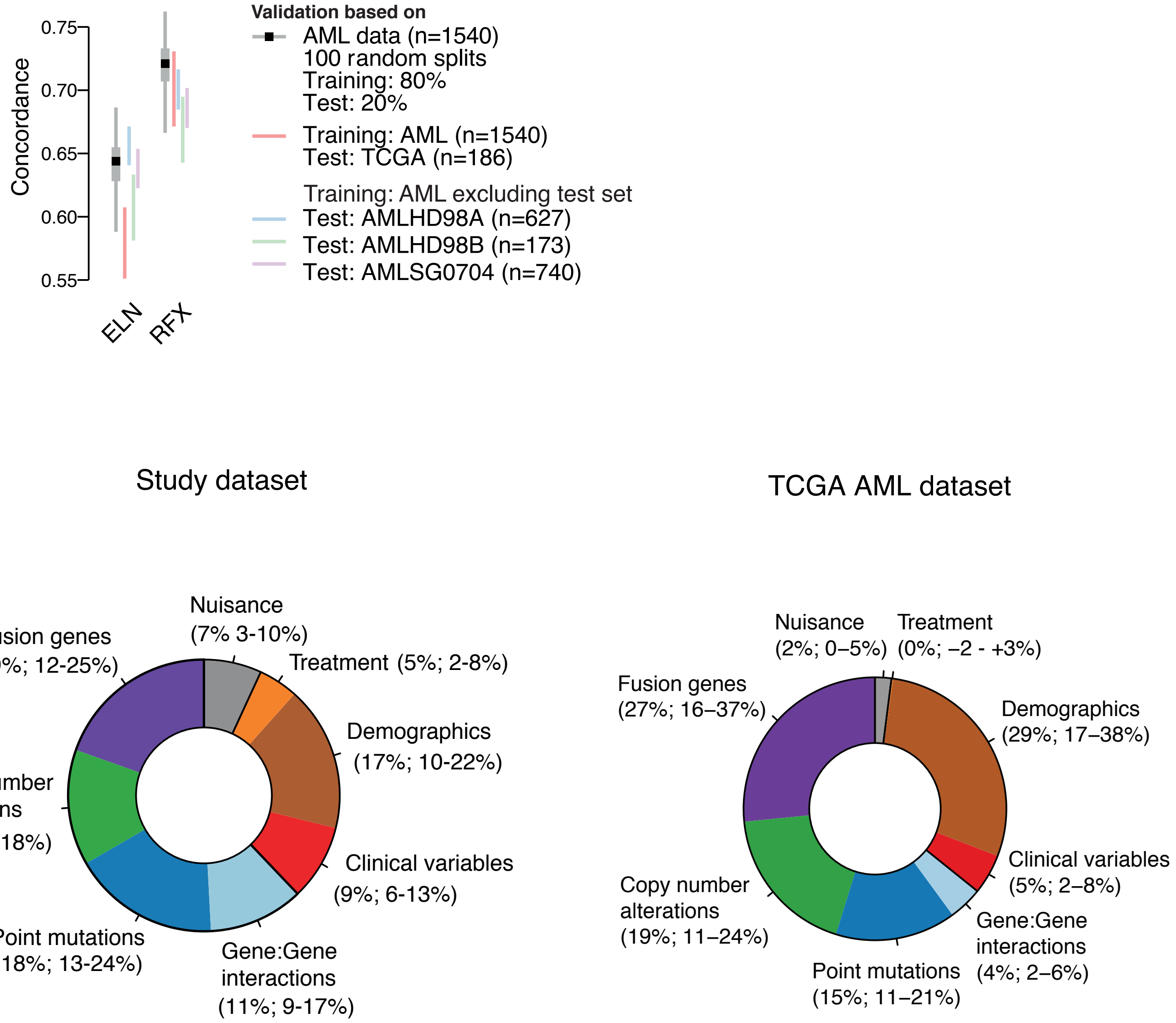

Concordance
0.75
0.70
0.65
0.60
0.55
ELN
RFX
Validation based on
AML data (n=1540)
100 random splits
Training: 80%
Test: 20%
Training: AML (n=1540)
Test: TCGA (n=186)
Training: AML excluding test set
Test: AMLHD98A (n=627)
Test: AMLHD98B (n=173)
Test: AMLSG0704 (n=740)
Study dataset
Nuisance
(7% 3-10%)
Treatment (5%; 2-8%)
Demographics
(17%; 10-22%)
Clinical variables
(9%; 6-13%)
Gene:Gene
interactions
(11%; 9-17%)
Point mutations
(18%; 13-24%)
Copy number
alterations
(14%; 9-18%)
Fusion genes
(19%; 12-25%)
TCGA AML dataset
Nuisance
(2%; 0–5%)
Treatment
(0%; –2 - +3%)
Demographics
(29%; 17–38%)
Clinical variables
(5%; 2–8%)
Gene:Gene
interactions
(4%; 2–6%)
Point mutations
(15%; 11–21%)
Copy number
alterations
(19%; 11–24%)
Fusion genes
(27%; 16–37%)

Figure S15: (A) Kaplan Meier curves for *FLT3*^{ITD}, in *NPM1*wt *DNMT3A*wt AML, *DNMT3A* mt AML, *NPM1mt DNMT3A* wt AML and for the triplet genotype *DNMT3A*:*NPM1*:*FLT3*^{ITD}, for the subset of patients for which we had *FLT3*^{ITD} mutant to wild type ratio as determined by Gene scan analysis. (B) Breakdown of complete remission rates and summary outcomes (uncensored) CR: Complete remission, RD: Refractory disease, DiCR: Death in CR, DaR: Death after Relapse, AaR: Alive after relapse, AinCR: Alive in CR for the key genotypes within the *NPM1* subgroup highlights that response rates to induction chemotherapy and long term clinical outcomes within a single molecular subgroup can vary amongst the recurrent constellations.

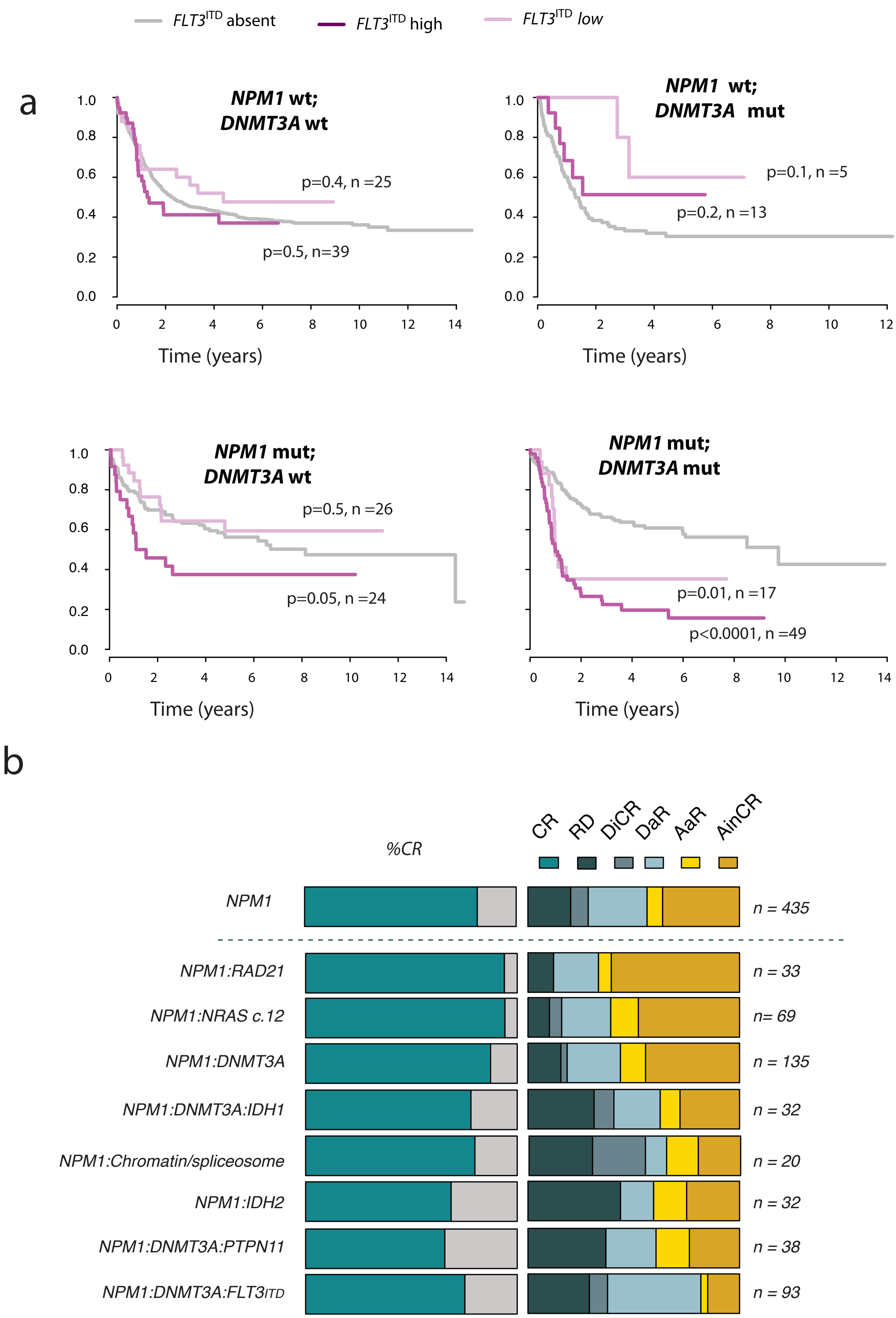
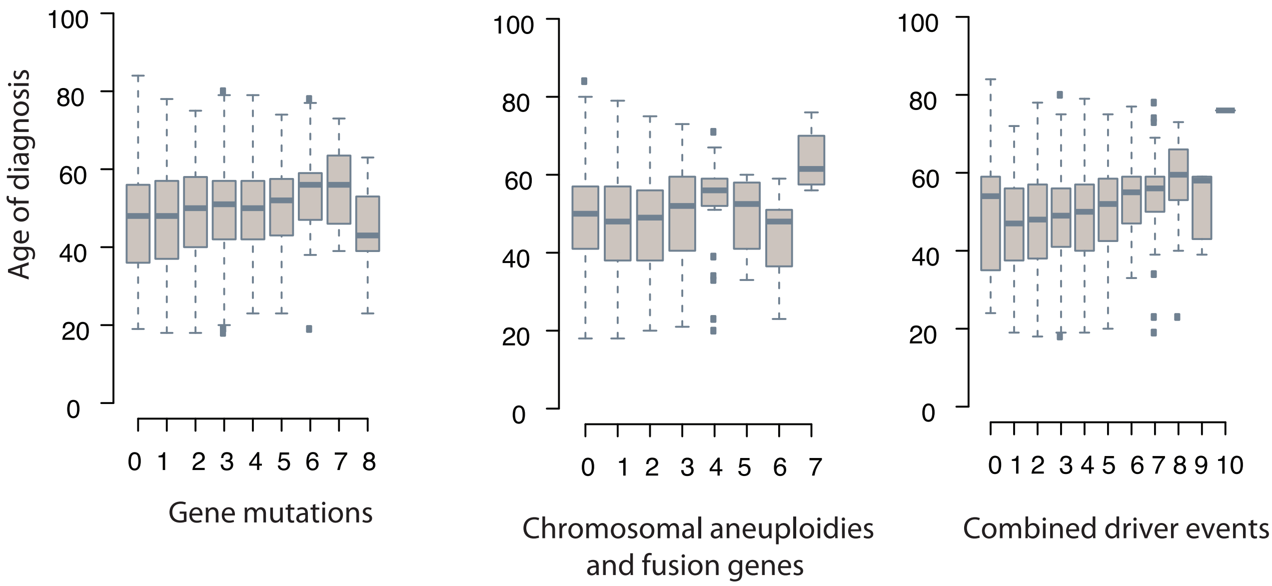

FLT3ITD absent
FLT3ITD high
FLT3ITD low
a
NPM1 wt; DNMT3A wt
p=0.4, n =25
p=0.5, n=39
NPM1 wt; DNMT3A mut
p=0.1, n =5
p=0.2, n =13
NPM1 mut; DNMT3A wt
p=0.5, n =26
p=0.05, n =24
NPM1 mut; DNMT3A mut
p=0.01, n =17
p<0.0001, n =49
Time (years)
b
%CR
CR
RD
DiCR
DaR
AaR
AinCR
NPM1
n = 435
NPM1:RAD21
n = 33
NPM1:NRAS c.12
n= 69
NPM1:DNMT3A
n = 135
NPM1:DNMT3A:IDH1
n = 32
NPM1:Chromatin/spliceosome
n = 20
NPM1:IDH2
n = 32
NPM1:DNMT3A:PTPN11
n = 38
NPM1:DNMT3A:FLT3ITD
n = 93

Figure S16: (A) Boxplots indicating age of diagnosis range (y-axis) in samples grouped by the number of gene driver mutations (including substitutions, insertions, deletions). Boxplots indicating age of diagnosis range (y-axis) in samples grouped by the number of gene driver events represented by copy number alterations, including fusion genes. (Boxplots indicating age of diagnosis range (y-axis) in samples grouped by the number of total driver events.

a



Age of diagnosis
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8
Gene mutations
0 1 2 3 4 5 6 7
Chromosomal aneuploidies and fusion genes
0 1 2 3 4 5 6 7 8 9 10
Combined driver events

Figure S17: (A) Cross species amino acid alignment for a 60 amino acid locus spanning the hotspot mutation cluster in *MYC*. (B) Volcano plot demonstrating significant upregulated and downregulated genes in patients with *MYC* mutations. (C) Normalised MYC expression levels for *MYC* mutated cases versus *MYC* wildtype cases (D) Gene Set enrichment plot for MYC MAX target genes in *MYC* mutated cases.

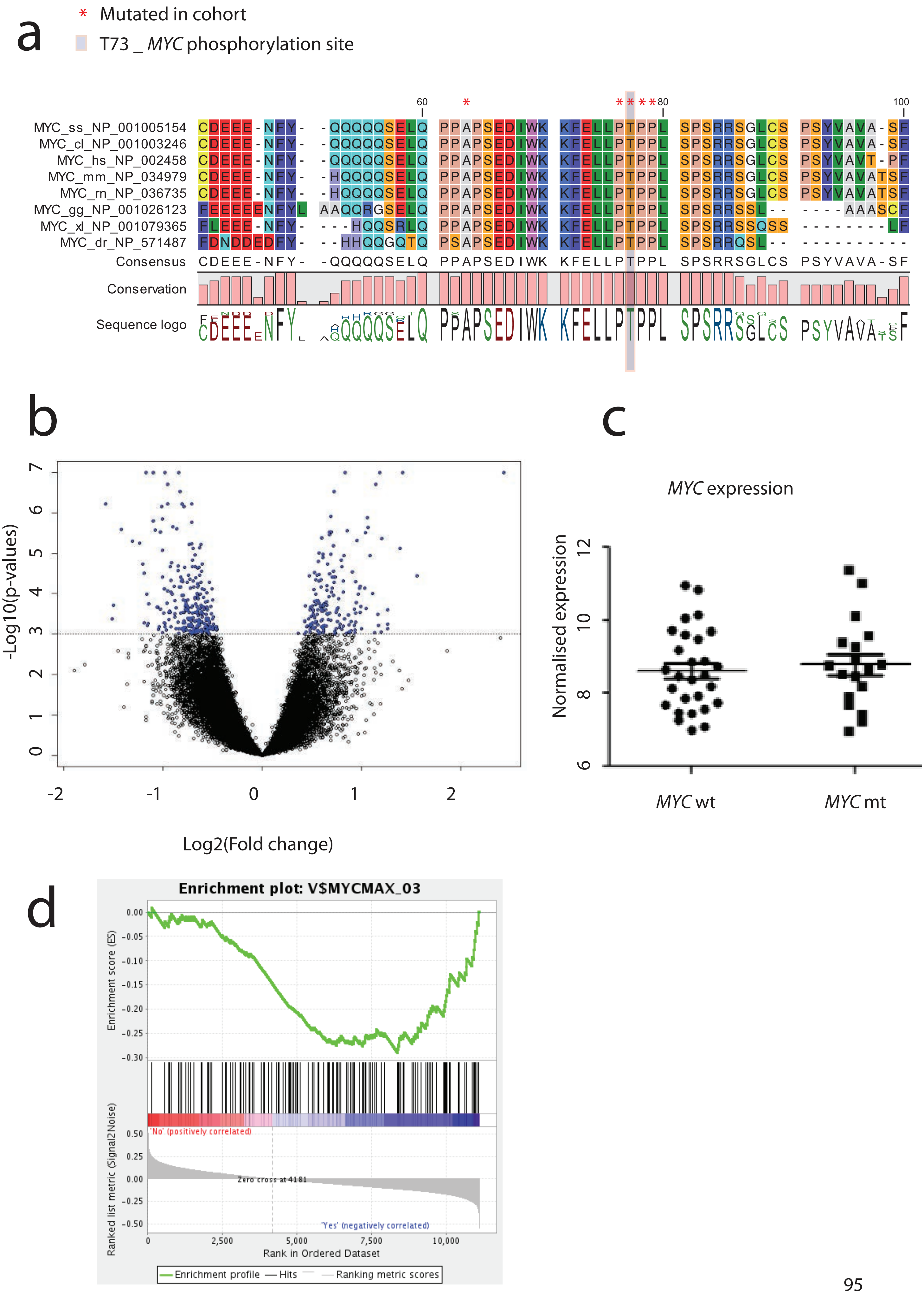

a
* Mutated in cohort
T73 _ MYC phosphorylation site
MYC_ss_NP_001005154
MYC_cl_NP_001003246
MYC_hs_NP_002458
MYC_mm_NP_034979
MYC_rn_NP_036735
MYC_gg_NP_001026123
MYC_xl_NP_001079365
MYC_dr_NP_571487
Consensus
Conservation
Sequence logo
CDEEE-NFY- -QQQQQSELQ PPAPSEDIWK KFELLPTPPL SPSRRSGLCS PSYVAVA-SF
b
-Log10(p-values)
Log2(Fold change)
c
MYC expression
Normalised expression
MYC wt
MYC mt
d
Enrichment plot: V$MYCMAX_03
Enrichment score (ES)
Ranked list metric (Signal2Noise)
'No' (positively correlated)
Zero cross at 4181
'Yes' (negatively correlated)
Rank in Ordered Dataset
Enrichment profile
Hits
Ranking metric scores

Figure S18: (A) Breakdown of complete remission rates and summary outcomes (uncensored) CR: Complete remission, RD: Refractory disease, DiCR: Death in CR, DaR: Death after Relapse, AaR: Alive after relapse, AinCR: Alive in CR for the key genotypes within the TP53/chromosomal aneuploidies group. (B) Kaplan Meier curves for overall survival in years for patients with 0, 1-2 copy number alterations (CAN), 3-4, 5+ alterations TP53 mutated and TP53 wild type cases. (C) Diagnostic and outcome characteristics for patients with ASXL1, RUNX1 and splicing factor mutations highlights shared diagnostic and clinical outcome trajectories.

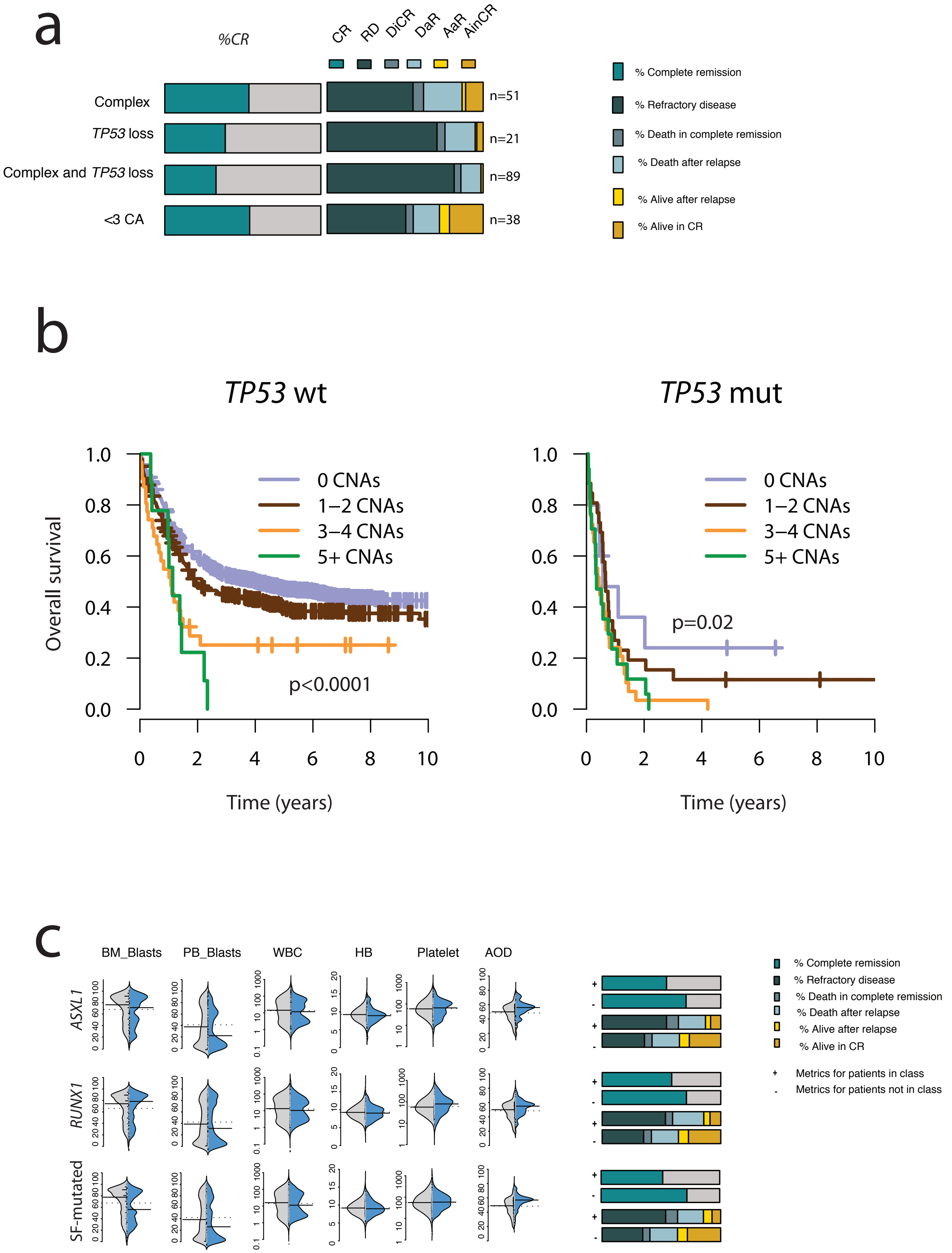
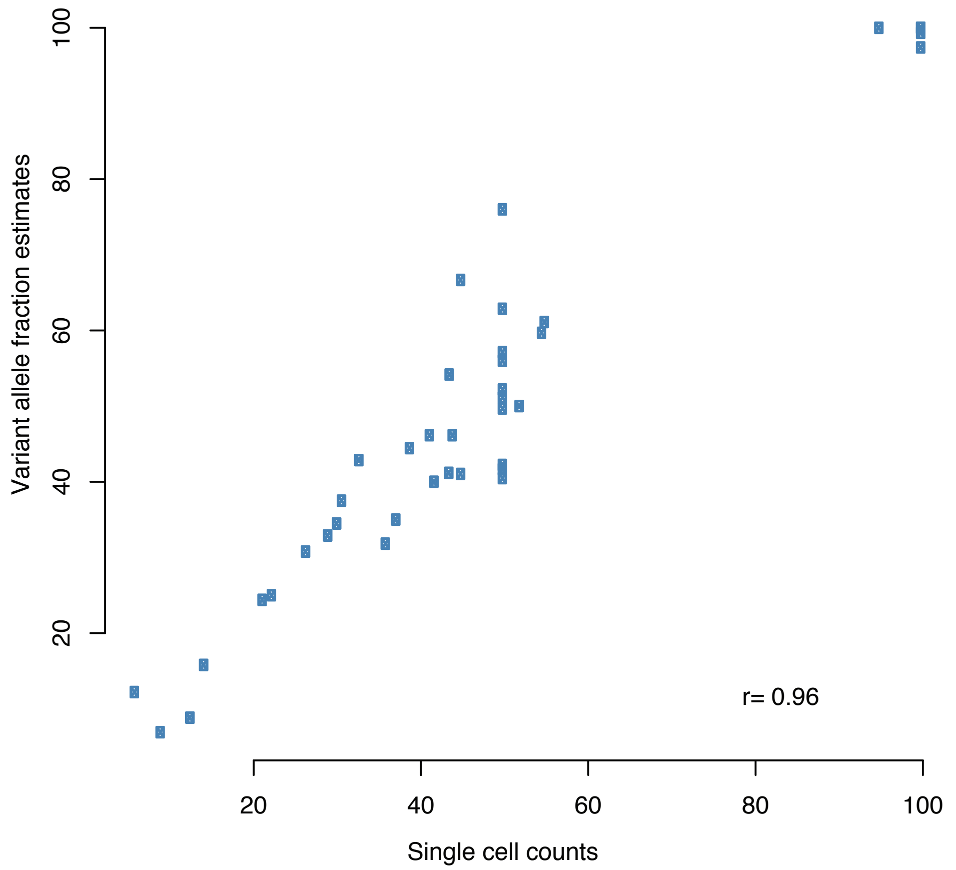

a
%CR
CR
RD
DiCR
DaR
AaR
AinCR
Complex
TP53 loss
Complex and TP53 loss
<3 CA
n=51
n=21
n=89
n=38
% Complete remission
% Refractory disease
% Death in complete remission
% Death after relapse
% Alive after relapse
% Alive in CR
b
TP53 wt
TP53 mut
Overall survival
0 CNAs
1–2 CNAs
3–4 CNAs
5+ CNAs
p<0.0001
p=0.02
Time (years)
c
BM_Blasts
PB_Blasts
WBC
HB
Platelet
AOD
ASXL1
RUNX1
SF-mutated
Metrics for patients in class
Metrics for patients not in class

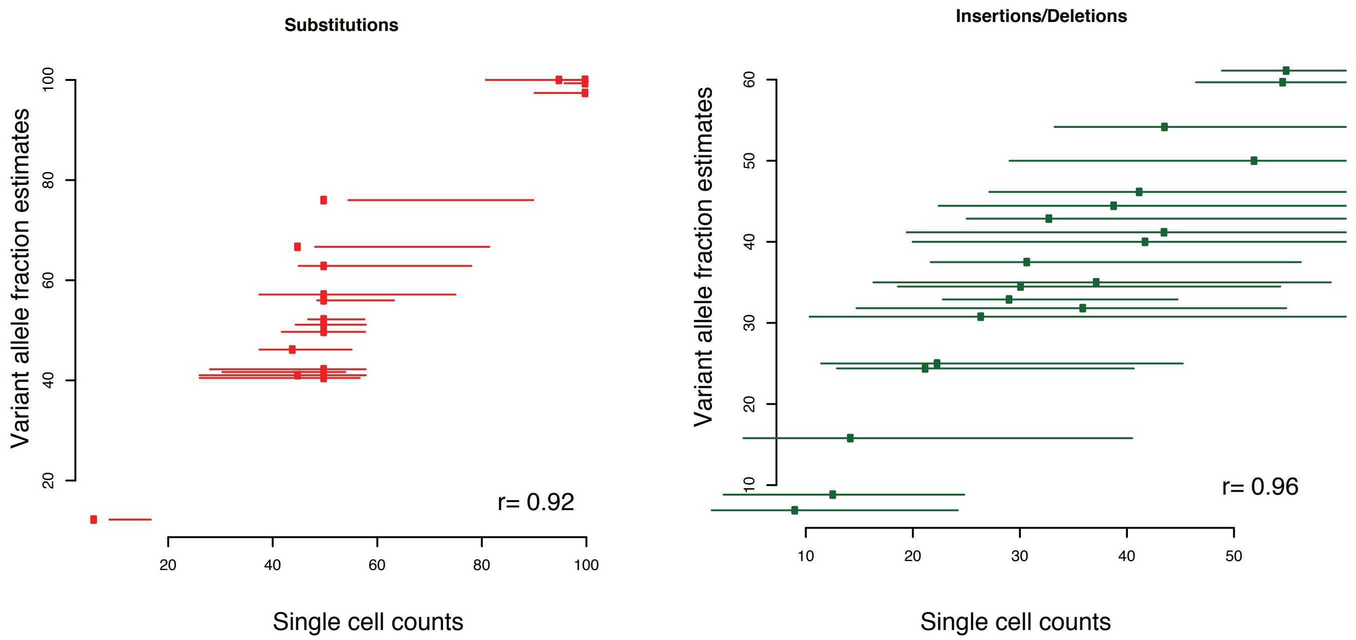
Figure S19: (A) Pearson's correlation analysis of variant allele fraction estimates in bulk DNA sequencing by NGS (y-axis) and single cell (x-axis) targeted re-sequencing for 84 variants in 14 independent samples. (B) Correlation of variant allele fraction estimates and single cell genotyping restricted to substitutions. (C) Correlation of variant allele fraction estimates and single cell genotyping restricted to indels.

a



Variant allele fraction estimates
20
40
60
80
100
r= 0.96
20
40
60
80
100
Single cell counts

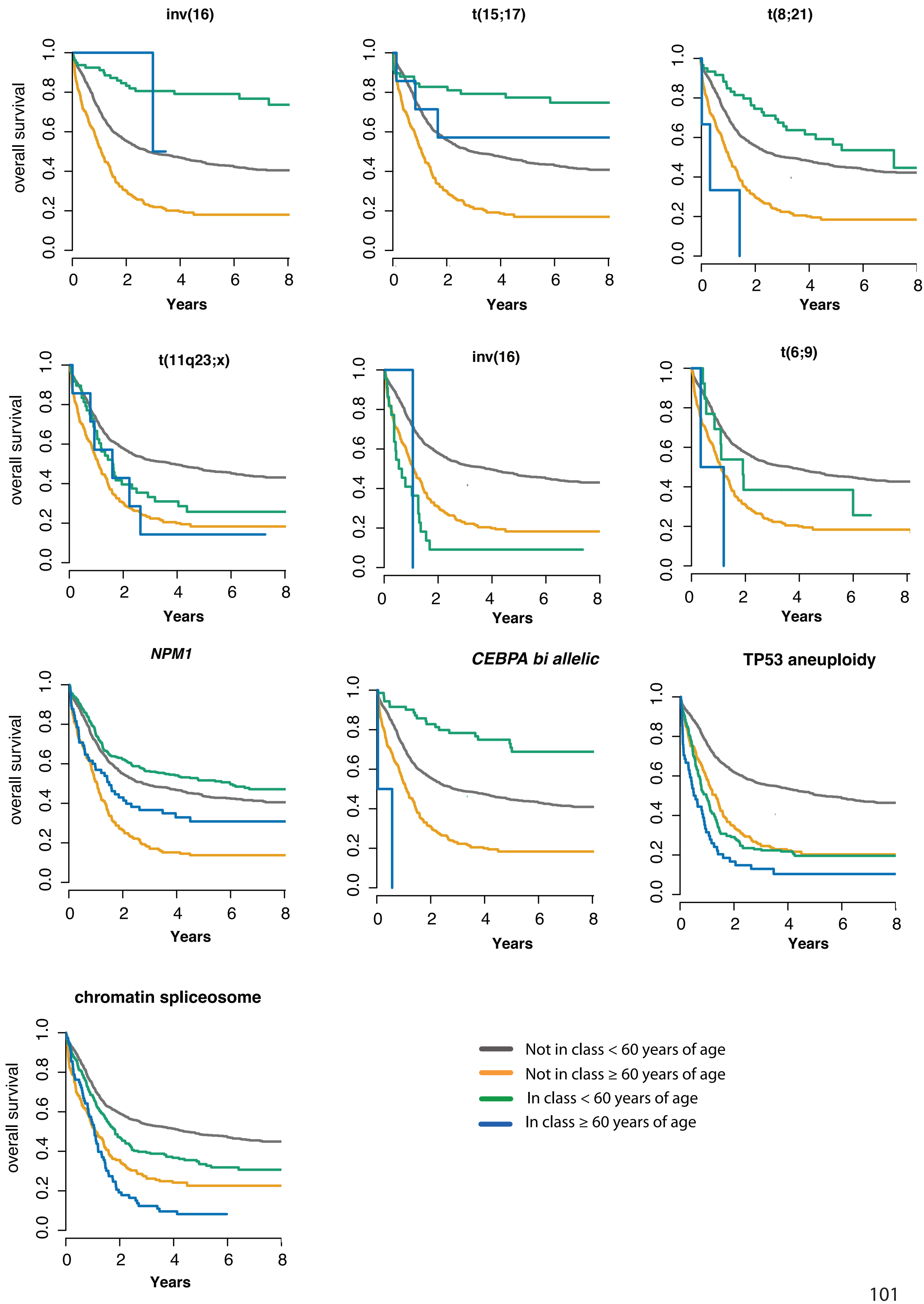
b



Substitutions
Variant allele fraction estimates
r= 0.92
Single cell counts
Insertions/Deletions
Variant allele fraction estimates
r= 0.96
Single cell counts

Figure S20: Overall survival Kaplan Meier curves for each class in dataset split into 4 groups. In green patients in class that are younger than 60 years of age, in blue patients in class that are 60 years or older, in orange patients not in class that are 60 years or older and in grey patients not in class that are 60 years or younger.

a



inv(16)
t(15;17)
t(8;21)
t(11q23;x)
inv(16)
t(6;9)
NPM1
CEBPA bi allelic
TP53 aneuploidy
chromatin spliceosome
overall survival
Years
Not in class < 60 years of age
Not in class ≥ 60 years of age
In class < 60 years of age
In class ≥ 60 years of age

Supplementary Tables List of Contents

Table S1: Baseline characteristics of patients in the study

Variable	Distribution in the cohort
Sample size	
Total	1540
HD98A	627
HD98B	173
07-04	740
Follow up time:	**Days**
HD98A	812 (1-5384)
HD98B	352 (5-5248)
07-04	1026 (1-3080)
Type of AML	**Total (HD98A, HD98B, 07-04)**
De novo	1409 (582,157,672)
t-AML	68 (23,7,38)
s-AML	61 (22,9,30)
Missing	2
Gender	**Total (HD98A, HD98B, 07-04)**
Male	823 (324,98, 401)
Female	719 (303, 75, 341)
Age – median (range)	
HD98A	47 (18-65)
HD98B	66 (58-84)
07-04	49 (18-61)
Cytogenetic risk group	**Total (HD98A, HD98B, 07-04)**
Favorable	205 (133,9,63)
Intermediate	960 (351,119,490)
Adverse	253 (87,29,137)
Not evaluable	115
Molecular risk group (ELN criteria)	**Total (HD98A, HD98B, 07-04)**
Favorable	473 (235,34,204)
Intermediate-1	417 (144,57,216)
Intermediate-2	268 (103,37,128)
Adverse	253 (87,29,137)
Missing	129
WBC Count *(10^9 /l)*:	**median (range)**
HD98A	14 (0.2-427)
HD98B	8 (0.4-303)
07-04	16 (0.2-533)
Platelet Count *(10^9 /l)*:	**median (range)**
HD98A	48 (2-746)
HD98B	64 (6-445)
07-04	55 (5-916)
LDH *(U/l)*:	**median (range)**
HD98A	445 (90-7626)
HD98B	348 (83-3953)
07-04	445 (84-6907)
TPL	**Total (HD98A, HD98B, 07-04)**
ALLO-HSCT-MRD	302 (119,10,173)
AUTO	95 (87,3,5)
HAPLO	14 (0,0,14)
ALLO-HSCT-MUD	409 (125,2,282)

Abbreviations:

t-AML: therapy-related AML; **sAML,** secondary AML evolving from antecedent myeloid disorder; **ELN,** European Leukemia Net;
alloHSCT, allogeneic hematopoietic stem cell transplantation;
MRD, matched related donor; **auto**, autologous; **haplo,** haploidentical; **MUD,** matched unrelated.

Table S2:

Genes and Ensembl IDs used for the design of RNA baits to selectively capture DNA for the samples in the study and Copy Number Alrterations as well as genomic rearrangements considered in the analysis.

Symbol	Ensembl ID	NCBI ID	Position		Include in Analysis as is	Median Gene Cov	Average Gene Cov	laboratory data	of hotspot	Action
ABCA12	ENSG00000144452	26154	2q34		Yes	295	287.1764706			
ABL1	ENSG00000097007	25	9q34.1		Yes	59	59.41176471			
ACTR5	ENSG00000101442	79913	20q11.23		Yes	166	164.545098			
ARHGAP26	ENSG00000145819	23092	5q31		Yes	418	404.6627451			
ASXL1	ENSG00000171456	171023	20q11.1		Yes	117	118.3803922			
ATRX	ENSG00000085224	546	Xq21.1		Yes	185	221.1254902			
ATXN7L1	ENSG00000146776	222255	7q22.3		Yes	100	101.1058824			
BCOR	ENSG00000183337	54880	Xp11.14		Yes	48	53.74117647			
BRAF	ENSG00000157764	673	7q34		Yes	229	219.8352941		Yes	
CBL	ENSG00000110395	867	11q23.3		Yes	221	218.2			
CBLB	ENSG00000114423	868	3q13.11		Yes	217	210.4862745			
CBLC	ENSG00000142273	23624	19q13.2		Yes	40	41.05490196			
CD101	ENSG00000134256	9398	1p13		Yes	168	169.8156863			
CDH1	ENSG00000039068	999	16q22.1		Yes	181	183.1019608			
CDKN1B	ENSG00000111276	1027	12p13.1		Yes	30	30.2			
CDKN2A	ENSG00000147889	1029	9p21	* Counted as 1 gene locus in text	Yes	38	38.11764706			
CDKN2B	ENSG00000147883	1030	9p21.3	*	Yes	38	37.83529412			
CEBPA	ENSG00000245848	1050	19q13.1		**No**	13	12.89411765	Yes		NGS data were cross-referenced and complemented
CHGA	ENSG00000100604	1113	14q32		**No**	11	11.43137255			
CREBBP	ENSG00000005339	1387	16p13.3		Yes	94	94.25098039			
CSF1R	ENSG00000182578	1436	5q32		Yes	84	83.96470588			
CSF2	ENSG00000164400	1437	5q31.1		**No**	18	18.68235294			
CTNNA1	ENSG00000044115	1495	5q31		Yes	191	184.2666667			
CUX1	ENSG00000160967	1523	7q22.1		Yes	39	39.78823529			
DDX18	ENSG00000088205	8886	2q14.1		Yes	321	317.0941176			
DNMT1	ENSG00000130816	1786	19p13.2		Yes	56	58.12156863			
DNMT3A	ENSG00000119772	1788	2p23		Yes	44	45.60784314		Yes	
EGFR	ENSG00000146648	1956	7p12		Yes	135	134.3843137			
ELF1	ENSG00000120690	1997	13q14.11		Yes	219	216.9568627			
EP300	ENSG00000100393	2033	22q13		Yes	199	200.4431373			
ERG	ENSG00000157554	2078	21q22.2		Yes	128	129.2627451			
ETV6	ENSG00000139083	2120	12p13.2		Yes	136	137.0627451			
MECOM	ENSG00000085276	2122	3q26		Yes	228	228.4039216			
EZH2	ENSG00000106462	2146	7q35------36		Yes	259	249.3019608			
FAM175B	ENSG00000165660	23172	10q26.13		Yes	108	109.5372549			
FBXW7	ENSG00000109670	55294	4q31.3		Yes	366	358.6941176			
FLT3	ENSG00000122025	2322	13q12		Yes	282	281.6941176	Yes	Yes	NGS data were cross-referenced and complemented
GATA1	ENSG00000102145	2623	Xp11.23		Yes	48	53.80392157			
GATA2	ENSG00000179348	2624	3q21.3		Yes	20	20.89019608			
GNAS	ENSG00000087460	2778	20q13.3		Yes	50	50.8627451		Yes	
HIPK2	ENSG00000064393	28996	7q34		Yes	170	165.7568627			
HRAS	ENSG00000174775	3265	11p15.5		**No**	5	5.364705882			
HMGA2	ENSG00000149948	8091	12q15		Yes	314	309.1882353			
IDH1	ENSG00000138413	3417	2q33.3		Yes	175	176.2588235		Yes	
IDH2	ENSG00000182054	3418	15q26.1		Yes	45	46.14901961		Yes	
IKZF1	ENSG00000185811	10320	7p13		Yes	136	133.1333333			
INVS	ENSG00000119509	27130	9q31		Yes	246	239.3803922			
IRF1	ENSG00000125347	3659	5q31.1		Yes	33	34.03529412			
JAK2	ENSG00000096968	3717	9p24		Yes	285	282.1333333			
JAK3	ENSG00000105639	3718	19p13.1		**No**	14	14.20784314			
KDM2B	ENSG00000089094	84678	12q24.31		Yes	43	44.1372549			
KDM5A	ENSG00000073614	5927	12p13.33		Yes	300	292.0784314			
KDM6A	ENSG00000147050	7403	Xp11.2		Yes	180	213.3607843			
KIT	ENSG00000157404	3815	4q12		Yes	217	216.4941176		Yes	
KRAS	ENSG00000133703	3845	12p12.1		Yes	166	162.3647059		Yes	
LCORL	ENSG00000178177	254251	4p15.31		Yes	218	213.1803922			
LILRA3	ENSG00000170866	11026	19q13.4		Yes	97	89.11764706			
MAP2K5	ENSG00000137764	5607	15q23		Yes	239	234.3647059			
MET	ENSG00000105976	4233	7q31		Yes	223	212.2078431			
MLL	ENSG00000118058	4297	11q23		Yes	267	269.9686275			
MLL2	ENSG00000167548	8085	12q12		Yes	74	76.5254902			
MLL3	ENSG00000055609	58508	7q36.1		Yes	315	303.3215686			
MLL5	ENSG00000005483	55904	7q22.3		Yes	228	219.8196078			
MMD2	ENSG00000136297	221938	7p22.1		Yes	49	49.36078431			
MN1	ENSG00000169184	4330	22q12.1		Yes	27	28.0627451			
MPL	ENSG00000117400	4352	1p34.2		Yes	218	214.5372549			
MTAP	ENSG00000099810	4507	9p21.3		Yes	198	192.1372549			
MYC	ENSG00000136997	4609	8q24.21		Yes	105	127.7843137		Yes	
NF1	ENSG00000196712	4763	17q11.2		Yes	262	253.2941176			
NLRP1	ENSG00000091592	22861	17p13.2		Yes	143	140.7176471			
NOTCH1	ENSG00000148400	4851	9q34.3		**No**	3	2.62745098			
NPM1	ENSG00000181163	4869	5q35		Yes	177	174.7882353	Yes	Yes	NGS data were crossreferenced and complemented
NR5A1	ENSG00000136931	2516	9q33		**No**	3	2.866666667			
NRAS	ENSG00000213281	4893	1p13.2		Yes	357	350.6196078		Yes	
NRD1	ENSG00000078618	4898	1p32.2---p32.1		Yes	207	204.8117647			
NSD1	ENSG00000165671	64324	5q35.2		Yes	229	225.2509804			
NUP98	ENSG00000110713	4928	11p15.4		Yes	192	189.1058824			
OCA2	ENSG00000104044	4948	15q12---q13.1		Yes	134	133.1294118			
PDGFRA	ENSG00000134853	5156	4q12		Yes	177	178.3882353			
PHF12	ENSG00000109118	57649	17q11.2		Yes	87	89.55294118			
PHF6	ENSG00000156531	84295	Xq26.2		Yes	114	136.4196078			
PKP3	ENSG00000184363	11187	11p15		**No**	0	0.015686275			
PRDX2	ENSG00000167815	7001	19p13.2		Yes	35	35.88235294			
PRPF40B	ENSG00000110844	25766	12q13.12		Yes	75	76.81960784			
PTEN	ENSG00000171862	5728	10q23.3		Yes	332	326.5490196			
PTPN11	ENSG00000179295	5781	12q24.1		Yes	232	230.9254902			
RAD21	ENSG00000164754	5885	8q24.11		Yes	210	210.3215686			
RAD50	ENSG00000113522	10111	5q31.1		Yes	223	215.3372549			
RB1	ENSG00000139687	5925	13q14		Yes	261	256.2313725			
RINT1	ENSG00000135249	60561	7q22.3		Yes	177	175.1803922			
RORC	ENSG00000143365	6097	1q21		Yes	92	96.57254902			
RUNX1	ENSG00000159216	861	21q22.3		Yes	75	75.78039216			
RUNX1T1	ENSG00000079102	862	8q22		Yes	202	201.3019608			
SF1	ENSG00000168066	7536	11q13.1		Yes	50	51.36862745			
SF3A1	ENSG00000099995	10291	22q12.2		Yes	113	118.1490196			
SF3B1	ENSG00000115524	23451	2q33.1		Yes	173	173.7333333		Yes	
SH2B3	ENSG00000111252	10019	12q24.12		Yes	45	47.29019608			
SOCS1	ENSG00000185338	8651	16p13.13		**No**	15	15.45490196			
SPI1	ENSG00000066336	6688	11p11.2		Yes	41	41.84313725			
SRPK2	ENSG00000135250	6733	7q22.3		Yes	254	245.1254902			
SRSF2	ENSG00000161547	6427	17q25.1		Yes	31	31.29019608		Yes	
STAG2	ENSG00000101972	10735	Xq25		Yes	141	165.3411765			
STK17B	ENSG00000081320	9262	2q32.3		Yes	156	154.0862745			
TCF4	ENSG00000196628	6925	18q21.2		Yes	201	197.7882353			
TET1	ENSG00000138336	80312	10q21.3		Yes	206	206.3019608			
TET2	ENSG00000168769	54790	4q24		Yes	465	456.3882353		Yes	
TP53	ENSG00000141510	7157	17p13.1		Yes	157	156.0313725		Yes	
U2AF1	ENSG00000160201	7307	21q22.3		Yes	105	108.0039216		Yes	
U2AF2	ENSG00000063244	11338	19q13.42		Yes	36	37.12156863		Yes	
WT1	ENSG00000184937	7490	1p13		Yes	101	102.9019608			
ZEB2	ENSG00000169554	9839	2q22.3		Yes	228	227.054902			
ZRSR2	ENSG00000169249	8233	Xp22.1		Yes	88	100.6705882			
Cytogenetic Alterations										
abn3q										
mono4/4q										
mono5/5q										
mono7/7q										
plus8/8q										
mono9q										
plus11/11q										
mono12/12p										
plus13										
mono17/17p										
mono18/18q										
mono20/20q										
plus21										
plus22										
monoY										
complex										
Genomic Rearrangement										
t(x;11q23)	MLL rearrangements									
inv(3)/t(3;3)	*RPN1-EVI1*									
t(15;17)(q22;q11-12)	*PML-RARA*									
t (8; 21)(q22; q22)	*AML-ETO*									
inv(16)(p13q22)	*CBF-MYH11*									
t(*6;9*)(p23;q34)	*DEK-NUP214*									
t(*9;22*)(q34;q11)	BCR-ABL									

Table S3: List of FLT3 ITDs identified by diagnostic laboratory, automatic detection using PINDEL algorithm and by bespoke variant retrieva

	Diagnostic	
	ITD	**WT**
	338	1185
PINDEL_ITD	88	4
PINDEL_noITD	250	1181
Manual_ITD	305	21
Manual_noITD	33	1164

Sample (with FLT3 data at diagnosis)	DIAGNOSTIC_ITD (1:positive; 0: negative)	Manual ITD
PD8269a	1	Manual_ITD
PD11045a	1	Manual_ITD
PD9335a	1	Manual_ITD
PD8585a	1	Manual_ITD
PD11013a	1	Manual_ITD
PD8003a	1	Manual_ITD
PD8225a	1	Manual_ITD
PD8417a	1	Manual_ITD
PD7786a	1	Manual_ITD
PD11262a	1	Manual_ITD
PD7945a	1	Manual_ITD
PD8055a	1	Manual_ITD
PD11261a	1	Manual_ITD
PD8191a	1	Manual_ITD
PD10947a	1	Manual_ITD
PD9318a	1	Manual_ITD
PD8073a	1	Manual_ITD

PD11221a	1	Manual_ITD
PD7615a	1	Manual_ITD
PD8205a	1	Manual_ITD
PD10981a	1	Manual_ITD
PD11245a	1	Manual_ITD
PD10802a	1	Manual_ITD
PD10852a	1	Manual_ITD
PD10880a	1	Manual_ITD
PD7625a	1	Manual_ITD
PD7685a	1	Manual_ITD
PD7911a	1	Manual_ITD
PD7918a	1	Manual_ITD
PD7944a	1	Manual_ITD
PD7984a	1	Manual_ITD
PD7997a	1	Manual_ITD
PD8298a	1	Manual_ITD
PD8322a	1	Manual_ITD
PD8419a	1	Manual_ITD
PD8346a	1	Manual_ITD
PD9277a	1	Manual_ITD
PD9284a	1	Manual_ITD
PD11016a	1	Manual_ITD
PD8031a	1	Manual_ITD
PD7910a	1	Manual_ITD
PD11006a	1	Manual_ITD
PD7804a	1	Manual_ITD
PD9339a	1	Manual_ITD
PD9326a	1	Manual_ITD
PD7854a	1	Manual_ITD

PD7791a	1	Manual_ITD
PD9243a	1	Manual_ITD
PD7784a	1	Manual_ITD
PD7879a	1	Manual_ITD
PD11098a	1	Manual_ITD
PD11248a	1	Manual_ITD
PD7871a	1	Manual_ITD
PD9364a	1	Manual_ITD
PD11282a	1	Manual_ITD
PD7835a	1	Manual_ITD
PD8266a	1	Manual_ITD
PD10900a	1	Manual_ITD
PD11064a	1	Manual_ITD
PD7880a	1	Manual_ITD
PD10896a	1	Manual_ITD
PD8194a	1	Manual_ITD
PD7909a	1	Manual_ITD
PD9252a	1	Manual_ITD
PD10951a	1	Manual_ITD
PD7759a	1	Manual_ITD
PD8397a	1	Manual_ITD
PD9240a	1	Manual_ITD
PD10906a	1	Manual_ITD
PD7904a	1	Manual_ITD
PD11076a	1	Manual_ITD
PD8384a	1	Manual_ITD
PD10994a	1	Manual_ITD
PD7961a	1	Manual_ITD
PD7994a	1	Manual_ITD

PD10829a	1	Manual_ITD
PD8120a	1	Manual_ITD
PD7962a	1	Manual_ITD
PD10972a	1	Manual_ITD
PD7656a	1	Manual_ITD
PD9348a	1	Manual_ITD
PD10968a	1	Manual_ITD
PD10922a	1	Manual_ITD
PD8270a	1	Manual_ITD
PD8374a	1	Manual_ITD
PD8226a	1	Manual_ITD
PD8127a	1	Manual_ITD
PD11048a	1	Manual_ITD
PD11204a	1	Manual_ITD
PD11212a	1	Manual_ITD
PD11257a	1	Manual_ITD
PD11217a	1	Manual_ITD
PD7766a	1	Manual_ITD
PD7810a	1	Manual_ITD
PD7993a	1	Manual_ITD
PD8301a	1	Manual_ITD
PD8162a	1	Manual_ITD
PD8253a	1	Manual_ITD
PD7670a	1	Manual_ITD
PD10884a	1	Manual_ITD
PD7667a	1	Manual_ITD
PD11195a	1	Manual_ITD
PD11263a	1	Manual_ITD
PD7705a	1	Manual_ITD

PD7847a	1	Manual_ITD
PD8090a	1	Manual_ITD
PD8211a	1	Manual_ITD
PD8233a	1	Manual_ITD
PD8375a	1	Manual_ITD
PD8456a	1	Manual_ITD
PD8479a	1	Manual_ITD
PD8284a	1	Manual_ITD
PD8484a	1	Manual_ITD
PD8016a	1	Manual_ITD
PD9361a	1	Manual_ITD
PD10987a	1	Manual_ITD
PD11250a	1	Manual_ITD
PD7905a	1	Manual_ITD
PD9324a	1	Manual_ITD
PD11244a	1	Manual_ITD
PD8494a	1	Manual_ITD
PD10807a	1	Manual_ITD
PD8018a	1	Manual_ITD
PD8297a	1	Manual_ITD
PD10870a	1	Manual_ITD
PD11171a	1	Manual_ITD
PD8020a	1	Manual_ITD
PD7793a	1	Manual_ITD
PD10916a	1	Manual_ITD
PD8316a	1	Manual_ITD
PD10904a	1	Manual_ITD
PD7978a	1	Manual_ITD
PD8193a	1	Manual_ITD

PD8274a	1	Manual_ITD
PD7837a	1	Manual_ITD
PD7863a	1	Manual_ITD
PD7808a	1	Manual_ITD
PD8472a	1	Manual_ITD
PD7862a	1	Manual_ITD
PD10804a	1	Manual_ITD
PD8413a	1	Manual_ITD
PD8014a	1	Manual_ITD
PD7888a	1	Manual_ITD
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PD8387a	1	Manual_ITD
PD9255a	1	Manual_ITD
PD8048a	1	Manual_ITD
PD8188a	1	Manual_ITD

al using a database of ITD sequences to generate reference sequences followed by allignment of mapped and unmap

PINDEL	
Sensitivity	26%
Specificity	83%
ITD_retrieval	
Sensitivity	90%
Specificity	96%

Manual Retrieval ITD	Manual ITD Length	PINDEL_ITD	Chrom	Pos	efference alle
ATATTCTCTGAAAT	15	PINDEL_ITD	13	28608260	T
TTCATATTCTCTGA	15	PINDEL_ITD	13	28608276	A
TCATATTCTCTGAAATCA	18	PINDEL_ITD	13	28608280	A
ACTCCCATTTGAGATCAT	18	PINDEL_ITD	13	28608261	A
ATATTCATATTCTCTGAA	18	PINDEL_ITD	13	28608278	T
ATATTCATATTCTCTGAA	18	PINDEL_ITD	13	28608278	T
ATATTCATATTCTCTGAA	18	PINDEL_ITD	13	28608258	C
ATATTCATATTCTCTGAA	18	PINDEL_ITD	13	28608258	C
ATCATATTCATATTCTCT	18	PINDEL_ITD	13	28608273	T
TCATATTCTCTGAAATCA	18	PINDEL_ITD	13	28608280	A
TCATATTCTCTGAAATCA	18	PINDEL_ITD	13	28608262	T
TCTCTGAAATCAACGT	18	PINDEL_ITD	13	28608268	T
TCTCTGAAATCAACGTAG	18	PINDEL_ITD	13	28608286	G
TCTCTTGGAAACTCCC	18	PINDEL_ITD	13	28608232	T
TTTTCTCTTGGAAACTCC	18	PINDEL_ITD	13	28608247	C
GACAACATCTCATTCTATGCA	21	PINDEL_ITD	13	28608272	C
ATTCATATTCTCTGAAATCAA	21	PINDEL_ITD	13	28608260	T

CGTAGAAGTACTCATTATCTC	21	PINDEL_ITD	13	28608302	G
TGAGATCATATTCATATTCTC	21	PINDEL_ITD	13	28608275	A
TTCATATTCTCTGAAATCAAC	21	PINDEL_ITD	13	28608261	A
ATATTCATATTCTCTGA	24	PINDEL_ITD	13	28608249	A
CTCCCATTTGAGATCA	24	PINDEL_ITD	13	28608310	G
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608286	G
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608286	G
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608286	G
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608262	T
TCATATTCTCTGAAATCAACG	24	PINDEL_ITD	13	28608286	G
TCCCATTTGAGATCATATTCA	24	PINDEL_ITD	13	28608267	A
GAGATCATATTCATATTCTCT	27	PINDEL_ITD	13	28608279	C
TTGAGATCATATTCATATTCT	27	PINDEL_ITD	13	28608250	T
ATCAACGTAGAAGTACTCAT	27	PINDEL_ITD	13	28608303	A
CATTTGAGATCATATTCATAT	27	PINDEL_ITD	13	28608247	C
GATTTCAGAGAATATGAATA	27	PINDEL_ITD	13	28608280	A
GGAAACTCCCATTTGAGATCA	27	PINDEL_ITD	13	28608238	T
TCCCATTTGAGATCATATTCA	27	PINDEL_ITD	13	28608244	C
CTGAAATCAACGTAGAAGTA	30	PINDEL_ITD	13	28608268	T
GAAACTCCCATTTGAGATCAT	30	PINDEL_ITD	13	28608239	G
ATTCTCTGAAATCAACGTAGA	30	PINDEL_ITD	13	28608262	T

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TCATATTCTCTGAAATCAACG	30	PINDEL_ITD	13	28608262	T
TCTTGGAAACTCCCATTTGAG	30	PINDEL_ITD	13	28608231	T
TGAGATCATATTCATATTCTC	30	PINDEL_ITD	13	28608270	C
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TTCTCTGAAATCAACGTAGA	30	PINDEL_ITD	13	28608267	A
TGAGATCATATTCATATTCTC	33	PINDEL_ITD	13	28608284	T
AATCAACGTAGAAGTACTCA	33	PINDEL_ITD	13	28608304	G
AATTTTCTCTTGGAAACTCCC	33	PINDEL_ITD	13	28608230	T
ATTCATATTCTCTGAAATCAA	33	PINDEL_ITD	13	28608260	T
CATATTCTCTGAAATCAACGT	33	PINDEL_ITD	13	28608262	T
GGAAACTCCCATTTGAGATCA	33	PINDEL_ITD	13	28608238	T
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TCTGAAATCAACGTAGAAGT	33	PINDEL_ITD	13	28608270	C
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CCAAACTCTAAATTTTCTCTT	36	PINDEL_ITD	13	28608253	G
TCTCTGAAATCAACGTAGAA	36	PINDEL_ITD	13	28608268	T
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GGAAACTCCCATTTGAGATCA	42	PINDEL_ITD	13	28608280	A
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CTGAAATCAACGTAGAAGTA	45	PINDEL_ITD	13	28608271	T
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TTTGAGATCATATTCATATTC	48	PINDEL_ITD	13	28608249	A
AAACTCTAAATTTTCTCTTGG	51	PINDEL_ITD	13	28608254	A
AAATTTTCTCTTGGAAACTCC	51	PINDEL_ITD	13	28608226	T
CCAAACTCTAAATTTTCTCTT	51	PINDEL_ITD	13	28608267	A

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ATCATATTCATATTCTCTGAA		54	PINDEL_ITD	13	28608304	G
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CTCTGAAATCAACGTAGAAG		57	PINDEL_ITD	13	28608301	T
ACTCCCATTTGAGATCATATT		90	PINDEL_ITD	13	28608296	T
TTCTCTGAAATCAACGTAGA/	ambiguous		PINDEL_ITD	13	28608266	T
TTCTCTTGGAAACTCCCA	ambiguous		PINDEL_ITD	13	28608231	T
TTCTTACCAAACTCTAAATTT	ambiguous		PINDEL_ITD	13	28608218	C
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CCCATTTGAGATCATATTCAT	66
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CAAACTCTAAATTTTCTCTTG	69
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GAAATCAACGTAGAAGTACT	69
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TTGGAAACTCCCATTTGAGA	69

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TTCATATTCTCTGAAATCAAC	72
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ATTTTCTCTTGGAAACTCCCA	78
TAAATTTTCTCTTGGAAACTC	78
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ATTTTCTCTTGGAAACTCCCA	81
TTCATATTCTCTGAAATCAAC	81
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ACCAAACTCTAAATTTTCTCT	84
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CAAACTCTAAATTTTCTCTTG	84
GATCATATTCATATTCTCTGA	87
AAACTCTAAATTTTCTCTTGG	90
AAACTCTAAATTTTCTCTTGG	90
TACCAAACTCTAAATTTTCTCT	93
TTCTCTTGGAAACTCCCATTT	93
TAAATTTTCTCTTGGAAACTC	96
ACCAAACTCTAAATTTTCTCT	99
ACCAAACTCTAAATTTTCTCT	99
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TTACCAAACTCTAAATTTTCT	99
CAAACTCTAAATTTTCTCTTG	102
CCAAACTCTAAATTTTCTCTT	102
CTAAATTTTCTCTTGGAAACT	102

TCTAAATTTTCTCTTGGAAAC	102
GAAACATTTGGCACATTCCAT	105
TCTAAATTTTCTCTTGGAAAC	105
TCTTGGAAACTCCCATTTGAG	105
CAAACTCTAAATTTTCTCTTG	108
AAATTTTCTCTTGGAAACTCC	111
CAAACTCTAAATTTTCTCTTG	114
CATTCCATTCTTACCAAACTCT	114
GGCACATTCCATTCTTACCAA	114
ATCACTTTTCCAAAAGCACCT	156
TGCAAAGACAAATGGTGAGT	156
AGCACCTGATCCTAGTACCTT	171
GTTGCGTTCATCACTTTTCCA	171
TACCTTCCCTGCAAAGACAAA	171
ACCTGATCCTAGTACCTTCCC	174
TTTTCCAAAAGCACCTGATCC	183
CCTGCAAAGACAAATGGTGA	195
CACCTGATCCTAGTACCTTCC	198
CCTGCAAAGACAAATGGTGA	198
TTCCCTGCAAAGACAAATGGT	198
TGCTAATTCCATAAGCTGTTG	204
AATTCCATAAGCTGTTGCGTT	240

ped reads.

Variant Allele	Filter	Gene	Transcript	RNA	CDS	Protein	Type	RANGE START
TATTCATATTCTCTGA	PASS	FLT3	CCDS31953.1	r.1877_1878	c.1795_1796	p.E598_Y599	Ins	28608260
ATTCATATTCTCTGAA	PASS	FLT3	CCDS31953.1	r.1861_1862	c.1779_1780	p.E598_Y599	Ins	28608260
ATCATATTCTCTGAAATCA	Failled	FLT3	CCDS31953.1	r.1857_1858	c.1775_1776	p.Y597_E598	Ins	28608262
ACTCCCATTTGAGATCATA	PASS	FLT3	CCDS31953.1	r.1876_1877	c.1794_1795	p.E604_F605	Ins	28608242
TATTCATATTCTCTGAAAT	Failled	FLT3	CCDS31953.1	r.1859_1860	c.1777_1778	p.Y599_D600	Ins	28608258
TATTCATATTCTCTGAAAT	PASS	FLT3	CCDS31953.1	r.1859_1860	c.1777_1778	p.Y599_D600	Ins	28608258
CATATTCATATTCTCTGAA	Failled	FLT3	CCDS31953.1	r.1879_1880	c.1797_1798	p.Y599_D600	Ins	28608258
CATATTCATATTCTCTGAA	Failled	FLT3	CCDS31953.1	r.1879_1880	c.1797_1798	p.Y599_D600	Ins	28608258
TATCATATTCATATTCTCT	Failled	FLT3	CCDS31953.1	r.1864_1865	c.1782_1783	p.D600_L601	Ins	28608255
ATCATATTCTCTGAAATCA	Failled	FLT3	CCDS31953.1	r.1857_1858	c.1775_1776	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCA	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCTCTGAAATCAACGTCC	Failled	FLT3	CCDS31953.1	r.1869_1870	c.1787_1788	p.E596_Y597	Ins	28608268
GTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1851_1852	c.1769_1770	p.R595_E596	Ins	28608268
TTCTCTTGGAAACTCCCGG	Failled	FLT3	CCDS31953.1	r.1905_1906	c.1823_1824	p.R607_E608	Ins	28608232
CTTTTCTCTTGGAAACTCC	Failled	FLT3	CCDS31953.1	r.1890_1891	c.1808_1809	p.E608_N609	Ins	28608229
CGCCATACCTCAACTTGAACATCAG	Failled	FLT3	CCDS31953.1	r.1865_1866	c.1783_1784	p.F594_R595	Ins	28608272
TATTCATATTCTCTGAAATCAA	Failled	FLT3	CCDS31953.1	r.1877_1878	c.1795_1796	p.E598_Y599	Ins	28608260

GCGTAGAAGTACTCATTATCTG	Failled	FLT3	CCDS31953.1	r.1835_1836	c.1753_1754	p.Y591_V592	Ins	28608281
AGATCATATTCATATTCTCTGA	Failled	FLT3	CCDS31953.1	r.1862_1863	c.1780_1781	p.L601_K602	Ins	28608251
ATTCATATTCTCTGAAATCAAC	Failled	FLT3	CCDS31953.1	r.1876_1877	c.1794_1795	p.E598_Y599	Ins	28608261
ATTTGAGATCATATTCATATTCTCT	Failled	FLT3	CCDS31953.1	r.1888_1889	c.1806_1807	p.K602_W60	Ins	28608249
GCCTAAATCAACGTAGAAGTACTC	Failled	FLT3	CCDS31953.1	r.1827_1828	c.1745_1746	p.D593_F594	Ins	28608274
GTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1851_1852	c.1769_1770	p.Y597_E598	Ins	28608262
GTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1851_1852	c.1769_1770	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	PASS	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
GTCATATTCTCTGAAATCAACGTAG	PASS	FLT3	CCDS31953.1	r.1851_1852	c.1769_1770	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
GTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1851_1852	c.1769_1770	p.Y597_E598	Ins	28608273
AATCCCATTTGAGATCATATTCATA	Failled	FLT3	CCDS31953.1	r.1870_1871	c.1788_1789	p.W603_E60	Ins	28608244
CGAGATCATATTCATATTCTCTGAA	Failled	FLT3	CCDS31953.1	r.1858_1859	c.1776_1777	p.L601_K602	Ins	28608263
TTTGAGATCATATTCATATTCTCTG	PASS	FLT3	CCDS31953.1	r.1887_1888	c.1805_1806	p.L601_K602	Ins	28608250
AATCAACGTAGAAGTACTCATTATC	PASS	FLT3	CCDS31953.1	r.1834_1835	c.1752_1753	p.D593_F594	Ins	28608275
CCATTTGAGATCATATTCATATTCT	PASS	FLT3	CCDS31953.1	r.1890_1891	c.1808_1809	p.K602_W60	Ins	28608247
AGGGCGATATTCATATTCTCTGAA	PASS	FLT3	CCDS31953.1	r.1857_1858	c.1775_1776	p.Y599_D60	Ins	28608258
TGGAAACTCCCATTTGAGATCATAT	Failled	FLT3	CCDS31953.1	r.1899_1900	c.1817_1818	p.P606_R607	Ins	28608238
CTCCCATTTGAGATCATATTCATAT	PASS	FLT3	CCDS31953.1	r.1893_1894	c.1811_1812	p.W603_E60	Ins	28608244
TTCTCTGAAATCAACGTAGAAGTA	Failled	FLT3	CCDS31953.1	r.1869_1870	c.1787_1788	p.R595_E596	Ins	28608268
GGAAACTCCCATTTGAGATCATATT	Failled	FLT3	CCDS31953.1	r.1898_1899	c.1816_1817	p.F605_P606	Ins	28608239
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y599_D60	Ins	28608262

GTCATATTCATATTCTCTGAAATCA	Failled	FLT3	CCDS31953.1	r.1851_1852	c.1769_1770	p.D600_L601	Ins	28608256
TTCATATTCTCTGAAATCAAGGGCC	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.E598_Y599	Ins	28608262
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.E598_Y599	Ins	28608262
TTTCTCTTGGAAACTCCCATTTGAG	Failled	FLT3	CCDS31953.1	r.1906_1907	c.1824_1825	p.E608_N60	Ins	28608231
CTCTGAAATCAACGTAGAAGTACT	Failled	FLT3	CCDS31953.1	r.1867_1868	c.1785_1786	p.R595_E59	Ins	28608270
ATTCATATTCTCTGAAATCAACGTA	Failled	FLT3	CCDS31953.1	r.1876_1877	c.1794_1795	p.E598_Y599	Ins	28608261
ATTCTCTGAAATCAACGTAGATCCC	Failled	FLT3	CCDS31953.1	r.1870_1871	c.1788_1789	p.E596_Y597	Ins	28608267
TTGAGATCATATTCATATTCTCTGA	Failled	FLT3	CCDS31953.1	r.1853_1854	c.1771_1772	p.L601_K602	Ins	28608250
GCCCCAATCAACGTAGAAGTACTC	Failled	FLT3	CCDS31953.1	r.1833_1834	c.1751_1752	p.D593_F59	Ins	28608275
TTTTCTCTTGGAAACTCCCATTTGA	Failled	FLT3	CCDS31953.1	r.1907_1908	c.1825_1826	p.N609_L61	Ins	28608227
TATTCATATTCTCTGAAATCAACGT	Failled	FLT3	CCDS31953.1	r.1877_1878	c.1795_1796	p.E598_Y599	Ins	28608260
TTCATATTCTCTGAAATCAACGTAG	Failled	FLT3	CCDS31953.1	r.1875_1876	c.1793_1794	p.Y597_E598	Ins	28608262
TGGAAACTCCCATTTGAGATCATAT	Failled	FLT3	CCDS31953.1	r.1899_1900	c.1817_1818	p.P606_R607	Ins	28608238
TTCTCTGAAATCAACGTAGAAGTA	Failled	FLT3	CCDS31953.1	r.1869_1870	c.1787_1788	p.R595_E59	Ins	28608268
CTCTGAAATCAACGTAGAAGTACT	Failled	FLT3	CCDS31953.1	r.1867_1868	c.1785_1786	p.R595_E59	Ins	28608270
TCCCAAACTCTAAATTTTCTCTTGG	Failled	FLT3	CCDS31953.1	r.1885_1886	c.1803_1804	p.K614_V61	Ins	28608217
GCCAAACTCTAAATTTTCTCTTGGA	Failled	FLT3	CCDS31953.1	r.1884_1885	c.1802_1803	p.K614_V61	Ins	28608217
TTCTCTGAAATCAACGTAGAAGTA	Failled	FLT3	CCDS31953.1	r.1869_1870	c.1787_1788	p.R595_E59	Ins	28608268
TCCCATTTGAGATCATATTCATATT	Failled	FLT3	CCDS31953.1	r.1853_1854	c.1771_1772	p.W603_E60	Ins	28608244
TCATATTCTCTGAAATCAACGTAGA	Failled	FLT3	CCDS31953.1	r.1874_1875	c.1792_1793	p.Y597_E598	Ins	28608263
AGGAAACTCCCATTTGAGACCATA	Failled	FLT3	CCDS31953.1	r.1857_1858	c.1775_1776	p.Y599_D60	Ins	28608257
AGTACTCATTATTATCATATTCATA	Failled	FLT3	CCDS31953.1	r.1849_1850	c.1767_1768	p.D600_L601	Ins	28608255
TCTGAAATCAACGTAGAAGTACTC	Failled	FLT3	CCDS31953.1	r.1866_1867	c.1784_1785	p.R595_E59	Ins	28608271
ACTCATTATCTGAGGATTCATATTC	Failled	FLT3	CCDS31953.1	r.1846_1847	c.1764_1765	p.E598_Y599	Ins	28608260
CCAAACTCTAAATTTTCTCTTGGAA	Failled	FLT3	CCDS31953.1	r.1919_1919	c.1837_1837	p.G613_K61	Ins	28608216
ATTTGAGATCATATTCATATTCTCT	Failled	FLT3	CCDS31953.1	r.1888_1889	c.1806_1807	p.K602_W60	Ins	28608249
AGATCATATTCATAAATAAACTCTA	Failled	FLT3	CCDS31953.1	r.1883_1884	c.1801_1802	p.F612_G61	Ins	28608219
TAAATTTTCTCTTGGAAACTCCCAT	Failled	FLT3	CCDS31953.1	r.1911_1912	c.1829_1830	p.N609_L61	Ins	28608226
ACCCAAACTCTAAATTTTCTCTTGG	Failled	FLT3	CCDS31953.1	r.1870_1871	c.1788_1789	p.G613_K61	Ins	28608217

TATCTGAGGAGAGATCATATTCATA	Failled	FLT3	CCDS31953.1	r.1840_1841	c.1758_1759	p.L601_K602	Ins	28608270
GGAGCCATCATATTCATATTCTCTG	Failled	FLT3	CCDS31953.1	r.1833_1834	c.1751_1752	p.D600_L601	Ins	28608255
CCAAACTCTAAATTTTCTCTTGGAA	Failled	FLT3	CCDS31953.1	r.1919_1919	c.1837_1837	p.G613_K61	Ins	28608217
TGAGGAGCCGGTCACCTGTACCAT	Failled	FLT3	CCDS31953.1	r.1836_1837	c.1754_1755	p.E596_Y597	Ins	28608268
TTATCTGAGGAGCCGGTCC	Failled	FLT3	CCDS31953.1	r.1841_1842	c.1759_1760	p.D586_N58	Ins	28608296
TATTCTCTGAAATCAACGTAGA	Failled	FLT3	CCDS31953.1	r.1871_1872	c.1789_1790	p.E596_Y597	Ins	28608266
TTTCTCTTGGAAACTCCCA	Failled	FLT3	CCDS31953.1	r.1906_1907	c.1824_1825	p.E608_N60	Ins	28608231
CCAAACTCTAAATTTTCTCTTGGAA	Failled	FLT3	CCDS31953.1	r.1919_1919	c.1837_1837	p.K614_V61	Ins	28608211

RANGE END	LENGTH
28608277	15
28608277	15
28608281	18
28608262	18
28608279	18
28608279	18
28608279	18
28608279	18
28608274	18
28608281	18
28608281	18
28608285	18
28608287	18
28608249	18
28608248	18
28608273	27
28608282	21

28608303	21
28608276	21
28608283	21
28608276	30
28608311	39
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608287	24
28608268	24
28608280	27
28608276	27
28608304	27
28608275	27
28608281	27
28608266	27
28608271	27
28608302	30
28608269	30
28608297	30

28608287	30
28608282	30
28608287	30
28608265	30
28608298	27
28608291	30
28608288	30
28608285	33
28608305	33
28608268	39
28608287	33
28608297	33
28608271	33
28608301	33
28608304	33
28608253	36
28608254	36
28608300	36
28608285	39
28608306	42
28608281	42
28608300	45
28608315	45
28608307	45
28608266	48
28608298	48
28608268	51
28608278	51
28608268	51

28608308	54
28608310	54
28608268	57
28608327	57
28608314	18
28608289	21
28608252	18
28608257	48

Table S4: Comparison of mutation detection concordance between Sanger (NGS) and Ulm
using combined MLPA and capillary sequencing

	NPM1	ULM Mutated	ULM Wild Type	ULM na		
Sanger	Mutated	408	15	6	Sensitivity	0.96453901
	Missed	8				
	Wild Type					
	No coverage	7				

	IDH1	ULM Mutated	ULM Wild Type	ULM na		
Sanger	Mutated	94	3		Sensitivity	0.95918367
	Missed	3				
	Wild Type					
	No coverage	1				

	IDH2	ULM Mutated	ULM Wild Type	ULM na		
Sanger	Mutated	125	10	18	Sensitivity	0.92592593
	Missed	7				
	Wild Type					
	No coverage	3				

	DNMT3A	ULM Mutated	ULM Wild Type	ULM na		
Sanger	Mutated	268	49	65	Sensitivity	0.92413793
	Missed	19				
	Wild Type					
	No coverage	3				

	RUNX1	ULM Mutated	ULM Wild Type	ULM na		
Sanger	Mutated	76	23	52	Sensitivity	0.74509804
	Missed	26*				
	Wild Type					
	No coverage				* low quality indel / not th	

	FLT3_TKD	ULM Mutated	ULM Wild Type	ULM na		
Sanger	Mutated	120			Sensitivity	0.86330935
	Missed	19				
	Wild Type					
	No coverage					

		ULM		
	NRAS	**Mutated**	**Wild Type**	**na**
Sanger	Mutated	126	19	147
	Missed	13*		
	Wild Type			
	No coverage	2		

Sensitivity	0.89361702

* low base quality

Table S5: Annotation of recurrent driver gene mutations in study

SAMPLE	TYPE	CHR	POSITION	WT	MT	VAF	DEPTH		Result
PD11238a	Sub	1	43818310	G	A	14.2	183	MPL_p.R592Q	POSSIBLE
PD11001a	Sub	1	43818321	C	T	6.01	183	MPL_p.P596S	POSSIBLE
PD9331a	Sub	1	43818405	C	G	18.8	138	MPL_p.H624D	ONCOGENIC
PD7654a	Sub	1	115256528	T	G	40.7	241	NRAS_p.Q61H	ONCOGENIC
PD9265a	Sub	1	115256528	T	A	15.2	500	NRAS_p.Q61H	ONCOGENIC
PD8497a	Sub	1	115256528	T	A	5.6	500	NRAS_p.Q61H	ONCOGENIC
PD8403a	Sub	1	115256528	T	G	33.2	446	NRAS_p.Q61H	ONCOGENIC
PD8430a	Sub	1	115256528	T	G	32.6	417	NRAS_p.Q61H	ONCOGENIC
PD7645a	Sub	1	115256528	T	A	40.7	310	NRAS_p.Q61H	ONCOGENIC
PD8246a	Sub	1	115256528	T	G	12.6	500	NRAS_p.Q61H	ONCOGENIC
PD7894a	Sub	1	115256528	T	A	6.12	278	NRAS_p.Q61H	ONCOGENIC
PD11070a	Sub	1	115256528	T	A	43.7	412	NRAS_p.Q61H	ONCOGENIC
PD9246a	Sub	1	115256528	T	A	43.5	232	NRAS_p.Q61H	ONCOGENIC
PD7915a	Sub	1	115256528	T	G	20.4	265	NRAS_p.Q61H	ONCOGENIC
PD10813a	Sub	1	115256528	T	A	40.9	411	NRAS_p.Q61H	ONCOGENIC
PD7827a	Sub	1	115256529	T	C	47.9	361	NRAS_p.Q61R	ONCOGENIC
PD8370a	Sub	1	115256529	T	C	20.7	348	NRAS_p.Q61R	ONCOGENIC
PD8022a	Sub	1	115256529	T	G	40.5	247	NRAS_p.Q61P	ONCOGENIC
PD8144a	Sub	1	115256529	T	A	45.8	249	NRAS_p.Q61L	ONCOGENIC
PD8173a	Sub	1	115256529	T	C	5.65	248	NRAS_p.Q61R	ONCOGENIC
PD7683a	Sub	1	115256529	T	C	13.3	436	NRAS_p.Q61R	ONCOGENIC
PD8471a	Sub	1	115256529	T	G	41	500	NRAS_p.Q61P	ONCOGENIC
PD8247a	Sub	1	115256529	T	C	23.8	492	NRAS_p.Q61R	ONCOGENIC
PD7807a	Sub	1	115256529	T	C	43.6	319	NRAS_p.Q61R	ONCOGENIC
PD9313a	Sub	1	115256529	T	C	29.8	305	NRAS_p.Q61R	ONCOGENIC
PD7733a	Sub	1	115256529	T	C	24	338	NRAS_p.Q61R	ONCOGENIC
PD7996a	Sub	1	115256529	T	C	4.9	347	NRAS_p.Q61R	ONCOGENIC
PD11184a	Sub	1	115256529	T	G	8.52	270	NRAS_p.Q61P	ONCOGENIC
PD8497a	Sub	1	115256529	T	C	40	500	NRAS_p.Q61R	ONCOGENIC
PD8075a	Sub	1	115256529	T	C	9.63	353	NRAS_p.Q61R	ONCOGENIC
PD7716a	Sub	1	115256529	T	C	20.2	494	NRAS_p.Q61R	ONCOGENIC
PD7890a	Sub	1	115256529	T	C	4.63	324	NRAS_p.Q61R	ONCOGENIC
PD8248a	Sub	1	115256529	T	C	5.53	380	NRAS_p.Q61R	ONCOGENIC
PD8097a	Sub	1	115256529	T	C	16.5	400	NRAS_p.Q61R	ONCOGENIC
PD7819a	Sub	1	115256529	T	C	45.3	411	NRAS_p.Q61R	ONCOGENIC
PD8294a	Sub	1	115256529	T	A	12	500	NRAS_p.Q61L	ONCOGENIC
PD10817a	Sub	1	115256529	T	A	13.5	399	NRAS_p.Q61L	ONCOGENIC
PD11141a	Sub	1	115256529	T	C	17.6	250	NRAS_p.Q61R	ONCOGENIC
PD8404a	Sub	1	115256529	T	C	47	368	NRAS_p.Q61R	ONCOGENIC
PD10987a	Sub	1	115256529	T	C	23.3	360	NRAS_p.Q61R	ONCOGENIC
PD8078a	Sub	1	115256529	T	C	50	262	NRAS_p.Q61R	ONCOGENIC
PD8038a	Sub	1	115256529	T	C	36.5	340	NRAS_p.Q61R	ONCOGENIC
PD8249a	Sub	1	115256529	T	C	9.6	500	NRAS_p.Q61R	ONCOGENIC
PD7875a	Sub	1	115256529	T	C	39.9	278	NRAS_p.Q61R	ONCOGENIC
PD8477a	Sub	1	115256529	T	C	4.6	500	NRAS_p.Q61R	ONCOGENIC
PD10982a	Sub	1	115256529	T	C	50	298	NRAS_p.Q61R	ONCOGENIC
PD9358a	Sub	1	115256529	T	G	9.54	325	NRAS_p.Q61P	ONCOGENIC
PD11022a	Sub	1	115256529	T	G	8.94	235	NRAS_p.Q61P	ONCOGENIC
PD8409a	Sub	1	115256529	T	C	8.52	305	NRAS_p.Q61R	ONCOGENIC
PD8178a	Sub	1	115256529	T	C	6.44	295	NRAS_p.Q61R	ONCOGENIC
PD7951a	Sub	1	115256529	T	C	41.6	377	NRAS_p.Q61R	ONCOGENIC
PD7688a	Sub	1	115256529	T	C	5.02	319	NRAS_p.Q61R	ONCOGENIC

PD7640a	Sub	1	115256529	T	C	30.4	283	NRAS_p.Q61R	ONCOGENIC
PD9199a	Sub	1	115256529	T	C	42	500	NRAS_p.Q61R	ONCOGENIC
PD8124a	Sub	1	115256529	T	C	32	219	NRAS_p.Q61R	ONCOGENIC
PD8212a	Sub	1	115256529	T	C	23.9	351	NRAS_p.Q61R	ONCOGENIC
PD11175a	Sub	1	115256529	T	C	23.4	410	NRAS_p.Q61R	ONCOGENIC
PD7642a	Sub	1	115256529	T	C	40.1	364	NRAS_p.Q61R	ONCOGENIC
PD8254a	Sub	1	115256529	T	C	43	500	NRAS_p.Q61R	ONCOGENIC
PD8304a	Sub	1	115256529	T	C	39.4	500	NRAS_p.Q61R	ONCOGENIC
PD8139a	Sub	1	115256530	G	T	40.4	277	NRAS_p.Q61K	ONCOGENIC
PD7979a	Sub	1	115256530	G	T	34	200	NRAS_p.Q61K	ONCOGENIC
PD11087a	Sub	1	115256530	G	T	42.7	471	NRAS_p.Q61K	ONCOGENIC
PD8245a	Sub	1	115256530	G	T	43.2	486	NRAS_p.Q61K	ONCOGENIC
PD8406a	Sub	1	115256530	G	T	42.7	314	NRAS_p.Q61K	ONCOGENIC
PD8167a	Sub	1	115256530	G	T	12.4	243	NRAS_p.Q61K	ONCOGENIC
PD8559a	Sub	1	115256530	G	T	20	416	NRAS_p.Q61K	ONCOGENIC
PD10806a	Sub	1	115256530	G	T	4.12	485	NRAS_p.Q61K	ONCOGENIC
PD9294a	Sub	1	115256530	G	T	4.41	340	NRAS_p.Q61K	ONCOGENIC
PD7638a	Sub	1	115256530	G	T	6.79	280	NRAS_p.Q61K	ONCOGENIC
PD8577a	Sub	1	115256530	G	T	29.7	273	NRAS_p.Q61K	ONCOGENIC
PD7778a	Sub	1	115256530	G	T	23.4	351	NRAS_p.Q61K	ONCOGENIC
PD11141a	Sub	1	115256530	G	T	13	253	NRAS_p.Q61K	ONCOGENIC
PD10807a	Sub	1	115256530	G	T	4.57	394	NRAS_p.Q61K	ONCOGENIC
PD8232a	Sub	1	115256530	G	T	48.8	498	NRAS_p.Q61K	ONCOGENIC
PD8078a	Sub	1	115256530	G	T	7.39	257	NRAS_p.Q61K	ONCOGENIC
PD11079a	Sub	1	115256530	G	T	21.1	308	NRAS_p.Q61K	ONCOGENIC
PD11033a	Sub	1	115256530	G	T	30.1	259	NRAS_p.Q61K	ONCOGENIC
PD9249a	Sub	1	115256530	G	T	35.3	334	NRAS_p.Q61K	ONCOGENIC
PD8249a	Sub	1	115256530	G	T	19.2	500	NRAS_p.Q61K	ONCOGENIC
PD7666a	Sub	1	115256530	G	T	27.4	500	NRAS_p.Q61K	ONCOGENIC
PD9233a	Sub	1	115256530	G	T	48	421	NRAS_p.Q61K	ONCOGENIC
PD8290a	Sub	1	115256530	G	T	31.4	500	NRAS_p.Q61K	ONCOGENIC
PD7636a	Sub	1	115256530	G	T	10.6	292	NRAS_p.Q61K	ONCOGENIC
PD9247a	Sub	1	115256530	G	T	27.6	250	NRAS_p.Q61K	ONCOGENIC
PD7640a	Sub	1	115256530	G	T	4.96	282	NRAS_p.Q61K	ONCOGENIC
PD8573a	Sub	1	115256530	G	T	42.5	318	NRAS_p.Q61K	ONCOGENIC
PD7969a	Sub	1	115256530	G	T	48.9	278	NRAS_p.Q61K	ONCOGENIC
PD10836a	Sub	1	115256530	G	T	39.9	451	NRAS_p.Q61K	ONCOGENIC
PD8212a	Sub	1	115256530	G	T	4.56	351	NRAS_p.Q61K	ONCOGENIC
PD8195a	Sub	1	115256530	G	T	23.2	250	NRAS_p.Q61K	ONCOGENIC
PD11219a	Sub	1	115256530	G	T	39.2	500	NRAS_p.Q61K	ONCOGENIC
PD8254a	Sub	1	115256530	G	T	5	500	NRAS_p.Q61K	ONCOGENIC
PD8482a	Sub	1	115256530	G	T	46.4	500	NRAS_p.Q61K	ONCOGENIC
PD7987a	Sub	1	115258744	C	T	31.6	291	NRAS_p.G13D	ONCOGENIC
PD8464a	Sub	1	115258744	C	T	47.1	331	NRAS_p.G13D	ONCOGENIC
PD8068a	Sub	1	115258744	C	T	4.83	373	NRAS_p.G13D	ONCOGENIC
PD8229a	Sub	1	115258744	C	T	18.6	285	NRAS_p.G13D	ONCOGENIC
PD11057a	Sub	1	115258744	C	T	6.61	348	NRAS_p.G13D	ONCOGENIC
PD10998a	Sub	1	115258744	C	T	29.3	433	NRAS_p.G13D	ONCOGENIC
PD8557a	Sub	1	115258744	C	A	7.75	413	NRAS_p.G13V	ONCOGENIC
PD11190a	Sub	1	115258744	C	T	10.9	320	NRAS_p.G13D	ONCOGENIC
PD7770a	Sub	1	115258744	C	T	53.6	446	NRAS_p.G13D	ONCOGENIC
PD8313a	Sub	1	115258744	C	T	8.33	120	NRAS_p.G13D	ONCOGENIC
PD11184a	Sub	1	115258744	C	T	10.1	228	NRAS_p.G13D	ONCOGENIC
PD10927a	Sub	1	115258744	C	T	94.3	406	NRAS_p.G13D	ONCOGENIC
PD8365a	Sub	1	115258744	C	T	14	336	NRAS_p.G13D	ONCOGENIC

PD8088a	Sub	1	115258744	C	T	38.9	337	NRAS_p.G13D	ONCOGENIC
PD9232a	Sub	1	115258744	C	T	14.3	448	NRAS_p.G13D	ONCOGENIC
PD11230a	Sub	1	115258744	C	T	35.7	375	NRAS_p.G13D	ONCOGENIC
PD7761a	Sub	1	115258744	C	T	24.6	387	NRAS_p.G13D	ONCOGENIC
PD8396a	Sub	1	115258744	C	T	21.7	387	NRAS_p.G13D	ONCOGENIC
PD10936a	Sub	1	115258744	C	T	43.6	472	NRAS_p.G13D	ONCOGENIC
PD11072a	Sub	1	115258744	C	T	4.68	363	NRAS_p.G13D	ONCOGENIC
PD8014a	Sub	1	115258744	C	T	13.4	291	NRAS_p.G13D	ONCOGENIC
PD9342a	Sub	1	115258744	C	A	15.5	382	NRAS_p.G13V	ONCOGENIC
PD11038a	Sub	1	115258744	C	T	11.5	393	NRAS_p.G13D	ONCOGENIC
PD9245a	Sub	1	115258744	C	T	39.5	380	NRAS_p.G13D	ONCOGENIC
PD7840a	Sub	1	115258744	C	T	14.1	262	NRAS_p.G13D	ONCOGENIC
PD7916a	Sub	1	115258744	C	T	45.4	249	NRAS_p.G13D	ONCOGENIC
PD7777a	Sub	1	115258744	C	T	19.3	378	NRAS_p.G13D	ONCOGENIC
PD11196a	Sub	1	115258744	C	A	44.7	262	NRAS_p.G13V	ONCOGENIC
PD8240a	Sub	1	115258744	C	T	8.82	442	NRAS_p.G13D	ONCOGENIC
PD11037a	Sub	1	115258744	C	T	43.9	387	NRAS_p.G13D	ONCOGENIC
PD8358a	Sub	1	115258744	C	T	47.9	334	NRAS_p.G13D	ONCOGENIC
PD8005a	Sub	1	115258744	C	T	8.09	371	NRAS_p.G13D	ONCOGENIC
PD8532a	Sub	1	115258744	C	A	46.7	390	NRAS_p.G13V	ONCOGENIC
PD7905a	Sub	1	115258744	C	T	13.6	332	NRAS_p.G13D	ONCOGENIC
PD8372a	Sub	1	115258744	C	T	13.4	298	NRAS_p.G13D	ONCOGENIC
PD8126a	Sub	1	115258744	C	T	32.7	248	NRAS_p.G13D	ONCOGENIC
PD10990a	Sub	1	115258744	C	A	37.3	330	NRAS_p.G13V	ONCOGENIC
PD7937a	Sub	1	115258744	C	T	10.4	317	NRAS_p.G13D	ONCOGENIC
PD7783a	Sub	1	115258744	C	T	9.24	303	NRAS_p.G13D	ONCOGENIC
PD7884a	Sub	1	115258744	C	A	24.6	252	NRAS_p.G13V	ONCOGENIC
PD7690a	Sub	1	115258744	C	T	36.8	380	NRAS_p.G13D	ONCOGENIC
PD7757a	Sub	1	115258744	C	T	61.3	421	NRAS_p.G13D	ONCOGENIC
PD11053a	Sub	1	115258744	C	T	14	380	NRAS_p.G13D	ONCOGENIC
PD8495a	Sub	1	115258745	C	A	29.4	500	NRAS_p.G13C	ONCOGENIC
PD8068a	Sub	1	115258745	C	G	11.4	377	NRAS_p.G13R	ONCOGENIC
PD8352a	Sub	1	115258745	C	G	6.18	275	NRAS_p.G13R	ONCOGENIC
PD11038a	Sub	1	115258745	C	G	15.8	393	NRAS_p.G13R	ONCOGENIC
PD8143a	Sub	1	115258745	C	G	34.4	276	NRAS_p.G13R	ONCOGENIC
PD8057a	Sub	1	115258745	C	A	15.8	374	NRAS_p.G13C	ONCOGENIC
PD11001a	Sub	1	115258745	C	G	5.12	391	NRAS_p.G13R	ONCOGENIC
PD7893a	Sub	1	115258747	C	T	34.7	317	NRAS_p.G12D	ONCOGENIC
PD11260a	Sub	1	115258747	C	T	42.6	434	NRAS_p.G12D	ONCOGENIC
PD7803a	Sub	1	115258747	C	T	9.45	307	NRAS_p.G12D	ONCOGENIC
PD9197a	Sub	1	115258747	C	T	14.1	262	NRAS_p.G12D	ONCOGENIC
PD11211a	Sub	1	115258747	C	T	54.7	413	NRAS_p.G12D	ONCOGENIC
PD7677a	Sub	1	115258747	C	T	37.2	368	NRAS_p.G12D	ONCOGENIC
PD10818a	Sub	1	115258747	C	T	38	366	NRAS_p.G12D	ONCOGENIC
PD9224a	Sub	1	115258747	C	T	53	402	NRAS_p.G12D	ONCOGENIC
PD10976a	Sub	1	115258747	C	T	14.7	396	NRAS_p.G12D	ONCOGENIC
PD8539a	Sub	1	115258747	C	T	10.7	383	NRAS_p.G12D	ONCOGENIC
PD7664a	Sub	1	115258747	C	T	36	481	NRAS_p.G12D	ONCOGENIC
PD8493a	Sub	1	115258747	C	A	32.6	500	NRAS_p.G12V	ONCOGENIC
PD10955a	Sub	1	115258747	C	T	7.29	480	NRAS_p.G12D	ONCOGENIC
PD7789a	Sub	1	115258747	C	T	30.8	289	NRAS_p.G12D	ONCOGENIC
PD8186a	Sub	1	115258747	C	T	31.7	366	NRAS_p.G12D	ONCOGENIC
PD9282a	Sub	1	115258747	C	G	7.96	314	NRAS_p.G12A	ONCOGENIC
PD11259a	Sub	1	115258747	C	T	26.2	500	NRAS_p.G12D	ONCOGENIC
PD11251a	Sub	1	115258747	C	T	30.4	450	NRAS_p.G12D	ONCOGENIC

PD7862a	Sub	1	115258747	C	A	27.2	162	NRAS_p.G12V	ONCOGENIC
PD8567a	Sub	1	115258747	C	T	4.8	500	NRAS_p.G12D	ONCOGENIC
PD8318a	Sub	1	115258747	C	T	12.6	484	NRAS_p.G12D	ONCOGENIC
PD8491a	Sub	1	115258747	C	A	14.4	432	NRAS_p.G12V	ONCOGENIC
PD11115a	Sub	1	115258747	C	T	41.7	295	NRAS_p.G12D	ONCOGENIC
PD11055a	Sub	1	115258747	C	T	25.1	327	NRAS_p.G12D	ONCOGENIC
PD11190a	Sub	1	115258747	C	T	31.4	315	NRAS_p.G12D	ONCOGENIC
PD8572a	Sub	1	115258747	C	T	14.1	376	NRAS_p.G12D	ONCOGENIC
PD10997a	Sub	1	115258747	C	A	7.74	465	NRAS_p.G12V	ONCOGENIC
PD8337a	Sub	1	115258747	C	T	25.4	232	NRAS_p.G12D	ONCOGENIC
PD7733a	Sub	1	115258747	C	T	10.9	313	NRAS_p.G12D	ONCOGENIC
PD9267a	Sub	1	115258747	C	A	32.4	500	NRAS_p.G12V	ONCOGENIC
PD8531a	Sub	1	115258747	C	G	24	358	NRAS_p.G12A	ONCOGENIC
PD8235a	Sub	1	115258747	C	T	8	500	NRAS_p.G12D	ONCOGENIC
PD11165a	Sub	1	115258747	C	T	38.6	399	NRAS_p.G12D	ONCOGENIC
PD8062a	Sub	1	115258747	C	T	4.86	350	NRAS_p.G12D	ONCOGENIC
PD10912a	Sub	1	115258747	C	T	7.44	403	NRAS_p.G12D	ONCOGENIC
PD7908a	Sub	1	115258747	C	T	43.6	310	NRAS_p.G12D	ONCOGENIC
PD8311a	Sub	1	115258747	C	G	26.8	328	NRAS_p.G12A	ONCOGENIC
PD8182a	Sub	1	115258747	C	G	49.8	287	NRAS_p.G12A	ONCOGENIC
PD11018a	Sub	1	115258747	C	T	20.5	337	NRAS_p.G12D	ONCOGENIC
PD7627a	Sub	1	115258747	C	G	41.9	310	NRAS_p.G12A	ONCOGENIC
PD8349a	Sub	1	115258747	C	A	12.5	377	NRAS_p.G12V	ONCOGENIC
PD7818a	Sub	1	115258747	C	T	18.8	405	NRAS_p.G12D	ONCOGENIC
PD8180a	Sub	1	115258747	C	T	42.7	232	NRAS_p.G12D	ONCOGENIC
PD7644a	Sub	1	115258747	C	T	44.1	347	NRAS_p.G12D	ONCOGENIC
PD8425a	Sub	1	115258747	C	T	46	480	NRAS_p.G12D	ONCOGENIC
PD8535a	Sub	1	115258747	C	G	39.4	500	NRAS_p.G12A	ONCOGENIC
PD8250a	Sub	1	115258747	C	T	41.8	390	NRAS_p.G12D	ONCOGENIC
PD8405a	Sub	1	115258747	C	T	6.82	381	NRAS_p.G12D	ONCOGENIC
PD9377a	Sub	1	115258747	C	T	5.62	356	NRAS_p.G12D	ONCOGENIC
PD7681a	Sub	1	115258747	C	T	18.2	446	NRAS_p.G12D	ONCOGENIC
PD10949a	Sub	1	115258747	C	T	20.4	427	NRAS_p.G12D	ONCOGENIC
PD8338a	Sub	1	115258747	C	T	39.1	243	NRAS_p.G12D	ONCOGENIC
PD8040a	Sub	1	115258747	C	T	37.2	296	NRAS_p.G12D	ONCOGENIC
PD7694a	Sub	1	115258747	C	T	38.5	257	NRAS_p.G12D	ONCOGENIC
PD10890a	Sub	1	115258747	C	T	12.2	500	NRAS_p.G12D	ONCOGENIC
PD10953a	Sub	1	115258747	C	T	5.94	438	NRAS_p.G12D	ONCOGENIC
PD9337a	Sub	1	115258747	C	T	40.1	399	NRAS_p.G12D	ONCOGENIC
PD7708a	Sub	1	115258747	C	T	12	375	NRAS_p.G12D	ONCOGENIC
PD8325a	Sub	1	115258747	C	A	46.4	479	NRAS_p.G12V	ONCOGENIC
PD8181a	Sub	1	115258747	C	T	15.1	284	NRAS_p.G12D	ONCOGENIC
PD11128a	Sub	1	115258747	C	T	5.72	332	NRAS_p.G12D	ONCOGENIC
PD7891a	Sub	1	115258747	C	A	9.73	339	NRAS_p.G12V	ONCOGENIC
PD11001a	Sub	1	115258747	C	T	17.7	384	NRAS_p.G12D	ONCOGENIC
PD10966a	Sub	1	115258747	C	G	39.3	463	NRAS_p.G12A	ONCOGENIC
PD7932a	Sub	1	115258747	C	G	6.75	237	NRAS_p.G12A	ONCOGENIC
PD10876a	Sub	1	115258747	C	T	26.1	356	NRAS_p.G12D	ONCOGENIC
PD10794a	Sub	1	115258747	C	T	41.6	491	NRAS_p.G12D	ONCOGENIC
PD7981a	Sub	1	115258747	C	T	35.6	267	NRAS_p.G12D	ONCOGENIC
PD7657a	Sub	1	115258747	C	T	47.9	286	NRAS_p.G12D	ONCOGENIC
PD10885a	Sub	1	115258747	C	A	4.55	462	NRAS_p.G12V	ONCOGENIC
PD10910a	Sub	1	115258747	C	T	36.8	378	NRAS_p.G12D	ONCOGENIC
PD11167a	Sub	1	115258747	C	T	50.6	269	NRAS_p.G12D	ONCOGENIC
PD11125a	Sub	1	115258747	C	T	8.22	292	NRAS_p.G12D	ONCOGENIC

PD7745a	Sub	1	115258747	C	G	29.5	356	NRAS_p.G12A	ONCOGENIC
PD10824a	Sub	1	115258747	C	A	47.5	373	NRAS_p.G12V	ONCOGENIC
PD8202a	Sub	1	115258747	C	T	5.9	271	NRAS_p.G12D	ONCOGENIC
PD9278a	Sub	1	115258747	C	T	27.6	268	NRAS_p.G12D	ONCOGENIC
PD10905a	Sub	1	115258747	C	T	38.9	383	NRAS_p.G12D	ONCOGENIC
PD8149a	Sub	1	115258747	C	T	29.6	277	NRAS_p.G12D	ONCOGENIC
PD7731a	Sub	1	115258747	C	T	31.1	441	NRAS_p.G12D	ONCOGENIC
PD8095a	Sub	1	115258747	C	T	45.5	222	NRAS_p.G12D	ONCOGENIC
PD8588a	Sub	1	115258747	C	T	35	326	NRAS_p.G12D	ONCOGENIC
PD7956a	Sub	1	115258747	C	T	32.5	274	NRAS_p.G12D	ONCOGENIC
PD7787a	Sub	1	115258747	C	T	4.84	310	NRAS_p.G12D	ONCOGENIC
PD8059a	Sub	1	115258747	C	T	10.8	251	NRAS_p.G12D	ONCOGENIC
PD10967a	Sub	1	115258747	C	T	6.64	422	NRAS_p.G12D	ONCOGENIC
PD8133a	Sub	1	115258747	C	T	51.1	319	NRAS_p.G12D	ONCOGENIC
PD7698a	Sub	1	115258747	C	T	10.2	363	NRAS_p.G12D	ONCOGENIC
PD8447a	Sub	1	115258747	C	T	46.9	418	NRAS_p.G12D	ONCOGENIC
PD10921a	Sub	1	115258747	C	T	15.5	413	NRAS_p.G12D	ONCOGENIC
PD7612a	Sub	1	115258747	C	T	24.1	286	NRAS_p.G12D	ONCOGENIC
PD8393a	Sub	1	115258747	C	T	35.3	365	NRAS_p.G12D	ONCOGENIC
PD7688a	Sub	1	115258747	C	T	26.3	304	NRAS_p.G12D	ONCOGENIC
PD9356a	Sub	1	115258747	C	T	27.6	479	NRAS_p.G12D	ONCOGENIC
PD7882a	Sub	1	115258747	C	T	88	301	NRAS_p.G12D	ONCOGENIC
PD8353a	Sub	1	115258747	C	T	11.1	225	NRAS_p.G12D	ONCOGENIC
PD8362a	Sub	1	115258747	C	T	15.6	500	NRAS_p.G12D	ONCOGENIC
PD8085a	Sub	1	115258747	C	A	17.2	291	NRAS_p.G12V	ONCOGENIC
PD9275a	Sub	1	115258747	C	A	12.1	289	NRAS_p.G12V	ONCOGENIC
PD8275a	Sub	1	115258747	C	T	9.2	500	NRAS_p.G12D	ONCOGENIC
PD7868a	Sub	1	115258747	C	T	9.65	259	NRAS_p.G12D	ONCOGENIC
PD7823a	Sub	1	115258747	C	T	12.5	409	NRAS_p.G12D	ONCOGENIC
PD8498a	Sub	1	115258747	C	T	90.2	500	NRAS_p.G12D	ONCOGENIC
PD10996a	Sub	1	115258747	C	T	12	466	NRAS_p.G12D	ONCOGENIC
PD11053a	Sub	1	115258747	C	G	24.9	382	NRAS_p.G12A	ONCOGENIC
PD11187a	Sub	1	115258747	C	T	41.7	348	NRAS_p.G12D	ONCOGENIC
PD10887a	Sub	1	115258747	C	G	23.8	357	NRAS_p.G12A	ONCOGENIC
PD11036a	Sub	1	115258747	C	G	22.5	364	NRAS_p.G12A	ONCOGENIC
PD8460a	Sub	1	115258747	C	T	26.2	500	NRAS_p.G12D	ONCOGENIC
PD7954a	Sub	1	115258747	C	T	12.8	282	NRAS_p.G12D	ONCOGENIC
PD11248a	Sub	1	115258747	C	T	33.1	486	NRAS_p.G12D	ONCOGENIC
PD7727a	Sub	1	115258747	C	T	4.74	359	NRAS_p.G12D	ONCOGENIC
PD7836a	Sub	1	115258747	C	G	46.4	388	NRAS_p.G12A	ONCOGENIC
PD8283a	Sub	1	115258747	C	T	32.6	442	NRAS_p.G12D	ONCOGENIC
PD8436a	Sub	1	115258747	C	T	35.9	457	NRAS_p.G12D	ONCOGENIC
PD10950a	Sub	1	115258747	C	T	14.2	417	NRAS_p.G12D	ONCOGENIC
PD7639a	Sub	1	115258747	C	T	7.04	284	NRAS_p.G12D	ONCOGENIC
PD7775a	Sub	1	115258747	C	T	47.5	364	NRAS_p.G12D	ONCOGENIC
PD7660a	Sub	1	115258747	C	T	30.3	468	NRAS_p.G12D	ONCOGENIC
PD8321a	Sub	1	115258747	C	T	37.7	419	NRAS_p.G12D	ONCOGENIC
PD8311a	Sub	1	115258747	C	T	7.52	319	NRAS_p.G12D	ONCOGENIC
PD8173a	Sub	1	115258748	C	T	6.05	215	NRAS_p.G12S	ONCOGENIC
PD11051a	Sub	1	115258748	C	T	41.5	393	NRAS_p.G12S	ONCOGENIC
PD8166a	Sub	1	115258748	C	T	14.3	294	NRAS_p.G12S	ONCOGENIC
PD8363a	Sub	1	115258748	C	T	43.9	351	NRAS_p.G12S	ONCOGENIC
PD7914a	Sub	1	115258748	C	T	25.2	330	NRAS_p.G12S	ONCOGENIC
PD10925a	Sub	1	115258748	C	T	7.61	368	NRAS_p.G12S	ONCOGENIC
PD9215a	Sub	1	115258748	C	T	4.88	389	NRAS_p.G12S	ONCOGENIC

PD8567a	Sub	1	115258748	C	T	12	500	NRAS_p.G12S	ONCOGENIC
PD8244a	Sub	1	115258748	C	T	25.8	500	NRAS_p.G12S	ONCOGENIC
PD11209a	Sub	1	115258748	C	A	40.2	473	NRAS_p.G12C	ONCOGENIC
PD11174a	Sub	1	115258748	C	G	42	355	NRAS_p.G12R	ONCOGENIC
PD8141a	Sub	1	115258748	C	T	41.7	175	NRAS_p.G12S	ONCOGENIC
PD10917a	Sub	1	115258748	C	T	38	405	NRAS_p.G12S	ONCOGENIC
PD8369a	Sub	1	115258748	C	T	49.2	323	NRAS_p.G12S	ONCOGENIC
PD8137a	Sub	1	115258748	C	A	5.08	236	NRAS_p.G12C	ONCOGENIC
PD11027a	Sub	1	115258748	C	T	41.5	417	NRAS_p.G12S	ONCOGENIC
PD11110a	Sub	1	115258748	C	T	9.4	298	NRAS_p.G12S	ONCOGENIC
PD9314a	Sub	1	115258748	C	A	6.57	426	NRAS_p.G12C	ONCOGENIC
PD8246a	Sub	1	115258748	C	T	19.2	500	NRAS_p.G12S	ONCOGENIC
PD7905a	Sub	1	115258748	C	T	18.5	335	NRAS_p.G12S	ONCOGENIC
PD11021a	Sub	1	115258748	C	T	7.72	259	NRAS_p.G12S	ONCOGENIC
PD7754a	Sub	1	115258748	C	T	30.3	379	NRAS_p.G12S	ONCOGENIC
PD8063a	Sub	1	115258748	C	T	25.8	453	NRAS_p.G12S	ONCOGENIC
PD8258a	Sub	1	115258748	C	T	74	470	NRAS_p.G12S	ONCOGENIC
PD7783a	Sub	1	115258748	C	T	17.3	295	NRAS_p.G12S	ONCOGENIC
PD7823a	Sub	1	115258748	C	A	46.4	403	NRAS_p.G12C	ONCOGENIC
PD8099a	Sub	1	115258748	C	A	40.9	303	NRAS_p.G12C	ONCOGENIC
PD7781a	Sub	1	115258748	C	T	12.5	313	NRAS_p.G12S	ONCOGENIC
PD9230a	Sub	1	115258748	C	T	18.6	500	NRAS_p.G12S	ONCOGENIC
PD11062a	Sub	1	115258748	C	T	41.5	415	NRAS_p.G12S	ONCOGENIC
PD11014a	Sub	2	25457176	G	A	45.1	102	DNMT3A_p.P904L	ONCOGENIC
PD7806a	Sub	2	25457176	G	A	27.5	142	DNMT3A_p.P904L	ONCOGENIC
PD9272a	Sub	2	25457177	G	C	74.3	35	DNMT3A_p.P904A	ONCOGENIC
PD10933a	D	2	25457181	g	-	56.9	109	DNMT3A_p.F902fs*4	ONCOGENIC
PD8419a	Sub	2	25457191	C	T	41.9	167	DNMT3A_p.R899H	ONCOGENIC
PD8570a	Sub	2	25457194	A	G	42.2	64	DNMT3A_p.I898T	ONCOGENIC
PD9350a	Sub	2	25457208	C	A	25.9	85	DNMT3A_p.W893C	ONCOGENIC
PD9354a	Sub	2	25457209	C	G	7.94	63	DNMT3A_p.W893S	ONCOGENIC
PD8473a	Sub	2	25457209	C	G	41.1	168	DNMT3A_p.W893S	ONCOGENIC
PD7991a	Sub	2	25457231	G	C	54.4	68	DNMT3A_p.Q886E	ONCOGENIC
PD11140a	Sub	2	25457242	C	T	19.4	31	DNMT3A_p.R882H	ONCOGENIC
PD8495a	Sub	2	25457242	C	T	25	100	DNMT3A_p.R882H	ONCOGENIC
PD11145a	Sub	2	25457242	C	T	46.2	93	DNMT3A_p.R882H	ONCOGENIC
PD7961a	Sub	2	25457242	C	T	45.1	71	DNMT3A_p.R882H	ONCOGENIC
PD10965a	Sub	2	25457242	C	T	49.1	55	DNMT3A_p.R882H	ONCOGENIC
PD8159a	Sub	2	25457242	C	T	51.1	92	DNMT3A_p.R882H	ONCOGENIC
PD8370a	Sub	2	25457242	C	T	52.2	67	DNMT3A_p.R882H	ONCOGENIC
PD8456a	Sub	2	25457242	C	T	35.9	117	DNMT3A_p.R882H	ONCOGENIC
PD9197a	Sub	2	25457242	C	T	50	48	DNMT3A_p.R882H	ONCOGENIC
PD7759a	Sub	2	25457242	C	T	37.1	132	DNMT3A_p.R882H	ONCOGENIC
PD7732a	Sub	2	25457242	C	T	40.7	54	DNMT3A_p.R882H	ONCOGENIC
PD10976a	Sub	2	25457242	C	T	26.7	45	DNMT3A_p.R882H	ONCOGENIC
PD8098a	Sub	2	25457242	C	T	28.8	59	DNMT3A_p.R882H	ONCOGENIC
PD11077a	Sub	2	25457242	C	T	50	54	DNMT3A_p.R882H	ONCOGENIC
PD7964a	Sub	2	25457242	C	T	42.9	49	DNMT3A_p.R882H	ONCOGENIC
PD8329a	Sub	2	25457242	C	T	40.5	74	DNMT3A_p.R882H	ONCOGENIC
PD10882a	Sub	2	25457242	C	T	50	86	DNMT3A_p.R882H	ONCOGENIC
PD11029a	Sub	2	25457242	C	T	36.4	55	DNMT3A_p.R882H	ONCOGENIC
PD11144a	Sub	2	25457242	C	T	51.4	70	DNMT3A_p.R882H	ONCOGENIC
PD9215a	Sub	2	25457242	C	T	44.1	59	DNMT3A_p.R882H	ONCOGENIC
PD7906a	Sub	2	25457242	C	T	60	75	DNMT3A_p.R882H	ONCOGENIC
PD9373a	Sub	2	25457242	C	T	43.9	66	DNMT3A_p.R882H	ONCOGENIC

PD8267a	Sub	2	25457242	C	T	31.1	103	DNMT3A_p.R882H	ONCOGENIC
PD8244a	Sub	2	25457242	C	T	45.8	107	DNMT3A_p.R882H	ONCOGENIC
PD9328a	Sub	2	25457242	C	G	72.1	165	DNMT3A_p.R882P	ONCOGENIC
PD8071a	Sub	2	25457242	C	T	31	71	DNMT3A_p.R882H	ONCOGENIC
PD8301a	Sub	2	25457242	C	T	39.3	122	DNMT3A_p.R882H	ONCOGENIC
PD7995a	Sub	2	25457242	C	T	39.6	53	DNMT3A_p.R882H	ONCOGENIC
PD8423a	Sub	2	25457242	C	T	51.3	156	DNMT3A_p.R882H	ONCOGENIC
PD7989a	Sub	2	25457242	C	T	41.9	74	DNMT3A_p.R882H	ONCOGENIC
PD8060a	Sub	2	25457242	C	T	39	59	DNMT3A_p.R882H	ONCOGENIC
PD8313a	Sub	2	25457242	C	T	16.7	66	DNMT3A_p.R882H	ONCOGENIC
PD7904a	Sub	2	25457242	C	T	50.9	57	DNMT3A_p.R882H	ONCOGENIC
PD8435a	Sub	2	25457242	C	T	34.7	127	DNMT3A_p.R882H	ONCOGENIC
PD11184a	Sub	2	25457242	C	T	36.7	49	DNMT3A_p.R882H	ONCOGENIC
PD11098a	Sub	2	25457242	C	T	44.3	70	DNMT3A_p.R882H	ONCOGENIC
PD11101a	Sub	2	25457242	C	T	43.2	37	DNMT3A_p.R882H	ONCOGENIC
PD11003a	Sub	2	25457242	C	T	92	112	DNMT3A_p.R882H	ONCOGENIC
PD7627a	Sub	2	25457242	C	T	50	72	DNMT3A_p.R882H	ONCOGENIC
PD7791a	Sub	2	25457242	C	G	39	95	DNMT3A_p.R882P	ONCOGENIC
PD8380a	Sub	2	25457242	C	T	47.1	85	DNMT3A_p.R882H	ONCOGENIC
PD11113a	Sub	2	25457242	C	T	42.9	56	DNMT3A_p.R882H	ONCOGENIC
PD8067a	Sub	2	25457242	C	T	29.6	44	DNMT3A_p.R882H	ONCOGENIC
PD8016a	Sub	2	25457242	C	T	40.5	84	DNMT3A_p.R882H	ONCOGENIC
PD9232a	Sub	2	25457242	C	T	42.9	63	DNMT3A_p.R882H	ONCOGENIC
PD7988a	Sub	2	25457242	C	T	41.8	67	DNMT3A_p.R882H	ONCOGENIC
PD7610a	Sub	2	25457242	C	T	41.8	79	DNMT3A_p.R882H	ONCOGENIC
PD8398a	Sub	2	25457242	C	T	29.4	51	DNMT3A_p.R882H	ONCOGENIC
PD8134a	Sub	2	25457242	C	T	55.4	65	DNMT3A_p.R882H	ONCOGENIC
PD11272a	Sub	2	25457242	C	T	28.6	133	DNMT3A_p.R882H	ONCOGENIC
PD7705a	Sub	2	25457242	C	T	38.7	62	DNMT3A_p.R882H	ONCOGENIC
PD8430a	Sub	2	25457242	C	T	31.1	119	DNMT3A_p.R882H	ONCOGENIC
PD7976a	Sub	2	25457242	C	T	61.9	42	DNMT3A_p.R882H	ONCOGENIC
PD8065a	Sub	2	25457242	C	T	51.6	64	DNMT3A_p.R882H	ONCOGENIC
PD11269a	Sub	2	25457242	C	T	33.3	105	DNMT3A_p.R882H	ONCOGENIC
PD8083a	Sub	2	25457242	C	G	27	37	DNMT3A_p.R882P	ONCOGENIC
PD8208a	Sub	2	25457242	C	T	48.4	64	DNMT3A_p.R882H	ONCOGENIC
PD7667a	Sub	2	25457242	C	T	43.2	81	DNMT3A_p.R882H	ONCOGENIC
PD8449a	Sub	2	25457242	C	T	48.2	85	DNMT3A_p.R882H	ONCOGENIC
PD7662a	Sub	2	25457242	C	T	56.9	109	DNMT3A_p.R882H	ONCOGENIC
PD7720a	Sub	2	25457242	C	T	35.6	59	DNMT3A_p.R882H	ONCOGENIC
PD8574a	Sub	2	25457242	C	T	53.1	49	DNMT3A_p.R882H	ONCOGENIC
PD8553a	Sub	2	25457242	C	T	45.1	71	DNMT3A_p.R882H	ONCOGENIC
PD9385a	Sub	2	25457242	C	T	69.9	156	DNMT3A_p.R882H	ONCOGENIC
PD7815a	Sub	2	25457242	C	T	47.1	102	DNMT3A_p.R882H	ONCOGENIC
PD10918a	Sub	2	25457242	C	T	42	69	DNMT3A_p.R882H	ONCOGENIC
PD11038a	Sub	2	25457242	C	T	39.3	61	DNMT3A_p.R882H	ONCOGENIC
PD8294a	Sub	2	25457242	C	T	60.7	84	DNMT3A_p.R882H	ONCOGENIC
PD8295a	Sub	2	25457242	C	T	30.6	108	DNMT3A_p.R882H	ONCOGENIC
PD10919a	Sub	2	25457242	C	T	53.3	75	DNMT3A_p.R882H	ONCOGENIC
PD8394a	Sub	2	25457242	C	T	22.2	54	DNMT3A_p.R882H	ONCOGENIC
PD8253a	Sub	2	25457242	C	T	42.6	122	DNMT3A_p.R882H	ONCOGENIC
PD9377a	Sub	2	25457242	C	T	26.8	41	DNMT3A_p.R882H	ONCOGENIC
PD9341a	Sub	2	25457242	C	T	41.4	70	DNMT3A_p.R882H	ONCOGENIC
PD11217a	Sub	2	25457242	C	T	48	221	DNMT3A_p.R882H	ONCOGENIC
PD7911a	Sub	2	25457242	C	T	51.1	47	DNMT3A_p.R882H	ONCOGENIC
PD7779a	Sub	2	25457242	C	T	51.9	158	DNMT3A_p.R882H	ONCOGENIC

PD7881a	Sub	2	25457242	C	T	47.4	95	DNMT3A_p.R882H	ONCOGENIC
PD8157a	Sub	2	25457242	C	T	36.2	47	DNMT3A_p.R882H	ONCOGENIC
PD7994a	Sub	2	25457242	C	T	43.7	71	DNMT3A_p.R882H	ONCOGENIC
PD8327a	Sub	2	25457242	C	T	26.1	69	DNMT3A_p.R882H	ONCOGENIC
PD7796a	Sub	2	25457242	C	T	37.5	96	DNMT3A_p.R882H	ONCOGENIC
PD8171a	Sub	2	25457242	C	T	21.8	55	DNMT3A_p.R882H	ONCOGENIC
PD11150a	Sub	2	25457242	C	T	48.9	45	DNMT3A_p.R882H	ONCOGENIC
PD7828a	Sub	2	25457242	C	T	21.9	64	DNMT3A_p.R882H	ONCOGENIC
PD11231a	Sub	2	25457242	C	T	33.3	42	DNMT3A_p.R882H	ONCOGENIC
PD8057a	Sub	2	25457242	C	G	49.4	77	DNMT3A_p.R882P	ONCOGENIC
PD8021a	Sub	2	25457242	C	T	48.3	60	DNMT3A_p.R882H	ONCOGENIC
PD8131a	Sub	2	25457242	C	T	53.5	58	DNMT3A_p.R882H	ONCOGENIC
PD8127a	Sub	2	25457242	C	T	48.3	58	DNMT3A_p.R882H	ONCOGENIC
PD7864a	Sub	2	25457242	C	T	43.8	73	DNMT3A_p.R882H	ONCOGENIC
PD10853a	Sub	2	25457242	C	T	43.9	66	DNMT3A_p.R882H	ONCOGENIC
PD10966a	Sub	2	25457242	C	T	58.8	68	DNMT3A_p.R882H	ONCOGENIC
PD8170a	Sub	2	25457242	C	G	9.09	66	DNMT3A_p.R882P	ONCOGENIC
PD11268a	Sub	2	25457242	C	T	27.1	133	DNMT3A_p.R882H	ONCOGENIC
PD10794a	Sub	2	25457242	C	T	46.9	96	DNMT3A_p.R882H	ONCOGENIC
PD8568a	Sub	2	25457242	C	T	45.8	59	DNMT3A_p.R882H	ONCOGENIC
PD7657a	Sub	2	25457242	C	T	46.8	62	DNMT3A_p.R882H	ONCOGENIC
PD8152a	Sub	2	25457242	C	T	54.9	82	DNMT3A_p.R882H	ONCOGENIC
PD10928a	Sub	2	25457242	C	T	42.6	61	DNMT3A_p.R882H	ONCOGENIC
PD8494a	Sub	2	25457242	C	T	54	126	DNMT3A_p.R882H	ONCOGENIC
PD7934a	Sub	2	25457242	C	T	36.4	22	DNMT3A_p.R882H	ONCOGENIC
PD7745a	Sub	2	25457242	C	T	48	50	DNMT3A_p.R882H	ONCOGENIC
PD8538a	Sub	2	25457242	C	T	52.1	48	DNMT3A_p.R882H	ONCOGENIC
PD11163a	Sub	2	25457242	C	G	26	100	DNMT3A_p.R882P	ONCOGENIC
PD11108a	Sub	2	25457242	C	T	38.8	67	DNMT3A_p.R882H	ONCOGENIC
PD8322a	Sub	2	25457242	C	T	52.2	92	DNMT3A_p.R882H	ONCOGENIC
PD8384a	Sub	2	25457242	C	T	46.7	45	DNMT3A_p.R882H	ONCOGENIC
PD8185a	Sub	2	25457242	C	T	37.9	58	DNMT3A_p.R882H	ONCOGENIC
PD7744a	Sub	2	25457242	C	T	57.5	47	DNMT3A_p.R882H	ONCOGENIC
PD8177a	Sub	2	25457242	C	T	27.2	81	DNMT3A_p.R882H	ONCOGENIC
PD7956a	Sub	2	25457242	C	T	40	55	DNMT3A_p.R882H	ONCOGENIC
PD9326a	Sub	2	25457242	C	T	55.2	143	DNMT3A_p.R882H	ONCOGENIC
PD8005a	Sub	2	25457242	C	A	53.4	73	DNMT3A_p.R882L	ONCOGENIC
PD7905a	Sub	2	25457242	C	T	48.3	118	DNMT3A_p.R882H	ONCOGENIC
PD8290a	Sub	2	25457242	C	T	47.4	97	DNMT3A_p.R882H	ONCOGENIC
PD7631a	Sub	2	25457242	C	T	57.4	61	DNMT3A_p.R882H	ONCOGENIC
PD8372a	Sub	2	25457242	C	T	27	74	DNMT3A_p.R882H	ONCOGENIC
PD8346a	Sub	2	25457242	C	T	49.4	79	DNMT3A_p.R882H	ONCOGENIC
PD9253a	Sub	2	25457242	C	T	51.1	45	DNMT3A_p.R882H	ONCOGENIC
PD7936a	Sub	2	25457242	C	T	51.2	43	DNMT3A_p.R882H	ONCOGENIC
PD7754a	Sub	2	25457242	C	T	56.3	71	DNMT3A_p.R882H	ONCOGENIC
PD8187a	Sub	2	25457242	C	T	39	59	DNMT3A_p.R882H	ONCOGENIC
PD10984a	Sub	2	25457242	C	T	38.5	91	DNMT3A_p.R882H	ONCOGENIC
PD10993a	Sub	2	25457242	C	T	48.2	83	DNMT3A_p.R882H	ONCOGENIC
PD8192a	Sub	2	25457242	C	T	48.1	52	DNMT3A_p.R882H	ONCOGENIC
PD10921a	Sub	2	25457242	C	T	36.5	52	DNMT3A_p.R882H	ONCOGENIC
PD11282a	Sub	2	25457242	C	T	46.4	69	DNMT3A_p.R882H	ONCOGENIC
PD10931a	Sub	2	25457242	C	T	22.6	93	DNMT3A_p.R882H	ONCOGENIC
PD11179a	Sub	2	25457242	C	T	12.9	31	DNMT3A_p.R882H	ONCOGENIC
PD10941a	Sub	2	25457242	C	T	48.1	79	DNMT3A_p.R882H	ONCOGENIC
PD7804a	Sub	2	25457242	C	T	45.9	61	DNMT3A_p.R882H	ONCOGENIC

PD8578a	Sub	2	25457242	C	T	54.9	51	DNMT3A_p.R882H	ONCOGENIC
PD7868a	Sub	2	25457242	C	T	45.3	64	DNMT3A_p.R882H	ONCOGENIC
PD8190a	Sub	2	25457242	C	T	47.9	94	DNMT3A_p.R882H	ONCOGENIC
PD8263a	Sub	2	25457242	C	T	45.9	98	DNMT3A_p.R882H	ONCOGENIC
PD8424a	Sub	2	25457242	C	T	39.2	125	DNMT3A_p.R882H	ONCOGENIC
PD7737a	Sub	2	25457242	C	T	39.6	48	DNMT3A_p.R882H	ONCOGENIC
PD11232a	Sub	2	25457242	C	T	46.2	39	DNMT3A_p.R882H	ONCOGENIC
PD7967a	Sub	2	25457242	C	T	38.8	49	DNMT3A_p.R882H	ONCOGENIC
PD9226a	Sub	2	25457242	C	T	47.4	78	DNMT3A_p.R882H	ONCOGENIC
PD8266a	Sub	2	25457242	C	T	50	92	DNMT3A_p.R882H	ONCOGENIC
PD8274a	Sub	2	25457242	C	T	44.3	88	DNMT3A_p.R882H	ONCOGENIC
PD10880a	Sub	2	25457242	C	T	27.1	85	DNMT3A_p.R882H	ONCOGENIC
PD11100a	Sub	2	25457242	C	G	12.2	74	DNMT3A_p.R882P	ONCOGENIC
PD8176a	Sub	2	25457242	C	T	41.4	58	DNMT3A_p.R882H	ONCOGENIC
PD8326a	Sub	2	25457242	C	T	15.2	79	DNMT3A_p.R882H	ONCOGENIC
PD8276a	Sub	2	25457242	C	T	28.1	114	DNMT3A_p.R882H	ONCOGENIC
PD10829a	Sub	2	25457242	C	T	48.7	76	DNMT3A_p.R882H	ONCOGENIC
PD10865a	Sub	2	25457242	C	T	37.7	61	DNMT3A_p.R882H	ONCOGENIC
PD10895a	Sub	2	25457242	C	T	45.1	71	DNMT3A_p.R882H	ONCOGENIC
PD10930a	Sub	2	25457242	C	T	25.4	63	DNMT3A_p.R882H	ONCOGENIC
PD7805a	Sub	2	25457242	C	T	52.3	88	DNMT3A_p.R882H	ONCOGENIC
PD11071a	Sub	2	25457242	C	T	48.4	62	DNMT3A_p.R882H	ONCOGENIC
PD8436a	Sub	2	25457242	C	T	41.8	122	DNMT3A_p.R882H	ONCOGENIC
PD10950a	Sub	2	25457242	C	T	46.2	91	DNMT3A_p.R882H	ONCOGENIC
PD11170a	Sub	2	25457242	C	T	42.9	63	DNMT3A_p.R882H	ONCOGENIC
PD9201a	Sub	2	25457242	C	T	37.5	64	DNMT3A_p.R882H	ONCOGENIC
PD11262a	Sub	2	25457242	C	T	54.8	31	DNMT3A_p.R882H	ONCOGENIC
PD7776a	Sub	2	25457242	C	T	54.6	88	DNMT3A_p.R882H	ONCOGENIC
PD7835a	Sub	2	25457242	C	T	42.6	47	DNMT3A_p.R882H	ONCOGENIC
PD11229a	Sub	2	25457242	C	T	40.9	44	DNMT3A_p.R882H	ONCOGENIC
PD11234a	Sub	2	25457242	C	T	8.51	94	DNMT3A_p.R882H	ONCOGENIC
PD9268a	Sub	2	25457243	G	A	37.1	62	DNMT3A_p.R882C	ONCOGENIC
PD10847a	Sub	2	25457243	G	A	59.4	69	DNMT3A_p.R882C	ONCOGENIC
PD7893a	Sub	2	25457243	G	A	41.1	73	DNMT3A_p.R882C	ONCOGENIC
PD11260a	Sub	2	25457243	G	A	52.9	68	DNMT3A_p.R882C	ONCOGENIC
PD8544a	Sub	2	25457243	G	A	43.1	51	DNMT3A_p.R882C	ONCOGENIC
PD7803a	Sub	2	25457243	G	A	44.6	65	DNMT3A_p.R882C	ONCOGENIC
PD8316a	Sub	2	25457243	G	T	47.3	93	DNMT3A_p.R882S	ONCOGENIC
PD8557a	Sub	2	25457243	G	A	35.1	57	DNMT3A_p.R882C	ONCOGENIC
PD8328a	Sub	2	25457243	G	A	42.1	76	DNMT3A_p.R882C	ONCOGENIC
PD11251a	Sub	2	25457243	G	A	50	48	DNMT3A_p.R882C	ONCOGENIC
PD11218a	Sub	2	25457243	G	A	54.2	120	DNMT3A_p.R882C	ONCOGENIC
PD8236a	Sub	2	25457243	G	A	46.1	154	DNMT3A_p.R882C	ONCOGENIC
PD8357a	Sub	2	25457243	G	A	43.2	44	DNMT3A_p.R882C	ONCOGENIC
PD10917a	Sub	2	25457243	G	A	39.7	68	DNMT3A_p.R882C	ONCOGENIC
PD8213a	Sub	2	25457243	G	A	44.4	45	DNMT3A_p.R882C	ONCOGENIC
PD8375a	Sub	2	25457243	G	A	53.2	47	DNMT3A_p.R882C	ONCOGENIC
PD8412a	Sub	2	25457243	G	A	43.6	55	DNMT3A_p.R882C	ONCOGENIC
PD10795a	Sub	2	25457243	G	A	53.8	80	DNMT3A_p.R882C	ONCOGENIC
PD7634a	Sub	2	25457243	G	A	88.4	86	DNMT3A_p.R882C	ONCOGENIC
PD8374a	Sub	2	25457243	G	A	54.6	33	DNMT3A_p.R882C	ONCOGENIC
PD8582a	Sub	2	25457243	G	A	52.5	40	DNMT3A_p.R882C	ONCOGENIC
PD7935a	Sub	2	25457243	G	A	29.4	34	DNMT3A_p.R882C	ONCOGENIC
PD8445a	Sub	2	25457243	G	A	33.3	111	DNMT3A_p.R882C	ONCOGENIC
PD11045a	Sub	2	25457243	G	A	48.5	68	DNMT3A_p.R882C	ONCOGENIC

PD8334a	Sub	2	25457243	G	A	34.4	32	DNMT3A_p.R882C	ONCOGENIC
PD7655a	Sub	2	25457243	G	T	57.9	57	DNMT3A_p.R882S	ONCOGENIC
PD11072a	Sub	2	25457243	G	A	56.8	74	DNMT3A_p.R882C	ONCOGENIC
PD8506a	Sub	2	25457243	G	A	33.8	74	DNMT3A_p.R882C	ONCOGENIC
PD8004a	Sub	2	25457243	G	T	43.5	85	DNMT3A_p.R882S	ONCOGENIC
PD10807a	Sub	2	25457243	G	T	45.7	70	DNMT3A_p.R882S	ONCOGENIC
PD7685a	Sub	2	25457243	G	T	39.4	66	DNMT3A_p.R882S	ONCOGENIC
PD8309a	Sub	2	25457243	G	A	40.2	107	DNMT3A_p.R882C	ONCOGENIC
PD9337a	Sub	2	25457243	G	A	41.6	77	DNMT3A_p.R882C	ONCOGENIC
PD8416a	Sub	2	25457243	G	A	32.1	28	DNMT3A_p.R882C	ONCOGENIC
PD11093a	Sub	2	25457243	G	T	56.5	46	DNMT3A_p.R882S	ONCOGENIC
PD7656a	Sub	2	25457243	G	A	55.9	59	DNMT3A_p.R882C	ONCOGENIC
PD10954a	Sub	2	25457243	G	C	46.6	58	DNMT3A_p.R882G	ONCOGENIC
PD8558a	Sub	2	25457243	G	A	59	61	DNMT3A_p.R882C	ONCOGENIC
PD10824a	Sub	2	25457243	G	A	62	50	DNMT3A_p.R882C	ONCOGENIC
PD10975a	Sub	2	25457243	G	A	55	60	DNMT3A_p.R882C	ONCOGENIC
PD9202a	Sub	2	25457243	G	A	34.3	67	DNMT3A_p.R882C	ONCOGENIC
PD7833a	Sub	2	25457243	G	A	32.6	86	DNMT3A_p.R882C	ONCOGENIC
PD9252a	Sub	2	25457243	G	A	55.3	38	DNMT3A_p.R882C	ONCOGENIC
PD11162a	Sub	2	25457243	G	T	46.2	91	DNMT3A_p.R882S	ONCOGENIC
PD8165a	Sub	2	25457243	G	A	44.6	56	DNMT3A_p.R882C	ONCOGENIC
PD8448a	Sub	2	25457243	G	A	57	128	DNMT3A_p.R882C	ONCOGENIC
PD9327a	Sub	2	25457243	G	T	57.6	125	DNMT3A_p.R882S	ONCOGENIC
PD8007a	Sub	2	25457243	G	A	35.3	51	DNMT3A_p.R882C	ONCOGENIC
PD9220a	Sub	2	25457243	G	A	31.9	47	DNMT3A_p.R882C	ONCOGENIC
PD7612a	Sub	2	25457243	G	A	31.9	69	DNMT3A_p.R882C	ONCOGENIC
PD8395a	Sub	2	25457243	G	A	31.6	38	DNMT3A_p.R882C	ONCOGENIC
PD8113a	Sub	2	25457243	G	A	50.8	61	DNMT3A_p.R882C	ONCOGENIC
PD8353a	Sub	2	25457243	G	A	43.2	37	DNMT3A_p.R882C	ONCOGENIC
PD11286a	Sub	2	25457243	G	A	50.8	67	DNMT3A_p.R882C	ONCOGENIC
PD8275a	Sub	2	25457243	G	A	50.6	85	DNMT3A_p.R882C	ONCOGENIC
PD8046a	Sub	2	25457243	G	A	46.3	67	DNMT3A_p.R882C	ONCOGENIC
PD10947a	Sub	2	25457243	G	T	43.8	89	DNMT3A_p.R882S	ONCOGENIC
PD10820a	Sub	2	25457243	G	A	95.4	86	DNMT3A_p.R882C	ONCOGENIC
PD10850a	Sub	2	25457243	G	A	45.2	84	DNMT3A_p.R882C	ONCOGENIC
PD11004a	Sub	2	25457243	G	A	55.2	96	DNMT3A_p.R882C	ONCOGENIC
PD8550a	Sub	2	25457243	G	A	43.9	66	DNMT3A_p.R882C	ONCOGENIC
PD9235a	Sub	2	25457243	G	A	44.1	59	DNMT3A_p.R882C	ONCOGENIC
PD9218a	Sub	2	25457245	C	T	14.6	48	DNMT3A_p.S881N	ONCOGENIC
PD11284a	Sub	2	25457247	C	G	39.2	79	DNMT3A_p.M880I	ONCOGENIC
PD11251a	Sub	2	25457251	T	C	55.6	45	DNMT3A_p.N879S	ONCOGENIC
PD8493a	Sub	2	25457252	T	C	43.8	16	DNMT3A_p.N879D	ONCOGENIC
PD10992a	Sub	2	25457259	G	T	41.5	65	DNMT3A_p.D876E	POSSIBLE
PD8139a	Sub	2	25457285	A	C	50	40	DNMT3A_p.F868V	POSSIBLE
PD11281a	Sub	2	25458584	T	G	46.9	175	DNMT3A_p.E863D	ONCOGENIC
PD8148a	D	2	25458619	t	-	23.7	76	DNMT3A_p.M852fs*1	ONCOGENIC
PD7678a	Sub	2	25458619	T	C	46	150	DNMT3A_p.M852V	POSSIBLE
PD8206a	D	2	25458621	aa	-	40.3	139	DNMT3A_p.F851fs*3	ONCOGENIC
PD11285a	Sub	2	25458627	G	A	32.1	131	DNMT3A_p.P849L	ONCOGENIC
PD10904a	Sub	2	25458647	C	A	43.3	127	DNMT3A_p.Q842H	ONCOGENIC
PD9216a	Sub	2	25458649	G	A	44.9	107	DNMT3A_p.Q842*	ONCOGENIC
PD10816a	Sub	2	25458649	G	A	50.4	127	DNMT3A_p.Q842*	ONCOGENIC
PD11151a	Sub	2	25458649	G	A	11.1	45	DNMT3A_p.Q842*	ONCOGENIC
PD8084a	Sub	2	25458661	T	C	38	108	DNMT3A_p.N838D	POSSIBLE
PD9273a	Sub	2	25458669	G	A	44.4	81	DNMT3A_p.T835M	ONCOGENIC

PD11190a	Sub	2	25458669	G	A	46.3	82	DNMT3A_p.T835M	ONCOGENIC
PD9378a	Sub	2	25458687	T	A	39.7	68	DNMT3A_p.K829I	ONCOGENIC
PD11281a	Sub	2	25458695	C	A	45	169	DNMT3A_NA	POSSIBLE
PD8541a	Sub	2	25458696	T	C	23.7	59	DNMT3A_NA	POSSIBLE
PD9357a	Sub	2	25458696	T	C	11.2	89	DNMT3A_NA	POSSIBLE
PD10987a	D	2	25459821	t	-	47.6	63	DNMT3A_p.H821fs*4	ONCOGENIC
PD11086a	Sub	2	25459833	T	A	25.9	27	DNMT3A_p.E817V	POSSIBLE
PD8203a	D	2	25459861	tggat	-	33.3	21	DNMT3A_p.R803fs*4	ONCOGENIC
PD8092a	Sub	2	25461994	C	T	31.4	35	DNMT3A_NA	ONCOGENIC
PD8180a	Sub	2	25461999	C	T	93.3	30	DNMT3A_p.R803K	ONCOGENIC
PD8419a	Sub	2	25462000	T	C	33.3	72	DNMT3A_p.R803G	ONCOGENIC
PD7880a	Sub	2	25462006	T	C	35	40	DNMT3A_p.M801V	POSSIBLE
PD10901a	Sub	2	25462016	G	T	17.1	41	DNMT3A_p.N797K	ONCOGENIC
PD10812a	Sub	2	25462020	C	A	36.6	41	DNMT3A_p.G796V	POSSIBLE
PD11202a	Sub	2	25462022	C	A	41.6	77	DNMT3A_p.W795C	ONCOGENIC
PD11073a	Sub	2	25462032	C	T	35.7	28	DNMT3A_p.R792H	ONCOGENIC
PD9318a	Sub	2	25462077	G	C	37	73	DNMT3A_p.P777R	ONCOGENIC
PD11020a	Sub	2	25463171	C	A	45.5	44	DNMT3A_p.E774D	ONCOGENIC
PD9361a	Sub	2	25463175	A	C	32	25	DNMT3A_p.L773R	ONCOGENIC
PD7908a	Sub	2	25463176	G	T	46.5	43	DNMT3A_p.L773I	ONCOGENIC
PD8257a	Sub	2	25463181	C	T	36.8	87	DNMT3A_p.R771Q	ONCOGENIC
PD9202a	I	2	25463184	-	CG	35	40	DNMT3A_p.F772fs*8	ONCOGENIC
PD10904a	Sub	2	25463184	G	C	45.7	46	DNMT3A_p.S770W	ONCOGENIC
PD11131a	Sub	2	25463184	G	A	41.3	92	DNMT3A_p.S770L	ONCOGENIC
PD7909a	Sub	2	25463184	G	T	45.5	44	DNMT3A_p.S770*	ONCOGENIC
PD9278a	D	2	25463196	tt	-	48.1	27	DNMT3A_p.K766fs*1	ONCOGENIC
PD9255a	D	2	25463215	cca	-	64.7	17	DNMT3A_p.V759delV	ONCOGENIC
PD8252a	Sub	2	25463238	A	C	51	104	DNMT3A_p.F752C	ONCOGENIC
PD7678a	Sub	2	25463240	G	T	47.4	78	DNMT3A_p.F751L	ONCOGENIC
PD10906a	Sub	2	25463248	G	A	39.1	69	DNMT3A_p.R749C	ONCOGENIC
PD8297a	Sub	2	25463248	G	A	50.9	59	DNMT3A_p.R749C	ONCOGENIC
PD8063a	D	2	25463264	g	-	41.3	63	DNMT3A_p.K744fs*3	ONCOGENIC
PD7789a	Sub	2	25463286	C	T	45.7	46	DNMT3A_p.R736H	ONCOGENIC
PD8269a	Sub	2	25463286	C	T	35.2	71	DNMT3A_p.R736H	ONCOGENIC
PD11027a	Sub	2	25463286	C	T	58.6	29	DNMT3A_p.R736H	ONCOGENIC
PD8155a	Sub	2	25463286	C	T	18.4	38	DNMT3A_p.R736H	ONCOGENIC
PD7928a	Sub	2	25463287	G	A	58.1	31	DNMT3A_p.R736C	ONCOGENIC
PD11107a	Sub	2	25463287	G	A	83.9	31	DNMT3A_p.R736C	ONCOGENIC
PD8417a	Sub	2	25463287	G	A	55.2	29	DNMT3A_p.R736C	ONCOGENIC
PD9339a	I	2	25463296	-	A	36.7	49	DNMT3A_p.E733fs*1	ONCOGENIC
PD11196a	Sub	2	25463308	G	A	25	16	DNMT3A_p.R729W	ONCOGENIC
PD8271a	D	2	25463318	ctct	-	44	25	DNMT3A_p.?	ONCOGENIC
PD8346a	Sub	2	25463529	G	C	36.2	47	DNMT3A_p.P718R	ONCOGENIC
PD8091a	Sub	2	25463535	A	T	42.6	47	DNMT3A_p.V716D	ONCOGENIC
PD9239a	Sub	2	25463541	G	C	65.7	35	DNMT3A_p.S714C	ONCOGENIC
PD11016a	Sub	2	25463541	G	C	48.2	54	DNMT3A_p.S714C	ONCOGENIC
PD7643a	Sub	2	25463541	G	C	42.9	84	DNMT3A_p.S714C	ONCOGENIC
PD8381a	Sub	2	25463541	G	C	10.5	57	DNMT3A_p.S714C	ONCOGENIC
PD10897a	Sub	2	25463541	G	C	31.8	63	DNMT3A_p.S714C	ONCOGENIC
PD8543a	Sub	2	25463542	A	G	34.2	38	DNMT3A_p.S714P	ONCOGENIC
PD11135a	D	2	25463545	g	-	33.3	24	DNMT3A_p.L713fs*6	ONCOGENIC
PD7979a	Sub	2	25463545	G	A	57.9	38	DNMT3A_p.L713F	ONCOGENIC
PD8038a	Sub	2	25463551	T	A	88.2	34	DNMT3A_p.N711Y	POSSIBLE
PD7979a	Sub	2	25463562	C	T	47.4	38	DNMT3A_p.G707D	ONCOGENIC
PD11057a	Sub	2	25463562	C	A	43.8	32	DNMT3A_p.G707V	ONCOGENIC

PD8407a	Sub	2	25463568	A	G	37.5	24	DNMT3A_p.I705T	ONCOGENIC
PD7716a	Sub	2	25463577	T	A	86.9	61	DNMT3A_p.D702V	ONCOGENIC
PD10988a	Sub	2	25463586	C	T	42.9	63	DNMT3A_p.G699D	ONCOGENIC
PD8314a	D	2	25463596	g	-	41.7	24	DNMT3A_p.Q696fs*9	ONCOGENIC
PD8268a	Sub	2	25464444	A	C	30	30	DNMT3A_p.V690G	POSSIBLE
PD8242a	Sub	2	25464451	G	T	42.9	7	DNMT3A_p.R688S	POSSIBLE
PD10973a	Sub	2	25464457	C	A	48.5	33	DNMT3A_p.D686Y	ONCOGENIC
PD10841a	Sub	2	25464457	C	G	44.4	27	DNMT3A_p.D686H	ONCOGENIC
PD10899a	D	2	25464470	g	-	51.3	39	DNMT3A_p.M682fs*2	ONCOGENIC
PD8166a	Sub	2	25464472	T	A	43.8	16	DNMT3A_p.I681F	POSSIBLE
PD11171a	Sub	2	25464507	G	A	40.9	44	DNMT3A_p.S669F	ONCOGENIC
PD10816a	D	2	25464515	a	-	55.6	45	DNMT3A_p.C666fs*3	ONCOGENIC
PD8469a	Sub	2	25464528	G	C	37.8	90	DNMT3A_p.A662G	ONCOGENIC
PD11192a	Sub	2	25464534	T	C	47.1	34	DNMT3A_p.Y660C	POSSIBLE
PD10812a	D	2	25464548	a	-	40	50	DNMT3A_p.Q656fs*4	ONCOGENIC
PD11086a	Sub	2	25464554	C	G	51.5	33	DNMT3A_p.L653F	POSSIBLE
PD7757a	I	2	25466782	-	A	26.8	41	DNMT3A_p.D641fs*1	ONCOGENIC
PD8106a	Sub	2	25466793	A	T	37.5	16	DNMT3A_p.L637Q	POSSIBLE
PD8427a	Sub	2	25466799	C	T	25	32	DNMT3A_p.R635Q	ONCOGENIC
PD10848a	D	2	25466807	c	-	58.8	17	DNMT3A_p.K632fs*1	ONCOGENIC
PD8258a	Sub	2	25467035	C	T	28.6	14	DNMT3A_p.D614N	POSSIBLE
PD7937a	Sub	2	25467059	G	A	70	20	DNMT3A_p.Q606*	ONCOGENIC
PD8386a	Sub	2	25467083	G	A	40	15	DNMT3A_p.R598*	ONCOGENIC
PD11247a	Sub	2	25467091	A	G	40	10	DNMT3A_p.L595P	POSSIBLE
PD8216a	D	2	25467096	c	-	40	20	DNMT3A_p.L594fs*5	ONCOGENIC
PD8489a	Sub	2	25467132	C	T	90.3	31	DNMT3A_p.W581*	ONCOGENIC
PD10997a	Sub	2	25467134	A	T	50	22	DNMT3A_p.W581R	ONCOGENIC
PD8291a	Sub	2	25467134	A	C	33.3	24	DNMT3A_p.W581G	ONCOGENIC
PD11006a	Sub	2	25467194	C	T	19.1	21	DNMT3A_p.E561K	POSSIBLE
PD7743a	Sub	2	25467408	C	T	48.3	29	DNMT3A_NA	POSSIBLE
PD7931a	Sub	2	25467411	G	T	47.6	21	DNMT3A_p.C555*	ONCOGENIC
PD8543a	Sub	2	25467415	C	T	50	32	DNMT3A_p.C554Y	POSSIBLE
PD7644a	I	2	25467425	-	TCCGCAC	16.2	37	DNMT3A_p.N551fs*3	ONCOGENIC
PD11073a	Sub	2	25467428	C	T	44.4	36	DNMT3A_p.G550R	POSSIBLE
PD11087a	Sub	2	25467436	A	C	46.5	43	DNMT3A_p.L547R	ONCOGENIC
PD7689a	Sub	2	25467436	A	C	57.6	59	DNMT3A_p.L547R	ONCOGENIC
PD8030a	Sub	2	25467436	A	T	57.6	33	DNMT3A_p.L547H	ONCOGENIC
PD11261a	Sub	2	25467437	G	A	37.1	35	DNMT3A_p.L547F	ONCOGENIC
PD10896a	Sub	2	25467448	C	A	51.5	66	DNMT3A_p.G543V	ONCOGENIC
PD7672a	Sub	2	25467449	C	A	51.2	43	DNMT3A_p.G543C	ONCOGENIC
PD8235a	Sub	2	25467449	C	A	46.4	84	DNMT3A_p.G543C	ONCOGENIC
PD10924a	Sub	2	25467449	C	A	27.5	51	DNMT3A_p.G543C	ONCOGENIC
PD8112a	Sub	2	25467449	C	A	50	42	DNMT3A_p.G543C	ONCOGENIC
PD9335a	Sub	2	25467449	C	A	37.2	43	DNMT3A_p.G543C	ONCOGENIC
PD11087a	Sub	2	25467457	C	T	53.3	45	DNMT3A_p.C540Y	POSSIBLE
PD11064a	D	2	25467482	cgt	-	36.6	41	DNMT3A_p.D531delD	ONCOGENIC
PD7977a	Sub	2	25467495	C	G	41.4	58	DNMT3A_p.Q527H	POSSIBLE
PD9273a	Sub	2	25468137	C	T	57.1	21	DNMT3A_p.M513I	POSSIBLE
PD7632a	D	2	25468141	cctcc	-	40	25	DNMT3A_p.F509fs*1	ONCOGENIC
PD8203a	Sub	2	25468144	C	T	52.2	23	DNMT3A_p.G511E	POSSIBLE
PD7842a	D	2	25468170	a	-	12.5	24	DNMT3A_p.T503fs*1	ONCOGENIC
PD8055a	Sub	2	25468186	C	T	38.5	13	DNMT3A_p.C497Y	ONCOGENIC
PD7680a	Sub	2	25468187	A	C	45.7	35	DNMT3A_p.C497G	ONCOGENIC
PD7944a	Sub	2	25468195	C	T	33.3	27	DNMT3A_p.C494Y	ONCOGENIC
PD8460a	D	2	25468930	cgct	-	42.9	105	DNMT3A_p.E477fs*1	ONCOGENIC

PD8279a	Sub	2	25469027	A	G	43	107	DNMT3A_NA	POSSIBLE
PD10901a	I	2	25469118	-	G	18.2	55	DNMT3A_p.Y448fs*2!	ONCOGENIC
PD7907a	D	2	25469125	cctca	-	80.4	46	DNMT3A_p.E442fs*2	ONCOGENIC
PD10981a	I	2	25469153	-	A	42.1	57	DNMT3A_p.Y436fs*9	ONCOGENIC
PD9364a	Sub	2	25469173	T	A	30	30	DNMT3A_p.K429*	ONCOGENIC
PD11146a	D	2	25469503	aggc	-	60	5	DNMT3A_p.F414fs*2	ONCOGENIC
PD8227a	Sub	2	25469542	C	G	21.4	28	DNMT3A_p.W409S	POSSIBLE
PD7937a	Sub	2	25469946	G	T	32.4	68	DNMT3A_p.R366S	POSSIBLE
PD10843a	Sub	2	25470002	A	G	32.6	95	DNMT3A_p.L347P	POSSIBLE
PD9365a	Sub	2	25470011	A	G	63.5	52	DNMT3A_p.L344P	POSSIBLE
PD11064a	I	2	25470475	-	AGGTCC	25.7	35	DNMT3A_p.K335fs*1	ONCOGENIC
PD9248a	Sub	2	25470493	C	T	36.7	30	DNMT3A_p.W327*	ONCOGENIC
PD11165a	Sub	2	25470516	G	A	53.1	49	DNMT3A_p.R320*	ONCOGENIC
PD11052a	Sub	2	25470516	G	A	52.4	63	DNMT3A_p.R320*	ONCOGENIC
PD8298a	Sub	2	25470535	C	T	39.6	101	DNMT3A_p.W313*	ONCOGENIC
PD11151a	Sub	2	25470539	G	T	37.5	8	DNMT3A_p.S312Y	POSSIBLE
PD8179a	Sub	2	25470554	G	A	39.2	51	DNMT3A_p.P307L	POSSIBLE
PD8399a	D	2	25470908	c	-	45	20	DNMT3A_p.E285fs*3	ONCOGENIC
PD11271a	Sub	2	25470959	C	G	59.6	52	DNMT3A_p.D268H	POSSIBLE
PD7812a	Sub	2	25472558	C	T	59	117	DNMT3A_p.V14M	POSSIBLE
PD8280a	Sub	2	198266224	T	C	7.84	255	SF3B1_p.D799G	POSSIBLE
PD9257a	Sub	2	198266494	T	C	18.5	119	SF3B1_p.D781G	ONCOGENIC
PD8133a	Sub	2	198266508	T	A	44.8	134	SF3B1_p.E776D	ONCOGENIC
PD7802a	Sub	2	198266512	C	A	41.8	158	SF3B1_p.R775L	ONCOGENIC
PD9262a	Sub	2	198266591	C	T	13.3	45	SF3B1_p.A749T	ONCOGENIC
PD8331a	Sub	2	198266611	C	T	40.8	103	SF3B1_p.G742D	ONCOGENIC
PD9310a	Sub	2	198266613	C	T	11.4	44	SF3B1_NA	POSSIBLE
PD7771a	Sub	2	198266821	A	T	21.6	208	SF3B1_p.I704N	ONCOGENIC
PD8385a	Sub	2	198266831	C	A	23	122	SF3B1_p.V701F	ONCOGENIC
PD7706a	Sub	2	198266834	T	C	13.7	205	SF3B1_p.K700E	ONCOGENIC
PD9344a	Sub	2	198266834	T	C	40.2	174	SF3B1_p.K700E	ONCOGENIC
PD9313a	Sub	2	198266834	T	C	39.7	436	SF3B1_p.K700E	ONCOGENIC
PD8411a	Sub	2	198266834	T	C	30.5	213	SF3B1_p.K700E	ONCOGENIC
PD8300a	Sub	2	198266834	T	C	30.6	255	SF3B1_p.K700E	ONCOGENIC
PD11128a	Sub	2	198266834	T	C	41.9	198	SF3B1_p.K700E	ONCOGENIC
PD8420a	Sub	2	198266834	T	C	51.6	275	SF3B1_p.K700E	ONCOGENIC
PD7731a	Sub	2	198266834	T	C	37.3	308	SF3B1_p.K700E	ONCOGENIC
PD8077a	Sub	2	198266834	T	C	49.7	161	SF3B1_p.K700E	ONCOGENIC
PD9220a	Sub	2	198266834	T	C	29.2	209	SF3B1_p.K700E	ONCOGENIC
PD7951a	Sub	2	198266834	T	C	44.7	215	SF3B1_p.K700E	ONCOGENIC
PD8258a	Sub	2	198266834	T	C	6.19	210	SF3B1_p.K700E	ONCOGENIC
PD9384a	Sub	2	198267342	G	A	25.9	54	SF3B1_p.A672V	ONCOGENIC
PD11136a	Sub	2	198267359	C	G	55.2	87	SF3B1_p.K666N	ONCOGENIC
PD11237a	Sub	2	198267359	C	G	8.89	45	SF3B1_p.K666N	ONCOGENIC
PD10987a	Sub	2	198267359	C	G	51.4	107	SF3B1_p.K666N	ONCOGENIC
PD9372a	Sub	2	198267359	C	A	44.6	148	SF3B1_p.K666N	ONCOGENIC
PD11099a	Sub	2	198267359	C	G	78.4	88	SF3B1_p.K666N	ONCOGENIC
PD9359a	Sub	2	198267359	C	A	36.8	117	SF3B1_p.K666N	ONCOGENIC
PD7947a	Sub	2	198267359	C	A	47.7	128	SF3B1_p.K666N	ONCOGENIC
PD9246a	Sub	2	198267359	C	A	40.4	52	SF3B1_p.K666N	ONCOGENIC
PD11257a	Sub	2	198267359	C	A	4.91	224	SF3B1_p.K666N	ONCOGENIC
PD11263a	Sub	2	198267360	T	G	61.3	111	SF3B1_p.K666T	ONCOGENIC
PD7972a	Sub	2	198267360	T	G	33.3	69	SF3B1_p.K666T	ONCOGENIC
PD8113a	Sub	2	198267373	G	A	43.8	89	SF3B1_p.H662Y	ONCOGENIC
PD11193a	Sub	2	198267483	C	A	9.57	115	SF3B1_p.R625L	ONCOGENIC

PD8105a	Sub	2	198267484	G	A	33.9	165	SF3B1_p.R625C	ONCOGENIC
PD11144a	Sub	2	198267484	G	A	7.97	138	SF3B1_p.R625C	ONCOGENIC
PD9297a	Sub	2	198267484	G	A	7.09	268	SF3B1_p.R625C	ONCOGENIC
PD7779a	Sub	2	198267525	G	A	40.9	44	SF3B1_p.S611F	ONCOGENIC
PD9323a	Sub	2	198267543	C	T	21.4	28	SF3B1_p.G605D	ONCOGENIC
PD10847a	Sub	2	209113112	C	T	46.4	265	IDH1_p.R132H	ONCOGENIC
PD8159a	Sub	2	209113112	C	T	41.7	242	IDH1_p.R132H	ONCOGENIC
PD8544a	Sub	2	209113112	C	T	29.1	220	IDH1_p.R132H	ONCOGENIC
PD7803a	Sub	2	209113112	C	T	31.2	237	IDH1_p.R132H	ONCOGENIC
PD9197a	Sub	2	209113112	C	T	12.1	149	IDH1_p.R132H	ONCOGENIC
PD10957a	Sub	2	209113112	C	T	52.9	280	IDH1_p.R132H	ONCOGENIC
PD11063a	Sub	2	209113112	C	T	45.4	269	IDH1_p.R132H	ONCOGENIC
PD7888a	Sub	2	209113112	C	T	54.1	183	IDH1_p.R132H	ONCOGENIC
PD8256a	Sub	2	209113112	C	T	21.4	257	IDH1_p.R132H	ONCOGENIC
PD8539a	Sub	2	209113112	C	T	15.3	248	IDH1_p.R132H	ONCOGENIC
PD8493a	Sub	2	209113112	C	T	83.8	173	IDH1_p.R132H	ONCOGENIC
PD11057a	Sub	2	209113112	C	T	24.7	190	IDH1_p.R132H	ONCOGENIC
PD10855a	Sub	2	209113112	C	T	48.8	207	IDH1_p.R132H	ONCOGENIC
PD11029a	Sub	2	209113112	C	T	12.3	211	IDH1_p.R132H	ONCOGENIC
PD9373a	Sub	2	209113112	C	T	54	200	IDH1_p.R132H	ONCOGENIC
PD8188a	Sub	2	209113112	C	T	14.1	199	IDH1_p.R132H	ONCOGENIC
PD8491a	Sub	2	209113112	C	T	45.8	295	IDH1_p.R132H	ONCOGENIC
PD9328a	Sub	2	209113112	C	T	41.6	279	IDH1_p.R132H	ONCOGENIC
PD8412a	Sub	2	209113112	C	T	19.3	238	IDH1_p.R132H	ONCOGENIC
PD8314a	Sub	2	209113112	C	T	7.65	340	IDH1_p.R132H	ONCOGENIC
PD7707a	Sub	2	209113112	C	T	41.4	314	IDH1_p.R132H	ONCOGENIC
PD7791a	Sub	2	209113112	C	T	14.9	241	IDH1_p.R132H	ONCOGENIC
PD7644a	Sub	2	209113112	C	T	43.2	241	IDH1_p.R132H	ONCOGENIC
PD8056a	Sub	2	209113112	C	A	34.7	228	IDH1_p.R132L	ONCOGENIC
PD8282a	Sub	2	209113112	C	T	11.5	278	IDH1_p.R132H	ONCOGENIC
PD7943a	Sub	2	209113112	C	T	19	158	IDH1_p.R132H	ONCOGENIC
PD7645a	Sub	2	209113112	C	T	38.3	227	IDH1_p.R132H	ONCOGENIC
PD10918a	Sub	2	209113112	C	T	11.1	225	IDH1_p.R132H	ONCOGENIC
PD11038a	Sub	2	209113112	C	T	36.9	282	IDH1_p.R132H	ONCOGENIC
PD8294a	Sub	2	209113112	C	T	27.5	324	IDH1_p.R132H	ONCOGENIC
PD8004a	Sub	2	209113112	C	T	30.2	262	IDH1_p.R132H	ONCOGENIC
PD8091a	Sub	2	209113112	C	T	29.8	282	IDH1_p.R132H	ONCOGENIC
PD11196a	Sub	2	209113112	C	T	45.3	159	IDH1_p.R132H	ONCOGENIC
PD11125a	Sub	2	209113112	C	T	42.5	153	IDH1_p.R132H	ONCOGENIC
PD11285a	Sub	2	209113112	C	T	30.5	190	IDH1_p.R132H	ONCOGENIC
PD8033a	Sub	2	209113112	C	T	37.6	237	IDH1_p.R132H	ONCOGENIC
PD8538a	Sub	2	209113112	C	T	26.5	223	IDH1_p.R132H	ONCOGENIC
PD8202a	Sub	2	209113112	C	T	49.7	189	IDH1_p.R132H	ONCOGENIC
PD10803a	Sub	2	209113112	C	T	43.5	260	IDH1_p.R132H	ONCOGENIC
PD8371a	Sub	2	209113112	C	T	44.7	255	IDH1_p.R132H	ONCOGENIC
PD8095a	Sub	2	209113112	C	T	33.5	215	IDH1_p.R132H	ONCOGENIC
PD11042a	Sub	2	209113112	C	T	39.2	237	IDH1_p.R132H	ONCOGENIC
PD9386a	Sub	2	209113112	C	T	40.3	320	IDH1_p.R132H	ONCOGENIC
PD10921a	Sub	2	209113112	C	T	7.89	228	IDH1_p.R132H	ONCOGENIC
PD11076a	Sub	2	209113112	C	T	50.5	204	IDH1_p.R132H	ONCOGENIC
PD7804a	Sub	2	209113112	C	T	42.6	249	IDH1_p.R132H	ONCOGENIC
PD8275a	Sub	2	209113112	C	T	46	372	IDH1_p.R132H	ONCOGENIC
PD7991a	Sub	2	209113112	C	T	39.9	168	IDH1_p.R132H	ONCOGENIC
PD8029a	Sub	2	209113112	C	T	38.3	251	IDH1_p.R132H	ONCOGENIC
PD11059a	Sub	2	209113112	C	T	48.2	328	IDH1_p.R132H	ONCOGENIC

PD7837a	Sub	2	209113112	C	T	5.4	315	IDH1_p.R132H	ONCOGENIC
PD11010a	Sub	2	209113112	C	T	41.3	160	IDH1_p.R132H	ONCOGENIC
PD11202a	Sub	2	209113112	C	T	39.9	308	IDH1_p.R132H	ONCOGENIC
PD8274a	Sub	2	209113112	C	T	44.7	266	IDH1_p.R132H	ONCOGENIC
PD7757a	Sub	2	209113112	C	A	12.8	156	IDH1_p.R132L	ONCOGENIC
PD7855a	Sub	2	209113112	C	T	44.1	127	IDH1_p.R132H	ONCOGENIC
PD8355a	Sub	2	209113112	C	T	42.7	232	IDH1_p.R132H	ONCOGENIC
PD8436a	Sub	2	209113112	C	T	43.7	316	IDH1_p.R132H	ONCOGENIC
PD11140a	Sub	2	209113113	G	A	16.8	190	IDH1_p.R132C	ONCOGENIC
PD7979a	Sub	2	209113113	G	A	48.1	158	IDH1_p.R132C	ONCOGENIC
PD11087a	Sub	2	209113113	G	A	49.3	294	IDH1_p.R132C	ONCOGENIC
PD8407a	Sub	2	209113113	G	A	54.5	178	IDH1_p.R132C	ONCOGENIC
PD10976a	Sub	2	209113113	G	A	32.6	242	IDH1_p.R132C	ONCOGENIC
PD9241a	Sub	2	209113113	G	C	37.1	159	IDH1_p.R132G	ONCOGENIC
PD8336a	Sub	2	209113113	G	A	37.4	254	IDH1_p.R132C	ONCOGENIC
PD11251a	Sub	2	209113113	G	A	46.5	310	IDH1_p.R132C	ONCOGENIC
PD9215a	Sub	2	209113113	G	A	39.3	214	IDH1_p.R132C	ONCOGENIC
PD10842a	Sub	2	209113113	G	A	37.2	296	IDH1_p.R132C	ONCOGENIC
PD8368a	Sub	2	209113113	G	A	44.4	198	IDH1_p.R132C	ONCOGENIC
PD9332a	Sub	2	209113113	G	A	43.5	170	IDH1_p.R132C	ONCOGENIC
PD8213a	Sub	2	209113113	G	A	36.6	205	IDH1_p.R132C	ONCOGENIC
PD11266a	Sub	2	209113113	G	A	39.3	234	IDH1_p.R132C	ONCOGENIC
PD8146a	Sub	2	209113113	G	A	40.7	167	IDH1_p.R132C	ONCOGENIC
PD11101a	Sub	2	209113113	G	A	42.9	184	IDH1_p.R132C	ONCOGENIC
PD8016a	Sub	2	209113113	G	A	40.7	253	IDH1_p.R132C	ONCOGENIC
PD11265a	Sub	2	209113113	G	C	42.3	279	IDH1_p.R132G	ONCOGENIC
PD9234a	Sub	2	209113113	G	C	46.1	258	IDH1_p.R132G	ONCOGENIC
PD8180a	Sub	2	209113113	G	A	44.5	191	IDH1_p.R132C	ONCOGENIC
PD11040a	Sub	2	209113113	G	A	48	273	IDH1_p.R132C	ONCOGENIC
PD11227a	Sub	2	209113113	G	A	40.5	190	IDH1_p.R132C	ONCOGENIC
PD9378a	Sub	2	209113113	G	A	45.5	213	IDH1_p.R132C	ONCOGENIC
PD8288a	Sub	2	209113113	G	A	24.7	259	IDH1_p.R132C	ONCOGENIC
PD8546a	Sub	2	209113113	G	A	41.7	230	IDH1_p.R132C	ONCOGENIC
PD7980a	Sub	2	209113113	G	A	51.4	220	IDH1_p.R132C	ONCOGENIC
PD8488a	Sub	2	209113113	G	A	47.1	331	IDH1_p.R132C	ONCOGENIC
PD11107a	Sub	2	209113113	G	A	34.6	214	IDH1_p.R132C	ONCOGENIC
PD8320a	Sub	2	209113113	G	A	6.63	347	IDH1_p.R132C	ONCOGENIC
PD8489a	Sub	2	209113113	G	A	43.9	367	IDH1_p.R132C	ONCOGENIC
PD11028a	Sub	2	209113113	G	A	24.9	169	IDH1_p.R132C	ONCOGENIC
PD7841a	Sub	2	209113113	G	A	53.2	250	IDH1_p.R132C	ONCOGENIC
PD11007a	Sub	2	209113113	G	A	44.7	300	IDH1_p.R132C	ONCOGENIC
PD8438a	Sub	2	209113113	G	A	43	307	IDH1_p.R132C	ONCOGENIC
PD11163a	Sub	2	209113113	G	A	28.9	242	IDH1_p.R132C	ONCOGENIC
PD11181a	Sub	2	209113113	G	A	15.8	272	IDH1_p.R132C	ONCOGENIC
PD7680a	Sub	2	209113113	G	T	38.5	273	IDH1_p.R132S	ONCOGENIC
PD7992a	Sub	2	209113113	G	A	47.4	230	IDH1_p.R132C	ONCOGENIC
PD8263a	Sub	2	209113113	G	A	42	326	IDH1_p.R132C	ONCOGENIC
PD11232a	Sub	2	209113113	G	A	39.1	192	IDH1_p.R132C	ONCOGENIC
PD11223a	Sub	2	209113113	G	C	41.2	182	IDH1_p.R132G	ONCOGENIC
PD7768a	Sub	2	209113113	G	A	44.1	236	IDH1_p.R132C	ONCOGENIC
PD7857a	Sub	2	209113113	G	A	40.9	137	IDH1_p.R132C	ONCOGENIC
PD8499a	Sub	2	209113113	G	A	44.8	400	IDH1_p.R132C	ONCOGENIC
PD11002a	Sub	2	209113113	G	A	27.6	268	IDH1_p.R132C	ONCOGENIC
PD8487a	Sub	2	209113113	G	A	40.1	412	IDH1_p.R132C	ONCOGENIC
PD8011a	Sub	2	209113113	G	T	48.1	237	IDH1_p.R132S	ONCOGENIC

PD11238a	Sub	2	209113113	G	A	10.1	318	IDH1_p.R132C	ONCOGENIC
PD9218a	Sub	3	105572271	G	A	11.7	137	CBLB_p.Q136*	POSSIBLE
PD10955a	Sub	3	128200112	C	T	33.9	112	GATA2_p.R398Q	POSSIBLE
PD7896a	Sub	3	128200112	C	T	28.4	67	GATA2_p.R398Q	POSSIBLE
PD8223a	Sub	3	128200113	G	A	16.4	67	GATA2_p.R398W	POSSIBLE
PD11067a	Sub	3	128200113	G	A	38.5	104	GATA2_p.R398W	POSSIBLE
PD8092a	Sub	3	128200691	C	T	42.9	21	GATA2_p.A372T	ONCOGENIC
PD8363a	Sub	3	128200691	C	T	40	20	GATA2_p.A372T	ONCOGENIC
PD8244a	Sub	3	128200691	C	T	39.4	33	GATA2_p.A372T	ONCOGENIC
PD7955a	Sub	3	128200691	C	T	33.3	15	GATA2_p.A372T	ONCOGENIC
PD8024a	Sub	3	128200691	C	T	37.5	16	GATA2_p.A372T	ONCOGENIC
PD8229a	Sub	3	128200720	C	T	66.7	9	GATA2_p.R362Q	ONCOGENIC
PD7980a	Sub	3	128200720	C	T	35.7	14	GATA2_p.R362Q	ONCOGENIC
PD10970a	Sub	3	128200720	C	T	42.1	19	GATA2_p.R362Q	ONCOGENIC
PD7643a	Sub	3	128200720	C	T	46.2	39	GATA2_p.R362Q	ONCOGENIC
PD10914a	Sub	3	128200721	G	C	50	18	GATA2_p.R362G	ONCOGENIC
PD9362a	Sub	3	128200723	C	T	29.2	24	GATA2_p.R361H	POSSIBLE
PD11193a	Sub	3	128200730	A	C	40	20	GATA2_p.L359V	ONCOGENIC
PD7646a	Sub	3	128200730	A	C	38.1	21	GATA2_p.L359V	ONCOGENIC
PD8536a	Sub	3	128200732	G	T	50	6	GATA2_p.T358N	POSSIBLE
PD7789a	Sub	3	128202731	C	A	17.5	40	GATA2_p.R330L	ONCOGENIC
PD8237a	Sub	3	128202731	C	T	49.1	53	GATA2_p.R330Q	ONCOGENIC
PD8389a	Sub	3	128202731	C	A	22.2	18	GATA2_p.R330L	ONCOGENIC
PD10818a	Sub	3	128202758	A	T	44.4	18	GATA2_p.L321H	ONCOGENIC
PD10919a	Sub	3	128202758	A	T	12	25	GATA2_p.L321H	ONCOGENIC
PD7916a	Sub	3	128202758	A	T	58.3	12	GATA2_p.L321H	ONCOGENIC
PD8111a	Sub	3	128202759	G	A	40	20	GATA2_p.L321F	ONCOGENIC
PD7823a	Sub	3	128202759	G	A	33.3	24	GATA2_p.L321F	ONCOGENIC
PD7996a	Sub	3	128202761	C	T	44.4	18	GATA2_p.G320D	ONCOGENIC
PD8514a	Sub	3	128202761	C	T	50	14	GATA2_p.G320D	ONCOGENIC
PD7972a	Sub	3	128202761	C	T	26.1	23	GATA2_p.G320D	ONCOGENIC
PD10793a	Sub	3	128202767	G	A	33.3	18	GATA2_p.A318V	ONCOGENIC
PD8014a	Sub	3	128202767	G	A	44.4	27	GATA2_p.A318V	ONCOGENIC
PD9317a	Sub	3	128202767	G	C	34.8	23	GATA2_p.A318G	ONCOGENIC
PD7926a	Sub	3	128202768	C	T	66.7	12	GATA2_p.A318T	ONCOGENIC
PD11001a	Sub	3	128202770	T	C	21.2	33	GATA2_p.N317S	ONCOGENIC
PD8178a	Sub	3	128202770	T	C	46.2	13	GATA2_p.N317S	ONCOGENIC
PD10890a	Sub	3	128202809	G	T	47.4	19	GATA2_p.P304H	ONCOGENIC
PD9246a	Sub	3	128202810	G	T	40	10	GATA2_p.P304T	ONCOGENIC
PD8500a	Sub	4	55524246	C	T	83.3	6	KIT_p.T22I	POSSIBLE
PD8349a	Sub	4	55561711	C	T	43	114	KIT_p.P34L	POSSIBLE
PD10846a	Sub	4	55561764	G	A	60.7	155	KIT_p.D52N	ONCOGENIC
PD9312a	Sub	4	55569927	G	A	38.9	185	KIT_p.G265D	POSSIBLE
PD8020a	Sub	4	55592136	G	A	19	258	KIT_p.G487D	POSSIBLE
PD9383a	Sub	4	55592169	G	A	19.3	166	KIT_p.G498D	POSSIBLE
PD8060a	Sub	4	55593589	T	C	51	249	KIT_p.M552T	ONCOGENIC
PD11046a	Sub	4	55593603	T	G	7.51	253	KIT_p.W557G	ONCOGENIC
PD8042a	Sub	4	55593661	T	C	40.4	265	KIT_p.L576P	ONCOGENIC
PD9251a	Sub	4	55593661	T	G	22.6	190	KIT_p.L576R	ONCOGENIC
PD7695a	Sub	4	55593995	C	T	31.7	142	KIT_p.T594I	ONCOGENIC
PD9345a	Sub	4	55594063	G	A	25.2	163	KIT_p.A617T	ONCOGENIC
PD8028a	Sub	4	55594068	G	A	5.23	306	KIT_p.M618I	ONCOGENIC
PD9277a	Sub	4	55594093	C	A	53.1	179	KIT_p.P627T	POSSIBLE
PD11251a	Sub	4	55599320	G	T	7.09	282	KIT_p.D816Y	ONCOGENIC
PD7692a	Sub	4	55599320	G	C	22.2	261	KIT_p.D816H	ONCOGENIC

PD8442a	Sub	4	55599320	G	C	14	301	KIT_p.D816H	ONCOGENIC
PD10886a	Sub	4	55599320	G	T	6.42	327	KIT_p.D816Y	ONCOGENIC
PD10815a	Sub	4	55599320	G	T	34.9	241	KIT_p.D816Y	ONCOGENIC
PD10876a	Sub	4	55599320	G	C	10.4	192	KIT_p.D816H	ONCOGENIC
PD8240a	Sub	4	55599320	G	C	4.53	309	KIT_p.D816H	ONCOGENIC
PD8059a	Sub	4	55599320	G	T	14.7	150	KIT_p.D816Y	ONCOGENIC
PD7660a	Sub	4	55599320	G	C	4.41	295	KIT_p.D816H	ONCOGENIC
PD7780a	Sub	4	55599321	A	T	41.5	241	KIT_p.D816V	ONCOGENIC
PD10828a	Sub	4	55599321	A	T	36	239	KIT_p.D816V	ONCOGENIC
PD8414a	Sub	4	55599321	A	T	30	217	KIT_p.D816V	ONCOGENIC
PD9236a	Sub	4	55599321	A	T	33.2	202	KIT_p.D816V	ONCOGENIC
PD10875a	Sub	4	55599321	A	T	37.4	246	KIT_p.D816V	ONCOGENIC
PD8442a	Sub	4	55599321	A	T	5.65	301	KIT_p.D816V	ONCOGENIC
PD11112a	Sub	4	55599321	A	T	24.5	106	KIT_p.D816V	ONCOGENIC
PD7715a	Sub	4	55599321	A	T	28.8	240	KIT_p.D816V	ONCOGENIC
PD10913a	Sub	4	55599321	A	T	49.1	218	KIT_p.D816V	ONCOGENIC
PD8097a	Sub	4	55599321	A	T	20.3	246	KIT_p.D816V	ONCOGENIC
PD11072a	Sub	4	55599321	A	T	4.35	184	KIT_p.D816V	ONCOGENIC
PD10920a	Sub	4	55599321	A	T	28	225	KIT_p.D816V	ONCOGENIC
PD8537a	Sub	4	55599321	A	T	36.5	192	KIT_p.D816V	ONCOGENIC
PD10815a	Sub	4	55599321	A	T	8.79	239	KIT_p.D816V	ONCOGENIC
PD8431a	Sub	4	55599321	A	T	63.4	443	KIT_p.D816V	ONCOGENIC
PD8072a	Sub	4	55599321	A	T	45.6	193	KIT_p.D816V	ONCOGENIC
PD11091a	Sub	4	55599321	A	T	39.1	174	KIT_p.D816V	ONCOGENIC
PD8137a	Sub	4	55599321	A	T	5.11	176	KIT_p.D816V	ONCOGENIC
PD7736a	Sub	4	55599321	A	T	16.4	268	KIT_p.D816V	ONCOGENIC
PD11108a	Sub	4	55599321	A	T	43.2	227	KIT_p.D816V	ONCOGENIC
PD7870a	Sub	4	55599321	A	T	41.6	142	KIT_p.D816V	ONCOGENIC
PD7643a	Sub	4	55599321	A	T	43	258	KIT_p.D816V	ONCOGENIC
PD7652a	Sub	4	55599321	A	T	35.8	179	KIT_p.D816V	ONCOGENIC
PD10960a	Sub	4	55599321	A	T	34	212	KIT_p.D816V	ONCOGENIC
PD8589a	Sub	4	55599321	A	T	47	164	KIT_p.D816V	ONCOGENIC
PD11058a	Sub	4	55599321	A	T	44.6	276	KIT_p.D816V	ONCOGENIC
PD7894a	Sub	4	55599321	A	T	4.88	123	KIT_p.D816V	ONCOGENIC
PD8513a	Sub	4	55599321	A	T	11.3	256	KIT_p.D816V	ONCOGENIC
PD9198a	Sub	4	55599321	A	T	23.9	176	KIT_p.D816V	ONCOGENIC
PD7633a	Sub	4	55599321	A	T	4.91	163	KIT_p.D816V	ONCOGENIC
PD7938a	Sub	4	55599321	A	T	29.4	204	KIT_p.D816V	ONCOGENIC
PD8101a	Sub	4	55599321	A	T	29.7	202	KIT_p.D816V	ONCOGENIC
PD9308a	Sub	4	55599321	A	T	9.8	306	KIT_p.D816V	ONCOGENIC
PD8352a	Sub	4	55599332	G	T	38.7	186	KIT_p.D820Y	POSSIBLE
PD8109a	Sub	4	55599332	G	T	38.7	173	KIT_p.D820Y	POSSIBLE
PD7812a	Sub	4	55599338	A	T	40.8	228	KIT_p.N822Y	ONCOGENIC
PD8442a	Sub	4	55599340	T	G	6.62	287	KIT_p.N822K	ONCOGENIC
PD10920a	Sub	4	55599340	T	G	18.7	219	KIT_p.N822K	ONCOGENIC
PD10942a	Sub	4	55599340	T	A	15.4	241	KIT_p.N822K	ONCOGENIC
PD11155a	Sub	4	55599340	T	G	43.9	187	KIT_p.N822K	ONCOGENIC
PD8579a	Sub	4	55599340	T	G	40.9	154	KIT_p.N822K	ONCOGENIC
PD7917a	Sub	4	55599340	T	G	52.7	129	KIT_p.N822K	ONCOGENIC
PD8373a	Sub	4	55599340	T	A	25.3	233	KIT_p.N822K	ONCOGENIC
PD8178a	Sub	4	55599340	T	A	41.9	184	KIT_p.N822K	ONCOGENIC
PD8243a	Sub	4	55599340	T	A	49.4	385	KIT_p.N822K	ONCOGENIC
PD8579a	Sub	4	55599341	T	G	6.54	153	KIT_p.Y823D	ONCOGENIC
PD7820a	Sub	4	55599342	A	G	7.5	240	KIT_p.Y823C	ONCOGENIC
PD7935a	Sub	4	55602688	G	A	6.17	227	KIT_p.A837T	POSSIBLE

PD8225a	Sub	4	106155202	C	T	7.16	489	TET2_p.Q35*	ONCOGENIC
PD8346a	D	4	106155308	agaat	-	38.1	399	TET2_p.Q70fs*3	ONCOGENIC
PD11257a	D	4	106155496	c	-	36.8	870	TET2_p.P133fs*12	ONCOGENIC
PD7722a	I	4	106155579	-	A	30.7	745	TET2_p.D162fs*9	ONCOGENIC
PD8211a	Sub	4	106155649	G	T	47.6	443	TET2_p.E184*	ONCOGENIC
PD8126a	D	4	106155879	g	-	40.6	438	TET2_p.L260fs*33	ONCOGENIC
PD10841a	I	4	106155888	-	C	44	794	TET2_p.I264fs*18	ONCOGENIC
PD8464a	Sub	4	106155916	C	T	50.4	500	TET2_p.Q273*	ONCOGENIC
PD7663a	D	4	106155921	c	-	31.5	777	TET2_p.N275fs*18	ONCOGENIC
PD8208a	D	4	106155921	c	-	48.7	483	TET2_p.N275fs*18	ONCOGENIC
PD11280a	I	4	106155935	-	AGAC	25.3	348	TET2_p.S280fs*3	ONCOGENIC
PD11212a	D	4	106155994	g	-	47.8	410	TET2_p.D299fs*9	ONCOGENIC
PD8451a	D	4	106156004	at	-	48.5	606	TET2_p.D302fs*4	ONCOGENIC
PD11240a	D	4	106156041	t	-	47.9	723	TET2_p.S315fs*32	ONCOGENIC
PD8370a	Sub	4	106156079	C	G	49	500	TET2_p.S327*	ONCOGENIC
PD7690a	D	4	106156104	tg	-	73.2	564	TET2_p.A336fs*3	ONCOGENIC
PD11243a	Sub	4	106156160	C	G	45.2	500	TET2_p.S354*	ONCOGENIC
PD8076a	Sub	4	106156246	C	T	14.4	500	TET2_p.Q383*	ONCOGENIC
PD10981a	I	4	106156270	-	T	32.9	700	TET2_p.S391fs*52	ONCOGENIC
PD11133a	D	4	106156313	ttct	-	51.8	303	TET2_p.S407fs*19	ONCOGENIC
PD11260a	Sub	4	106156348	C	T	39.6	500	TET2_p.Q417*	ONCOGENIC
PD11254a	Sub	4	106156363	G	T	48.8	500	TET2_p.G422*	ONCOGENIC
PD11189a	D	4	106156365	a	-	31.7	520	TET2_p.S424fs*3	ONCOGENIC
PD7837a	Sub	4	106156468	G	A	6.2	500	TET2_p.A457T	POSSIBLE
PD8210a	Sub	4	106156478	C	T	53.2	455	TET2_p.S460F	ONCOGENIC
PD11198a	I	4	106156523	-	G	41.7	259	TET2_p.L476fs*3	ONCOGENIC
PD9271a	Sub	4	106156570	C	T	5.3	283	TET2_p.Q491*	ONCOGENIC
PD11165a	D	4	106156625	cagaa	-	87.8	287	TET2_p.E510fs*1	ONCOGENIC
PD8006a	Sub	4	106156729	C	T	23.3	433	TET2_p.R544*	ONCOGENIC
PD8370a	Sub	4	106156747	C	T	50.4	484	TET2_p.R550*	ONCOGENIC
PD9355a	Sub	4	106156747	C	T	48.4	500	TET2_p.R550*	ONCOGENIC
PD8256a	Sub	4	106156747	C	T	20.2	500	TET2_p.R550*	ONCOGENIC
PD10981a	Sub	4	106156747	C	T	67.4	500	TET2_p.R550*	ONCOGENIC
PD7945a	Sub	4	106156747	C	T	43.2	500	TET2_p.R550*	ONCOGENIC
PD8158a	D	4	106156777	c	-	32.4	401	TET2_p.L560fs*1	ONCOGENIC
PD11287a	D	4	106156846	gagg	-	40.5	279	TET2_p.E583fs*17	ONCOGENIC
PD10862a	Sub	4	106156894	C	T	35.7	409	TET2_p.Q599*	ONCOGENIC
PD11258a	D	4	106156925	c	-	19.1	356	TET2_p.N610fs*29	ONCOGENIC
PD10943a	I	4	106156991	-	A	96.8	467	TET2_p.Q632fs*6	ONCOGENIC
PD7791a	Sub	4	106157008	G	T	4.55	374	TET2_p.E637*	ONCOGENIC
PD11086a	Sub	4	106157023	C	T	44.3	402	TET2_p.Q642*	ONCOGENIC
PD7661a	D	4	106157058	c	-	7.34	572	TET2_p.Q654fs*46	ONCOGENIC
PD11147a	D	4	106157058	c	-	48.1	322	TET2_p.Q654fs*46	ONCOGENIC
PD8231a	Sub	4	106157059	C	T	50.2	500	TET2_p.Q654*	ONCOGENIC
PD8351a	I	4	106157208	-	A	38.3	277	TET2_p.N704fs*8	ONCOGENIC
PD11233a	Sub	4	106157212	C	T	53.8	500	TET2_p.Q705*	ONCOGENIC
PD11231a	Sub	4	106157212	C	T	10.6	500	TET2_p.Q705*	ONCOGENIC
PD11148a	D	4	106157252	t	-	50.5	190	TET2_p.L719fs*32	ONCOGENIC
PD8256a	Sub	4	106157257	C	T	17.3	451	TET2_p.Q720*	ONCOGENIC
PD10933a	I	4	106157322	-	TAAAC	39.1	261	TET2_p.Q742fs*1	ONCOGENIC
PD10919a	Sub	4	106157332	C	T	46.9	196	TET2_p.Q745*	ONCOGENIC
PD10886a	D	4	106157336	a	-	30.4	349	TET2_p.K747fs*4	ONCOGENIC
PD11250a	D	4	106157346	aataa	-	39.1	230	TET2_p.N752fs*59	ONCOGENIC
PD11284a	D	4	106157368	c	-	42.3	175	TET2_p.L757fs*56	ONCOGENIC
PD10861a	Sub	4	106157404	C	T	49.5	277	TET2_p.Q769*	ONCOGENIC

PD10924a	I	4	106157407	-	A	27.5	363	TET2_p.R771fs*10	ONCOGENIC
PD7613a	Sub	4	106157480	C	G	43.8	299	TET2_p.S794*	ONCOGENIC
PD11198a	Sub	4	106157527	C	T	38.2	301	TET2_p.Q810*	ONCOGENIC
PD8452a	Sub	4	106157527	C	T	88	500	TET2_p.Q810*	ONCOGENIC
PD11124a	D	4	106157553	ttat	-	96.7	337	TET2_p.Y819fs*4	ONCOGENIC
PD8211a	D	4	106157621	t	-	54.4	226	TET2_p.S842fs*31	ONCOGENIC
PD11197a	D	4	106157650	c	-	47.2	195	TET2_p.P851fs*22	ONCOGENIC
PD8305a	Sub	4	106157677	C	T	41.4	437	TET2_p.Q860*	ONCOGENIC
PD8309a	D	4	106157756	a	-	86.2	428	TET2_p.Q886fs*35	ONCOGENIC
PD7656a	Sub	4	106157809	C	T	36.8	272	TET2_p.Q904*	ONCOGENIC
PD8351a	I	4	106157834	-	G	3.75	267	TET2_p.Q913fs*11	ONCOGENIC
PD8200a	I	4	106157834	-	A	46.9	273	TET2_p.Q913fs*11	ONCOGENIC
PD7842a	Sub	4	106157845	C	T	27.6	500	TET2_p.Q916*	ONCOGENIC
PD8423a	Sub	4	106157845	C	T	49.5	487	TET2_p.Q916*	ONCOGENIC
PD11150a	Sub	4	106157845	C	T	24.2	161	TET2_p.Q916*	ONCOGENIC
PD10894a	I	4	106157846	-	A	37.4	446	TET2_p.Q917fs*7	ONCOGENIC
PD7879a	D	4	106157884	c	-	53.1	239	TET2_p.P929fs*24	ONCOGENIC
PD10879a	D	4	106157945	a	-	37.6	330	TET2_p.H949fs*4	ONCOGENIC
PD8354a	Sub	4	106157945	A	G	52.1	257	TET2_p.H949R	ONCOGENIC
PD7711a	Sub	4	106157961	G	A	41.5	330	TET2_p.W954*	ONCOGENIC
PD7958a	Sub	4	106157971	C	T	11.9	329	TET2_p.Q958*	ONCOGENIC
PD11189a	Sub	4	106157971	C	T	38.1	257	TET2_p.Q958*	ONCOGENIC
PD11072a	Sub	4	106157986	C	T	42.9	280	TET2_p.Q963*	ONCOGENIC
PD10863a	D	4	106158005	a	-	50.1	345	TET2_p.T970fs*37	ONCOGENIC
PD8349a	Sub	4	106158082	A	C	50	382	TET2_p.T995P	ONCOGENIC
PD10944a	D	4	106158157	c	-	47.8	364	TET2_p.Q1020fs*13	ONCOGENIC
PD9297a	D	4	106158187	c	-	10.8	546	TET2_p.Q1030fs*3	ONCOGENIC
PD10904a	I	4	106158238	-	A	46.5	383	TET2_p.T1047fs*11	ONCOGENIC
PD8065a	D	4	106158358	tc	-	33.5	260	TET2_p.S1087fs*16	ONCOGENIC
PD8479a	I	4	106158404	-	AGG	42.4	309	TET2_p.N1102>KG	ONCOGENIC
PD8149a	D	4	106158414	ag	-	46.8	158	TET2_p.E1106fs*23	ONCOGENIC
PD8417a	D	4	106158430	t	-	44.8	194	TET2_p.L1111fs*2	ONCOGENIC
PD8454a	I	4	106158470	-	GT	21.5	326	TET2_p.K1125fs*13	ONCOGENIC
PD11211a	Sub	4	106158509	G	A	37.4	500	TET2_NA	POSSIBLE
PD11217a	Sub	4	106158509	G	A	45.4	500	TET2_NA	POSSIBLE
PD11257a	Sub	4	106158509	G	A	35.5	499	TET2_NA	POSSIBLE
PD11199a	Sub	4	106158541	G	C	45.9	277	TET2_p.V1148L	POSSIBLE
PD11164a	D	4	106162499	a	-	79.2	221	TET2_p.I1139fs*13	ONCOGENIC
PD7770a	Sub	4	106162529	A	G	51.3	300	TET2_p.Y1148C	POSSIBLE
PD7923a	I	4	106162559	-	A	42.7	199	TET2_p.A1159fs*3	ONCOGENIC
PD8158a	Sub	4	106162586	G	A	24.7	263	TET2_p.R1167K	POSSIBLE
PD11086a	D	4	106164022	g	-	44.1	263	TET2_p.E1178fs*48	ONCOGENIC
PD11260a	Sub	4	106164022	G	T	43	500	TET2_p.E1178*	ONCOGENIC
PD11241a	D	4	106164049	ggcaa	-	40.2	241	TET2_p.G1187_Q119	POSSIBLE
PD11283a	Sub	4	106164061	C	T	44.2	208	TET2_p.Q1191*	ONCOGENIC
PD9287a	Sub	4	106164068	G	C	5.99	401	TET2_p.C1193S	POSSIBLE
PD8170a	Sub	4	106164068	G	A	10.7	233	TET2_p.C1193Y	POSSIBLE
PD10930a	Sub	4	106164071	C	G	31.5	324	TET2_p.P1194R	POSSIBLE
PD8101a	Sub	4	106164080	A	G	46	250	TET2_p.K1197R	ONCOGENIC
PD8423a	D	4	106164083	g	-	45.8	277	TET2_p.V1199fs*27	ONCOGENIC
PD7613a	Sub	4	106164767	T	C	43.7	126	TET2_p.L1212S	POSSIBLE
PD10809a	Sub	4	106164778	C	T	8.74	103	TET2_p.R1216*	ONCOGENIC
PD8231a	Sub	4	106164778	C	T	36.8	174	TET2_p.R1216*	ONCOGENIC
PD11230a	Sub	4	106164779	G	A	45.2	155	TET2_p.R1216Q	POSSIBLE
PD7754a	Sub	4	106164794	G	A	53.2	190	TET2_p.C1221Y	ONCOGENIC

PD7857a	D	4	106164840	c	-	44	50	TET2_p.P1237fs*16	ONCOGENIC
PD7838a	D	4	106164857	acaa	-	33.1	136	TET2_p.K1243_Y1245	ONCOGENIC
PD9228a	Sub	4	106164897	C	G	52.6	137	TET2_p.Y1255*	ONCOGENIC
PD11240a	Sub	4	106164913	C	T	45.7	232	TET2_p.R1261C	ONCOGENIC
PD8154a	Sub	4	106164916	C	T	34.8	115	TET2_p.R1262W	ONCOGENIC
PD9326a	Sub	4	106164917	G	A	34.7	147	TET2_p.R1262Q	ONCOGENIC
PD8410a	Sub	4	106164923	C	T	54.1	85	TET2_p.A1264V	ONCOGENIC
PD8431a	I	4	106180783	-	G	61.5	314	TET2_p.C1271fs*29	ONCOGENIC
PD8403a	D	4	106180788	ctgtc	-	100	9	TET2_p.C1273fs*66	ONCOGENIC
PD7770a	Sub	4	106180790	G	A	47.5	295	TET2_p.C1273Y	ONCOGENIC
PD11233a	Sub	4	106180790	G	T	51	392	TET2_p.C1273F	ONCOGENIC
PD11231a	Sub	4	106180790	G	T	12.3	301	TET2_p.C1273F	ONCOGENIC
PD11120a	Sub	4	106180816	G	T	50.8	201	TET2_p.G1282C	ONCOGENIC
PD9273a	I	4	106180817	-	TGC	31.8	85	TET2_p.A1283_S1284	ONCOGENIC
PD9339a	D	4	106180865	g	-	97.1	274	TET2_p.C1298fs*65	ONCOGENIC
PD8297a	Sub	4	106180866	T	G	38.7	287	TET2_p.C1298W	ONCOGENIC
PD11072a	Sub	4	106180869	G	C	50.3	173	TET2_p.K1299N	POSSIBLE
PD8554a	Sub	4	106180927	G	A	16.9	160	TET2_NA	POSSIBLE
PD8290a	Sub	4	106180927	G	T	92	237	TET2_NA	POSSIBLE
PD11148a	Sub	4	106180927	G	T	68.1	235	TET2_NA	POSSIBLE
PD7737a	Sub	4	106180931	G	A	50.8	189	TET2_NA	POSSIBLE
PD10928a	Sub	4	106182915	G	A	28.2	103	TET2_NA	POSSIBLE
PD9331a	Sub	4	106182917	A	T	46.2	132	TET2_p.E1319V	POSSIBLE
PD8588a	Sub	4	106182926	T	A	39.1	69	TET2_p.L1322Q	ONCOGENIC
PD8454a	Sub	4	106182940	C	T	26.2	202	TET2_p.Q1327*	ONCOGENIC
PD8451a	Sub	4	106182940	C	T	45.5	198	TET2_p.Q1327*	ONCOGENIC
PD7945a	I	4	106182970	-	A	41.1	141	TET2_p.Y1337fs*1	ONCOGENIC
PD7710a	Sub	4	106190765	A	G	43.9	278	TET2_NA	POSSIBLE
PD10960a	Sub	4	106190766	G	A	38.3	277	TET2_NA	POSSIBLE
PD8337a	D	4	106190782	ag	-	7.07	198	TET2_p.R1354fs*46	ONCOGENIC
PD8108a	Sub	4	106190786	C	T	39	269	TET2_p.A1355V	ONCOGENIC
PD8444a	D	4	106190795	gccgt	-	30.8	159	TET2_p.L1360_R1366	ONCOGENIC
PD11113a	Sub	4	106190797	C	T	9.09	275	TET2_p.R1359C	ONCOGENIC
PD11021a	Sub	4	106190797	C	T	36.7	251	TET2_p.R1359C	ONCOGENIC
PD8082a	Sub	4	106190824	T	G	46	272	TET2_p.F1368V	ONCOGENIC
PD7886a	Sub	4	106190831	G	A	40.8	211	TET2_p.G1370E	ONCOGENIC
PD11218a	I	4	106190846	-	T	49.3	434	TET2_p.L1375fs*26	ONCOGENIC
PD10819a	Sub	4	106190852	T	C	46	328	TET2_p.F1377S	POSSIBLE
PD11244a	Sub	4	106190857	G	C	48.4	500	TET2_p.A1379P	POSSIBLE
PD8486a	Sub	4	106190860	C	T	49.3	406	TET2_p.H1380Y	ONCOGENIC
PD11217a	Sub	4	106190861	A	C	47.6	380	TET2_p.H1380P	ONCOGENIC
PD8279a	Sub	4	106193719	A	G	95.2	103	TET2_NA	POSSIBLE
PD8001a	Sub	4	106193748	C	T	46.7	105	TET2_p.R1404*	ONCOGENIC
PD11119a	Sub	4	106193748	C	T	31.4	51	TET2_p.R1404*	ONCOGENIC
PD8413a	Sub	4	106193785	A	G	89.3	177	TET2_p.H1416R	ONCOGENIC
PD10924a	Sub	4	106193787	G	T	39.7	209	TET2_p.V1417F	ONCOGENIC
PD10875a	D	4	106193795	t	-	48.8	201	TET2_p.L1420fs*28	ONCOGENIC
PD11284a	I	4	106193796	-	TA	36.4	176	TET2_p.K1422fs*27	ONCOGENIC
PD11203a	D	4	106193810	t	-	53.9	230	TET2_p.D1425fs*23	ONCOGENIC
PD7822a	D	4	106193823	t	-	49	194	TET2_p.F1429fs*19	ONCOGENIC
PD10904a	Sub	4	106193853	A	T	49.8	295	TET2_p.K1439*	ONCOGENIC
PD8208a	Sub	4	106193872	A	G	43.1	218	TET2_p.Q1445R	ONCOGENIC
PD10865a	Sub	4	106193892	C	T	41.7	276	TET2_p.R1452*	ONCOGENIC
PD11243a	Sub	4	106193931	C	T	36.2	500	TET2_p.R1465*	ONCOGENIC
PD8469a	Sub	4	106193931	C	T	45.4	500	TET2_p.R1465*	ONCOGENIC

PD7652a	Sub	4	106193938	G	A	45.2	279	TET2_p.R1467K	ONCOGENIC
PD10898a	D	4	106194043	c	-	51	261	TET2_p.T1502fs*69	ONCOGENIC
PD8464a	Sub	4	106194063	A	T	47.4	331	TET2_p.K1509*	ONCOGENIC
PD11046a	Sub	4	106194070	T	A	64.5	186	TET2_p.L1511*	ONCOGENIC
PD9308a	Sub	4	106194073	C	T	86.1	244	TET2_p.A1512V	ONCOGENIC
PD11113a	Sub	4	106196211	T	A	38.9	108	TET2_p.L1515*	ONCOGENIC
PD11258a	Sub	4	106196213	C	T	22.9	188	TET2_p.R1516*	ONCOGENIC
PD8065a	Sub	4	106196213	C	T	44.4	151	TET2_p.R1516*	ONCOGENIC
PD10919a	Sub	4	106196213	C	T	53	115	TET2_p.R1516*	ONCOGENIC
PD8108a	Sub	4	106196213	C	T	34.7	95	TET2_p.R1516*	ONCOGENIC
PD11005a	Sub	4	106196220	C	G	39	141	TET2_p.S1518*	ONCOGENIC
PD11005a	I	4	106196296	-	C	32.6	350	TET2_p.Q1545fs*33	ONCOGENIC
PD7842a	Sub	4	106196424	C	A	12	500	TET2_p.S1586*	ONCOGENIC
PD8293a	I	4	106196427	-	T	33.1	791	TET2_p.I1588fs*26	ONCOGENIC
PD11147a	D	4	106196458	c	-	45.7	313	TET2_p.Y1598fs*12	ONCOGENIC
PD10824a	D	4	106196483	g	-	44.4	529	TET2_p.G1606fs*4	ONCOGENIC
PD11195a	I	4	106196519	-	A	18.8	266	TET2_p.Y1618fs*1	ONCOGENIC
PD7871a	Sub	4	106196556	C	G	43	307	TET2_p.S1630*	ONCOGENIC
PD11250a	D	4	106196587	c	-	44.3	679	TET2_p.D1640fs*55	ONCOGENIC
PD11242a	I	4	106196695	-	CCAA	17	466	TET2_p.T1677fs*11	ONCOGENIC
PD7756a	Sub	4	106196823	G	A	42.4	85	TET2_p.G1719E	POSSIBLE
PD7775a	D	4	106196847	atga	-	43.7	334	TET2_p.H1727fs*17	ONCOGENIC
PD11146a	D	4	106196998	tc	-	44.6	460	TET2_p.H1778fs*10	ONCOGENIC
PD11109a	Sub	4	106197014	C	T	42.3	383	TET2_p.Q1783*	ONCOGENIC
PD8420a	I	4	106197118	-	A	31.3	528	TET2_p.L1819fs*3	ONCOGENIC
PD10933a	Sub	4	106197149	C	T	54.8	500	TET2_p.Q1828*	ONCOGENIC
PD9355a	Sub	4	106197200	G	T	37	500	TET2_p.E1845*	ONCOGENIC
PD10863a	I	4	106197208	-	G	42.9	482	TET2_p.S1848fs*11	ONCOGENIC
PD7958a	Sub	4	106197210	C	G	34.7	395	TET2_p.S1848*	ONCOGENIC
PD8383a	Sub	4	106197255	C	T	46	374	TET2_p.A1863V	POSSIBLE
PD11133a	I	4	106197271	-	G	37.1	404	TET2_p.S1870fs*5	ONCOGENIC
PD9232a	Sub	4	106197282	T	G	46.8	500	TET2_p.L1872R	POSSIBLE
PD7881a	Sub	4	106197282	T	G	6.33	395	TET2_p.L1872R	POSSIBLE
PD8383a	Sub	4	106197287	G	A	46.1	380	TET2_p.E1874K	POSSIBLE
PD10894a	Sub	4	106197309	A	G	47.8	500	TET2_p.H1881R	ONCOGENIC
PD8019a	Sub	4	106197317	A	G	38.4	406	TET2_p.T1884A	ONCOGENIC
PD9271a	I	4	106197336	-	A	74.8	274	TET2_p.N1890fs*2	ONCOGENIC
PD11174a	Sub	4	106197354	G	C	90	189	TET2_p.R1896T	ONCOGENIC
PD8208a	Sub	4	106197378	A	G	47.7	266	TET2_p.H1904R	POSSIBLE
PD8444a	Sub	4	106197402	A	G	40.3	429	TET2_p.H1912R	POSSIBLE
PD8500a	Sub	4	153247249	G	A	45	302	FBXW7_p.A518V	ONCOGENIC
PD8121a	Sub	4	153247289	G	A	39.5	109	FBXW7_p.R505C	ONCOGENIC
PD11053a	Sub	4	153249384	C	T	46.5	286	FBXW7_p.R465H	ONCOGENIC
PD7721a	Sub	4	153249384	C	G	19	342	FBXW7_p.R465P	ONCOGENIC
PD9324a	Sub	4	153249456	C	T	21.2	500	FBXW7_p.R441Q	ONCOGENIC
PD9384a	Sub	4	153249502	A	G	22.1	367	FBXW7_p.S426P	ONCOGENIC
PD8347a	Sub	4	153249511	C	G	26.6	237	FBXW7_p.G423R	ONCOGENIC
PD11163a	Sub	4	153249516	G	A	6.74	460	FBXW7_p.T421I	ONCOGENIC
PD10846a	Sub	4	153268123	G	A	36.3	262	FBXW7_p.Q229*	ONCOGENIC
PD10971a	I	5	170837543	-	TCTG	4.46	112	NPM1_p.W288fs*12	ONCOGENIC
PD8148a	I	5	170837543	-	TCTG	13.9	79	NPM1_p.W288fs*12	ONCOGENIC
PD8493a	I	5	170837543	-	TCTG	18.2	44	NPM1_p.W288fs*12	ONCOGENIC
PD7937a	I	5	170837543	-	TCTG	19.6	92	NPM1_p.W288fs*12	ONCOGENIC
PD8288a	I	5	170837543	-	TCTG	19.6	143	NPM1_p.W288fs*12	ONCOGENIC
PD8313a	I	5	170837543	-	TCTG	20.5	44	NPM1_p.W288fs*12	ONCOGENIC

PD8083a	I	5	170837543	-	TCTG	23.8	63	NPM1_p.W288fs*12	ONCOGENIC
PD11047a	I	5	170837543	-	TCTG	24.1	79	NPM1_p.W288fs*12	ONCOGENIC
PD8271a	I	5	170837543	-	TCTG	24.3	152	NPM1_p.W288fs*12	ONCOGENIC
PD8294a	I	5	170837543	-	TCTG	24.8	125	NPM1_p.W288fs*12	ONCOGENIC
PD7737a	I	5	170837543	-	TCTG	25	92	NPM1_p.W288fs*12	ONCOGENIC
PD8256a	I	5	170837543	-	TCTG	26.6	143	NPM1_p.W288fs*12	ONCOGENIC
PD8448a	I	5	170837543	-	TCTG	27	126	NPM1_p.W288fs*12	ONCOGENIC
PD10924a	I	5	170837543	-	TCTG	27.8	90	NPM1_p.W288fs*12	ONCOGENIC
PD7662a	I	5	170837543	-	TCTG	28.1	139	NPM1_p.W288fs*12	ONCOGENIC
PD7732a	I	5	170837543	-	TCTG	28.9	114	NPM1_p.W288fs*12	ONCOGENIC
PD8425a	I	5	170837543	-	TCTG	29.3	140	NPM1_p.W288fs*12	ONCOGENIC
PD8282a	I	5	170837543	-	TCTG	29.5	105	NPM1_p.W288fs*12	ONCOGENIC
PD8413a	I	5	170837543	-	TCTG	29.6	135	NPM1_p.W288fs*12	ONCOGENIC
PD8504a	I	5	170837543	-	TCTG	30.7	88	NPM1_p.W288fs*12	ONCOGENIC
PD7893a	I	5	170837543	-	TCTG	31.5	92	NPM1_p.W288fs*12	ONCOGENIC
PD9365a	I	5	170837543	-	TCTG	32.3	65	NPM1_p.W288fs*12	ONCOGENIC
PD8456a	I	5	170837543	-	TCTG	32.9	149	NPM1_p.W288fs*12	ONCOGENIC
PD11093a	I	5	170837543	-	TCTG	33.3	45	NPM1_p.W288fs*12	ONCOGENIC
PD11195a	I	5	170837543	-	TCTG	33.9	59	NPM1_p.W288fs*12	ONCOGENIC
PD7855a	I	5	170837543	-	TCTG	34	53	NPM1_p.W288fs*12	ONCOGENIC
PD8419a	I	5	170837543	-	TCTG	34.7	144	NPM1_p.W288fs*12	ONCOGENIC
PD11159a	I	5	170837543	-	TCTG	44	84	NPM1_p.W288fs*12	ONCOGENIC
PD7923a	I	5	170837544	-	CTGC	3.85	52	NPM1_p.W288fs*12	ONCOGENIC
PD7848a	I	5	170837544	-	CTGC	22.4	152	NPM1_p.W288fs*12	ONCOGENIC
PD8004a	I	5	170837544	-	TTGC	22.9	70	NPM1_p.W288fs*12	ONCOGENIC
PD7821a	I	5	170837545	-	TGCA	35.5	138	NPM1_p.W288fs*12	ONCOGENIC
PD8400a	I	5	170837547	-	TCTG	3.45	116	NPM1_p.W288fs*12	ONCOGENIC
PD11248a	I	5	170837547	-	TCTG	5.79	484	NPM1_p.W288fs*12	ONCOGENIC
PD11100a	I	5	170837547	-	TGTG	6.2	129	NPM1_p.W288fs*12	ONCOGENIC
PD8386a	I	5	170837547	-	CAGA	7.29	96	NPM1_p.W288fs*12	ONCOGENIC
PD7761a	I	5	170837547	-	CCAG	7.95	151	NPM1_p.W288fs*12	ONCOGENIC
PD7661a	I	5	170837547	-	TCTG	8.02	187	NPM1_p.W288fs*12	ONCOGENIC
PD11150a	I	5	170837547	-	TCTG	8.97	78	NPM1_p.W288fs*12	ONCOGENIC
PD8394a	I	5	170837547	-	TCTG	10.2	118	NPM1_p.W288fs*12	ONCOGENIC
PD7935a	I	5	170837547	-	TCTG	10.4	48	NPM1_p.W288fs*12	ONCOGENIC
PD8326a	I	5	170837547	-	TCTG	10.8	130	NPM1_p.W288fs*12	ONCOGENIC
PD11231a	I	5	170837547	-	TCTG	10.8	83	NPM1_p.W288fs*12	ONCOGENIC
PD8171a	I	5	170837547	-	TCTG	11.4	88	NPM1_p.W288fs*12	ONCOGENIC
PD8307a	I	5	170837547	-	TCTG	12	184	NPM1_p.W288fs*12	ONCOGENIC
PD10798a	I	5	170837547	-	TCTG	13.1	145	NPM1_p.W288fs*12	ONCOGENIC
PD8204a	I	5	170837547	-	TCTG	13.2	76	NPM1_p.W288fs*12	ONCOGENIC
PD10959a	I	5	170837547	-	TAGG	13.5	89	NPM1_p.W288fs*12	ONCOGENIC
PD8581a	I	5	170837547	-	CCGG	13.6	59	NPM1_p.W288fs*12	ONCOGENIC
PD10930a	I	5	170837547	-	TCTG	13.9	101	NPM1_p.W288fs*12	ONCOGENIC
PD7800a	I	5	170837547	-	TCTG	14.1	92	NPM1_p.W288fs*12	ONCOGENIC
PD7754a	I	5	170837547	-	TCTG	15.5	97	NPM1_p.W288fs*12	ONCOGENIC
PD8441a	I	5	170837547	-	TCTG	15.5	148	NPM1_p.W288fs*12	ONCOGENIC
PD8588a	I	5	170837547	-	CTTG	15.8	57	NPM1_p.W288fs*12	ONCOGENIC
PD8091a	I	5	170837547	-	CCTG	15.9	82	NPM1_p.W288fs*12	ONCOGENIC
PD8544a	I	5	170837547	-	TCTG	16.1	93	NPM1_p.W288fs*12	ONCOGENIC
PD11005a	I	5	170837547	-	CCTG	16.2	99	NPM1_p.W288fs*12	ONCOGENIC
PD8387a	I	5	170837547	-	TCTG	16.5	121	NPM1_p.W288fs*12	ONCOGENIC
PD8431a	I	5	170837547	-	TCAG	16.8	95	NPM1_p.W288fs*12	ONCOGENIC
PD8538a	I	5	170837547	-	TCTG	17.1	76	NPM1_p.W288fs*12	ONCOGENIC
PD7905a	I	5	170837547	-	TCTG	17.1	105	NPM1_p.W288fs*12	ONCOGENIC

PD11221a	I	5	170837547	-	TCTG	17.3	98	NPM1_p.W288fs*12	ONCOGENIC
PD10880a	I	5	170837547	-	CCTG	17.5	80	NPM1_p.W288fs*12	ONCOGENIC
PD8183a	I	5	170837547	-	CCTG	18.2	77	NPM1_p.W288fs*12	ONCOGENIC
PD7842a	I	5	170837547	-	TCTG	18.3	142	NPM1_p.W288fs*12	ONCOGENIC
PD11243a	I	5	170837547	-	TCTG	18.4	212	NPM1_p.W288fs*12	ONCOGENIC
PD8022a	I	5	170837547	-	TCTG	18.5	81	NPM1_p.W288fs*12	ONCOGENIC
PD8213a	I	5	170837547	-	TCTG	18.6	70	NPM1_p.W288fs*12	ONCOGENIC
PD9248a	I	5	170837547	-	TCTG	18.6	43	NPM1_p.W288fs*12	ONCOGENIC
PD8327a	I	5	170837547	-	TCTG	18.7	155	NPM1_p.W288fs*12	ONCOGENIC
PD10853a	I	5	170837547	-	TCTG	18.8	96	NPM1_p.W288fs*12	ONCOGENIC
PD7828a	I	5	170837547	-	TCTG	18.9	132	NPM1_p.W288fs*12	ONCOGENIC
PD7760a	I	5	170837547	-	CCAG	19.1	110	NPM1_p.W288fs*12	ONCOGENIC
PD7967a	I	5	170837547	-	CCTG	19.2	78	NPM1_p.W288fs*12	ONCOGENIC
PD8424a	I	5	170837547	-	TCTG	19.3	150	NPM1_p.W288fs*12	ONCOGENIC
PD8063a	I	5	170837547	-	TCTG	19.4	124	NPM1_p.W288fs*12	ONCOGENIC
PD8372a	I	5	170837547	-	TCTG	19.5	118	NPM1_p.W288fs*12	ONCOGENIC
PD8157a	I	5	170837547	-	TTTG	19.8	91	NPM1_p.W288fs*12	ONCOGENIC
PD8187a	I	5	170837547	-	TCTG	20.2	99	NPM1_p.W288fs*12	ONCOGENIC
PD8056a	I	5	170837547	-	TCTG	20.2	94	NPM1_p.W288fs*12	ONCOGENIC
PD7709a	I	5	170837547	-	TCTG	20.2	89	NPM1_p.W288fs*12	ONCOGENIC
PD8158a	I	5	170837547	-	TCTG	20.2	89	NPM1_p.W288fs*12	ONCOGENIC
PD11148a	I	5	170837547	-	TCTG	20.3	143	NPM1_p.W288fs*12	ONCOGENIC
PD10993a	I	5	170837547	-	TCTG	20.3	69	NPM1_p.W288fs*12	ONCOGENIC
PD11054a	I	5	170837547	-	TCTG	20.3	64	NPM1_p.W288fs*12	ONCOGENIC
PD8098a	I	5	170837547	-	TCTG	20.4	98	NPM1_p.W288fs*12	ONCOGENIC
PD10944a	I	5	170837547	-	TCTG	20.7	58	NPM1_p.W288fs*12	ONCOGENIC
PD7627a	I	5	170837547	-	TCTG	21.1	57	NPM1_p.W288fs*12	ONCOGENIC
PD10897a	I	5	170837547	-	TCTG	21.2	137	NPM1_p.W288fs*12	ONCOGENIC
PD8473a	I	5	170837547	-	TCTG	21.5	181	NPM1_p.W288fs*12	ONCOGENIC
PD11165a	I	5	170837547	-	TCTG	21.7	106	NPM1_p.W288fs*12	ONCOGENIC
PD9255a	I	5	170837547	-	TCAG	21.8	55	NPM1_p.W288fs*12	ONCOGENIC
PD8218a	I	5	170837547	-	TCTG	21.9	96	NPM1_p.W288fs*12	ONCOGENIC
PD11101a	I	5	170837547	-	TCTG	21.9	64	NPM1_p.W288fs*12	ONCOGENIC
PD7833a	I	5	170837547	-	TCTG	21.9	114	NPM1_p.W288fs*12	ONCOGENIC
PD10978a	I	5	170837547	-	CCTG	22	82	NPM1_p.W288fs*12	ONCOGENIC
PD8293a	I	5	170837547	-	TCTG	22.1	149	NPM1_p.W288fs*12	ONCOGENIC
PD8193a	I	5	170837547	-	TCTG	22.2	72	NPM1_p.W288fs*12	ONCOGENIC
PD10914a	I	5	170837547	-	CCGA	22.2	72	NPM1_p.W288fs*12	ONCOGENIC
PD8071a	I	5	170837547	-	TCTG	22.2	99	NPM1_p.W288fs*12	ONCOGENIC
PD8553a	I	5	170837547	-	TCTG	22.3	112	NPM1_p.W288fs*12	ONCOGENIC
PD11029a	I	5	170837547	-	TCTG	22.7	88	NPM1_p.W288fs*12	ONCOGENIC
PD11002a	I	5	170837547	-	TCTG	22.8	123	NPM1_p.W288fs*12	ONCOGENIC
PD8324a	I	5	170837547	-	CTTG	22.8	149	NPM1_p.W288fs*12	ONCOGENIC
PD8446a	I	5	170837547	-	TCTG	22.9	140	NPM1_p.W288fs*12	ONCOGENIC
PD10843a	I	5	170837547	-	TCTG	22.9	109	NPM1_p.W288fs*12	ONCOGENIC
PD10964a	I	5	170837547	-	TCTG	23.1	104	NPM1_p.W288fs*12	ONCOGENIC
PD8582a	I	5	170837547	-	TCTG	23.1	26	NPM1_p.W288fs*12	ONCOGENIC
PD7927a	I	5	170837547	-	TCTG	23.1	78	NPM1_p.W288fs*12	ONCOGENIC
PD8435a	I	5	170837547	-	TCTG	23.1	186	NPM1_p.W288fs*12	ONCOGENIC
PD10850a	I	5	170837547	-	TCTG	23.1	108	NPM1_p.W288fs*12	ONCOGENIC
PD7644a	I	5	170837547	-	TCTG	23.4	64	NPM1_p.W288fs*12	ONCOGENIC
PD8551a	I	5	170837547	-	TCTG	23.5	81	NPM1_p.W288fs*12	ONCOGENIC
PD8329a	I	5	170837547	-	TCTG	23.5	102	NPM1_p.W288fs*12	ONCOGENIC
PD8073a	I	5	170837547	-	CATG	23.5	68	NPM1_p.W288fs*12	ONCOGENIC
PD7837a	I	5	170837547	-	CATG	23.6	157	NPM1_p.W288fs*12	ONCOGENIC

PD7677a	I	5	170837547	-	TCTG	23.6	110	NPM1_p.W288fs*12	ONCOGENIC
PD8334a	I	5	170837547	-	TCTG	23.7	97	NPM1_p.W288fs*12	ONCOGENIC
PD8177a	I	5	170837547	-	CCTG	23.9	67	NPM1_p.W288fs*12	ONCOGENIC
PD7739a	I	5	170837547	-	TCTG	24	121	NPM1_p.W288fs*12	ONCOGENIC
PD7707a	I	5	170837547	-	CATG	24	146	NPM1_p.W288fs*12	ONCOGENIC
PD7909a	I	5	170837547	-	TCTG	24	75	NPM1_p.W288fs*12	ONCOGENIC
PD8444a	I	5	170837547	-	TCTG	24.1	174	NPM1_p.W288fs*12	ONCOGENIC
PD9254a	I	5	170837547	-	TCTG	24.1	58	NPM1_p.W288fs*12	ONCOGENIC
PD8495a	I	5	170837547	-	TCTG	24.4	160	NPM1_p.W288fs*12	ONCOGENIC
PD11187a	I	5	170837547	-	TCTG	24.4	127	NPM1_p.W288fs*12	ONCOGENIC
PD10829a	I	5	170837547	-	TCTG	24.4	86	NPM1_p.W288fs*12	ONCOGENIC
PD8005a	I	5	170837547	-	TCTG	24.5	98	NPM1_p.W288fs*12	ONCOGENIC
PD11265a	I	5	170837547	-	TCTG	24.6	65	NPM1_p.W288fs*12	ONCOGENIC
PD10824a	I	5	170837547	-	TCTG	24.7	77	NPM1_p.W288fs*12	ONCOGENIC
PD10945a	I	5	170837547	-	CCGG	24.7	89	NPM1_p.W288fs*12	ONCOGENIC
PD7705a	I	5	170837547	-	TCTG	24.7	97	NPM1_p.W288fs*12	ONCOGENIC
PD7631a	I	5	170837547	-	TCTG	25	56	NPM1_p.W288fs*12	ONCOGENIC
PD9327a	I	5	170837547	-	TCTG	25	76	NPM1_p.W288fs*12	ONCOGENIC
PD9283a	I	5	170837547	-	CCTG	25	72	NPM1_p.W288fs*12	ONCOGENIC
PD8393a	I	5	170837547	-	TCTG	25	88	NPM1_p.W288fs*12	ONCOGENIC
PD9302a	I	5	170837547	-	TCTG	25	68	NPM1_p.W288fs*12	ONCOGENIC
PD7796a	I	5	170837547	-	TCTG	25	120	NPM1_p.W288fs*12	ONCOGENIC
PD8416a	I	5	170837547	-	TCTG	25	128	NPM1_p.W288fs*12	ONCOGENIC
PD8090a	I	5	170837547	-	CCTG	25.3	83	NPM1_p.W288fs*12	ONCOGENIC
PD8291a	I	5	170837547	-	TCTG	25.6	164	NPM1_p.W288fs*12	ONCOGENIC
PD8368a	I	5	170837547	-	TCTG	25.7	105	NPM1_p.W288fs*12	ONCOGENIC
PD8412a	I	5	170837547	-	TCTG	25.7	101	NPM1_p.W288fs*12	ONCOGENIC
PD10939a	I	5	170837547	-	TCTG	25.8	97	NPM1_p.W288fs*12	ONCOGENIC
PD11218a	I	5	170837547	-	TCTG	25.9	112	NPM1_p.W288fs*12	ONCOGENIC
PD8003a	I	5	170837547	-	TCAT	26	77	NPM1_p.W288fs*12	ONCOGENIC
PD8165a	I	5	170837547	-	TCTG	26.1	92	NPM1_p.W288fs*12	ONCOGENIC
PD11059a	I	5	170837547	-	CCAG	26.2	103	NPM1_p.W288fs*12	ONCOGENIC
PD8021a	I	5	170837547	-	CCTG	26.3	80	NPM1_p.W288fs*12	ONCOGENIC
PD10895a	I	5	170837547	-	TCTG	26.3	114	NPM1_p.W288fs*12	ONCOGENIC
PD7911a	I	5	170837547	-	TCTG	26.3	57	NPM1_p.W288fs*12	ONCOGENIC
PD10910a	I	5	170837547	-	TCTG	26.4	87	NPM1_p.W288fs*12	ONCOGENIC
PD10907a	I	5	170837547	-	TCGG	26.5	102	NPM1_p.W288fs*12	ONCOGENIC
PD8445a	I	5	170837547	-	TCTG	26.7	150	NPM1_p.W288fs*12	ONCOGENIC
PD8244a	I	5	170837547	-	TCTG	26.8	157	NPM1_p.W288fs*12	ONCOGENIC
PD10984a	I	5	170837547	-	TCTG	26.8	71	NPM1_p.W288fs*12	ONCOGENIC
PD11254a	I	5	170837547	-	TCTG	26.8	41	NPM1_p.W288fs*12	ONCOGENIC
PD11071a	I	5	170837547	-	TCTG	26.9	67	NPM1_p.W288fs*12	ONCOGENIC
PD8225a	I	5	170837547	-	CATG	26.9	119	NPM1_p.W288fs*12	ONCOGENIC
PD8044a	I	5	170837547	-	TCTG	26.9	78	NPM1_p.W288fs*12	ONCOGENIC
PD9307a	I	5	170837547	-	TCTG	27	63	NPM1_p.W288fs*12	ONCOGENIC
PD8346a	I	5	170837547	-	TCTG	27	100	NPM1_p.W288fs*12	ONCOGENIC
PD10925a	I	5	170837547	-	TCTG	27.2	92	NPM1_p.W288fs*12	ONCOGENIC
PD10997a	I	5	170837547	-	TCTG	27.2	125	NPM1_p.W288fs*12	ONCOGENIC
PD8152a	I	5	170837547	-	TCTG	27.4	73	NPM1_p.W288fs*12	ONCOGENIC
PD9377a	I	5	170837547	-	TCTG	27.4	62	NPM1_p.W288fs*12	ONCOGENIC
PD7961a	I	5	170837547	-	TCTG	27.4	62	NPM1_p.W288fs*12	ONCOGENIC
PD8257a	I	5	170837547	-	TCTG	27.4	164	NPM1_p.W288fs*12	ONCOGENIC
PD11244a	I	5	170837547	-	TCTG	27.5	138	NPM1_p.W288fs*12	ONCOGENIC
PD8379a	I	5	170837547	-	CATG	27.6	98	NPM1_p.W288fs*12	ONCOGENIC
PD7901a	I	5	170837547	-	CATG	27.6	116	NPM1_p.W288fs*12	ONCOGENIC

PD11016a	I	5	170837547	-	TCTG	27.6	76	NPM1_p.W288fs*12	ONCOGENIC
PD10886a	I	5	170837547	-	CATG	27.6	123	NPM1_p.W288fs*12	ONCOGENIC
PD7830a	I	5	170837547	-	TCTG	27.7	83	NPM1_p.W288fs*12	ONCOGENIC
PD11172a	I	5	170837547	-	TCTG	27.7	155	NPM1_p.W288fs*12	ONCOGENIC
PD7974a	I	5	170837547	-	TCTG	27.8	72	NPM1_p.W288fs*12	ONCOGENIC
PD7899a	I	5	170837547	-	CGCC	27.8	79	NPM1_p.W288fs*12	ONCOGENIC
PD10881a	I	5	170837547	-	TTTG	27.8	79	NPM1_p.W288fs*12	ONCOGENIC
PD8328a	I	5	170837547	-	TCTG	27.9	147	NPM1_p.W288fs*12	ONCOGENIC
PD8491a	I	5	170837547	-	TCTG	27.9	111	NPM1_p.W288fs*12	ONCOGENIC
PD8539a	I	5	170837547	-	TCTG	28.1	89	NPM1_p.W288fs*12	ONCOGENIC
PD7881a	I	5	170837547	-	TCTG	28.1	96	NPM1_p.W288fs*12	ONCOGENIC
PD8267a	I	5	170837547	-	TCTG	28.1	160	NPM1_p.W288fs*12	ONCOGENIC
PD8251a	I	5	170837547	-	TCTG	28.2	163	NPM1_p.W288fs*12	ONCOGENIC
PD8460a	I	5	170837547	-	TCTG	28.3	184	NPM1_p.W288fs*12	ONCOGENIC
PD10940a	I	5	170837547	-	TCTG	28.3	99	NPM1_p.W288fs*12	ONCOGENIC
PD8438a	I	5	170837547	-	TCTG	28.4	134	NPM1_p.W288fs*12	ONCOGENIC
PD8159a	I	5	170837547	-	TCTG	28.4	81	NPM1_p.W288fs*12	ONCOGENIC
PD9232a	I	5	170837547	-	TCTG	28.4	116	NPM1_p.W288fs*12	ONCOGENIC
PD8179a	I	5	170837547	-	TCTG	28.6	77	NPM1_p.W288fs*12	ONCOGENIC
PD10934a	I	5	170837547	-	TCTG	28.6	112	NPM1_p.W288fs*12	ONCOGENIC
PD11286a	I	5	170837547	-	TCTG	28.6	42	NPM1_p.W288fs*12	ONCOGENIC
PD11192a	I	5	170837547	-	TCTG	28.6	70	NPM1_p.W288fs*12	ONCOGENIC
PD9252a	I	5	170837547	-	CATG	28.6	49	NPM1_p.W288fs*12	ONCOGENIC
PD10885a	I	5	170837547	-	CCTG	28.7	94	NPM1_p.W288fs*12	ONCOGENIC
PD9326a	I	5	170837547	-	TCTG	28.8	104	NPM1_p.W288fs*12	ONCOGENIC
PD8024a	I	5	170837547	-	TCTG	28.9	83	NPM1_p.W288fs*12	ONCOGENIC
PD8036a	I	5	170837547	-	CATG	28.9	76	NPM1_p.W288fs*12	ONCOGENIC
PD9361a	I	5	170837547	-	TCTG	28.9	38	NPM1_p.W288fs*12	ONCOGENIC
PD8092a	I	5	170837547	-	CCTG	29	93	NPM1_p.W288fs*12	ONCOGENIC
PD8131a	I	5	170837547	-	TCTG	29.1	79	NPM1_p.W288fs*12	ONCOGENIC
PD8367a	I	5	170837547	-	TATG	29.2	113	NPM1_p.W288fs*12	ONCOGENIC
PD10921a	I	5	170837547	-	TCTG	29.2	89	NPM1_p.W288fs*12	ONCOGENIC
PD11162a	I	5	170837547	-	TCTG	29.2	130	NPM1_p.W288fs*12	ONCOGENIC
PD8546a	I	5	170837547	-	TCTG	29.4	85	NPM1_p.W288fs*12	ONCOGENIC
PD7936a	I	5	170837547	-	TCTG	29.4	68	NPM1_p.W288fs*12	ONCOGENIC
PD10972a	I	5	170837547	-	TATG	29.4	102	NPM1_p.W288fs*12	ONCOGENIC
PD9272a	I	5	170837547	-	TCTG	29.4	34	NPM1_p.W288fs*12	ONCOGENIC
PD8231a	I	5	170837547	-	TCTG	29.4	197	NPM1_p.W288fs*12	ONCOGENIC
PD8285a	I	5	170837547	-	TCTG	29.5	129	NPM1_p.W288fs*12	ONCOGENIC
PD7944a	I	5	170837547	-	CATG	29.5	61	NPM1_p.W288fs*12	ONCOGENIC
PD11112a	I	5	170837547	-	CATG	29.5	61	NPM1_p.W288fs*12	ONCOGENIC
PD8417a	I	5	170837547	-	TCTG	29.5	88	NPM1_p.W288fs*12	ONCOGENIC
PD8375a	I	5	170837547	-	TCTG	29.6	98	NPM1_p.W288fs*12	ONCOGENIC
PD8082a	I	5	170837547	-	CCTG	29.6	81	NPM1_p.W288fs*12	ONCOGENIC
PD7685a	I	5	170837547	-	TCTG	29.7	91	NPM1_p.W288fs*12	ONCOGENIC
PD10905a	I	5	170837547	-	TCTG	29.7	91	NPM1_p.W288fs*12	ONCOGENIC
PD9239a	I	5	170837547	-	TCTG	29.7	64	NPM1_p.W288fs*12	ONCOGENIC
PD11103a	I	5	170837547	-	TCTG	29.7	64	NPM1_p.W288fs*12	ONCOGENIC
PD11108a	I	5	170837547	-	TCTG	29.7	74	NPM1_p.W288fs*12	ONCOGENIC
PD11174a	I	5	170837547	-	TCTG	29.7	111	NPM1_p.W288fs*12	ONCOGENIC
PD8407a	I	5	170837547	-	TCTG	29.8	104	NPM1_p.W288fs*12	ONCOGENIC
PD8436a	I	5	170837547	-	TCTG	29.9	134	NPM1_p.W288fs*12	ONCOGENIC
PD11095a	I	5	170837547	-	TCTG	29.9	67	NPM1_p.W288fs*12	ONCOGENIC
PD10988a	I	5	170837547	-	TCTG	30	100	NPM1_p.W288fs*12	ONCOGENIC
PD7759a	I	5	170837547	-	TCTG	30	50	NPM1_p.W288fs*12	ONCOGENIC

PD11245a	I	5	170837547	-	CATG	30.1	113	NPM1_p.W288fs*12	ONCOGENIC
PD8570a	I	5	170837547	-	TCTG	30.2	63	NPM1_p.W288fs*12	ONCOGENIC
PD11206a	I	5	170837547	-	TATG	30.2	63	NPM1_p.W288fs*12	ONCOGENIC
PD10943a	I	5	170837547	-	TCTG	30.2	106	NPM1_p.W288fs*12	ONCOGENIC
PD8236a	I	5	170837547	-	TCTG	30.2	192	NPM1_p.W288fs*12	ONCOGENIC
PD10891a	I	5	170837547	-	TCTG	30.2	86	NPM1_p.W288fs*12	ONCOGENIC
PD10973a	I	5	170837547	-	TCTG	30.2	86	NPM1_p.W288fs*12	ONCOGENIC
PD8479a	I	5	170837547	-	TCTG	30.2	162	NPM1_p.W288fs*12	ONCOGENIC
PD8536a	I	5	170837547	-	TCTG	30.3	76	NPM1_p.W288fs*12	ONCOGENIC
PD11202a	I	5	170837547	-	TCTG	30.3	142	NPM1_p.W288fs*12	ONCOGENIC
PD8172a	I	5	170837547	-	TCTG	30.3	99	NPM1_p.W288fs*12	ONCOGENIC
PD7990a	I	5	170837547	-	TCTG	30.4	69	NPM1_p.W288fs*12	ONCOGENIC
PD7791a	I	5	170837547	-	TCTG	30.5	128	NPM1_p.W288fs*12	ONCOGENIC
PD9340a	I	5	170837547	-	TCTG	30.6	72	NPM1_p.W288fs*12	ONCOGENIC
PD7802a	I	5	170837547	-	TCTG	30.6	157	NPM1_p.W288fs*12	ONCOGENIC
PD11038a	I	5	170837547	-	CCTG	30.6	98	NPM1_p.W288fs*12	ONCOGENIC
PD8353a	I	5	170837547	-	TCTG	30.8	104	NPM1_p.W288fs*12	ONCOGENIC
PD7690a	I	5	170837547	-	CATG	30.8	130	NPM1_p.W288fs*12	ONCOGENIC
PD8314a	I	5	170837547	-	TCTG	30.8	159	NPM1_p.W288fs*12	ONCOGENIC
PD8404a	I	5	170837547	-	CCTG	30.9	94	NPM1_p.W288fs*12	ONCOGENIC
PD8160a	I	5	170837547	-	CCGG	31	42	NPM1_p.W288fs*12	ONCOGENIC
PD8275a	I	5	170837547	-	CTTG	31.1	161	NPM1_p.W288fs*12	ONCOGENIC
PD8065a	I	5	170837547	-	TCTG	31.1	103	NPM1_p.W288fs*12	ONCOGENIC
PD9278a	I	5	170837547	-	CCTG	31.1	45	NPM1_p.W288fs*12	ONCOGENIC
PD8279a	I	5	170837547	-	TCTG	31.2	138	NPM1_p.W288fs*12	ONCOGENIC
PD10794a	I	5	170837547	-	TCTG	31.2	77	NPM1_p.W288fs*12	ONCOGENIC
PD11098a	I	5	170837547	-	TATG	31.3	64	NPM1_p.W288fs*12	ONCOGENIC
PD9334a	I	5	170837547	-	CCTG	31.3	96	NPM1_p.W288fs*12	ONCOGENIC
PD10953a	I	5	170837547	-	CTTG	31.3	83	NPM1_p.W288fs*12	ONCOGENIC
PD10852a	I	5	170837547	-	TCTG	31.3	67	NPM1_p.W288fs*12	ONCOGENIC
PD8399a	I	5	170837547	-	TCTG	31.3	134	NPM1_p.W288fs*12	ONCOGENIC
PD8494a	I	5	170837547	-	TCTG	31.4	169	NPM1_p.W288fs*12	ONCOGENIC
PD8574a	I	5	170837547	-	TCTG	31.4	51	NPM1_p.W288fs*12	ONCOGENIC
PD7917a	I	5	170837547	-	CCTG	31.4	51	NPM1_p.W288fs*12	ONCOGENIC
PD8260a	I	5	170837547	-	CAGG	31.4	137	NPM1_p.W288fs*12	ONCOGENIC
PD10918a	I	5	170837547	-	TCTG	31.5	73	NPM1_p.W288fs*12	ONCOGENIC
PD7628a	I	5	170837547	-	TCGG	31.5	73	NPM1_p.W288fs*12	ONCOGENIC
PD10841a	I	5	170837547	-	TCTG	31.6	95	NPM1_p.W288fs*12	ONCOGENIC
PD7657a	I	5	170837547	-	TCTG	31.6	57	NPM1_p.W288fs*12	ONCOGENIC
PD8512a	I	5	170837547	-	TCTG	31.6	136	NPM1_p.W288fs*12	ONCOGENIC
PD8123a	I	5	170837547	-	TCTG	31.6	79	NPM1_p.W288fs*12	ONCOGENIC
PD11176a	I	5	170837547	-	CCTG	31.7	123	NPM1_p.W288fs*12	ONCOGENIC
PD10807a	I	5	170837547	-	TCTG	31.8	66	NPM1_p.W288fs*12	ONCOGENIC
PD8403a	I	5	170837547	-	CATG	31.8	132	NPM1_p.W288fs*12	ONCOGENIC
PD7667a	I	5	170837547	-	TCTG	31.9	113	NPM1_p.W288fs*12	ONCOGENIC
PD10980a	I	5	170837547	-	CCTG	31.9	69	NPM1_p.W288fs*12	ONCOGENIC
PD8316a	I	5	170837547	-	TCTG	31.9	144	NPM1_p.W288fs*12	ONCOGENIC
PD8060a	I	5	170837547	-	TCTG	31.9	72	NPM1_p.W288fs*12	ONCOGENIC
PD9339a	I	5	170837547	-	TCTG	32	97	NPM1_p.W288fs*12	ONCOGENIC
PD11115a	I	5	170837547	-	TCTG	32.1	78	NPM1_p.W288fs*12	ONCOGENIC
PD8486a	I	5	170837547	-	TCTG	32.1	156	NPM1_p.W288fs*12	ONCOGENIC
PD8371a	I	5	170837547	-	TCTG	32.1	134	NPM1_p.W288fs*12	ONCOGENIC
PD7964a	I	5	170837547	-	TCTG	32.1	81	NPM1_p.W288fs*12	ONCOGENIC
PD7955a	I	5	170837547	-	CATG	32.3	62	NPM1_p.W288fs*12	ONCOGENIC
PD8079a	I	5	170837547	-	TCTG	32.3	96	NPM1_p.W288fs*12	ONCOGENIC

PD8464a	I	5	170837547	-	CATG	32.3	99	NPM1_p.W288fs*12	ONCOGENIC
PD10977a	I	5	170837547	-	CATG	32.4	71	NPM1_p.W288fs*12	ONCOGENIC
PD7835a	I	5	170837547	-	TCTG	32.4	108	NPM1_p.W288fs*12	ONCOGENIC
PD8469a	I	5	170837547	-	CATG	32.4	185	NPM1_p.W288fs*12	ONCOGENIC
PD11190a	I	5	170837547	-	TCTG	32.4	111	NPM1_p.W288fs*12	ONCOGENIC
PD7834a	I	5	170837547	-	TCTG	32.4	148	NPM1_p.W288fs*12	ONCOGENIC
PD10832a	I	5	170837547	-	TCTG	32.5	80	NPM1_p.W288fs*12	ONCOGENIC
PD9273a	I	5	170837547	-	CCTG	32.6	43	NPM1_p.W288fs*12	ONCOGENIC
PD7849a	I	5	170837547	-	TCTG	32.7	150	NPM1_p.W288fs*12	ONCOGENIC
PD7922a	I	5	170837547	-	TCTG	32.7	52	NPM1_p.W288fs*12	ONCOGENIC
PD8298a	I	5	170837547	-	CATG	32.7	162	NPM1_p.W288fs*12	ONCOGENIC
PD11077a	I	5	170837547	-	TCTG	32.8	67	NPM1_p.W288fs*12	ONCOGENIC
PD7745a	I	5	170837547	-	TCTG	32.9	76	NPM1_p.W288fs*12	ONCOGENIC
PD8033a	I	5	170837547	-	TCTG	33	88	NPM1_p.W288fs*12	ONCOGENIC
PD11052a	I	5	170837547	-	TCTG	33	91	NPM1_p.W288fs*12	ONCOGENIC
PD10954a	I	5	170837547	-	TCTG	33	100	NPM1_p.W288fs*12	ONCOGENIC
PD8568a	I	5	170837547	-	TCTG	33	106	NPM1_p.W288fs*12	ONCOGENIC
PD7689a	I	5	170837547	-	CCTG	33.1	121	NPM1_p.W288fs*12	ONCOGENIC
PD8558a	I	5	170837547	-	TCTG	33.3	75	NPM1_p.W288fs*12	ONCOGENIC
PD10803a	I	5	170837547	-	TCTG	33.3	96	NPM1_p.W288fs*12	ONCOGENIC
PD7815a	I	5	170837547	-	TCTG	33.3	123	NPM1_p.W288fs*12	ONCOGENIC
PD8007a	I	5	170837547	-	TCTG	33.3	75	NPM1_p.W288fs*12	ONCOGENIC
PD9234a	I	5	170837547	-	TCTG	33.3	84	NPM1_p.W288fs*12	ONCOGENIC
PD9358a	I	5	170837547	-	TCTG	33.3	57	NPM1_p.W288fs*12	ONCOGENIC
PD9292a	I	5	170837547	-	CGTG	33.3	75	NPM1_p.W288fs*12	ONCOGENIC
PD7914a	I	5	170837547	-	TCTG	33.3	72	NPM1_p.W288fs*12	ONCOGENIC
PD8030a	I	5	170837547	-	CATG	33.3	87	NPM1_p.W288fs*12	ONCOGENIC
PD8095a	I	5	170837547	-	TCTG	33.3	57	NPM1_p.W288fs*12	ONCOGENIC
PD11057a	I	5	170837547	-	TCTG	33.3	69	NPM1_p.W288fs*12	ONCOGENIC
PD10981a	I	5	170837547	-	TCTG	33.3	69	NPM1_p.W288fs*12	ONCOGENIC
PD11122a	I	5	170837547	-	TCTG	33.5	185	NPM1_p.W288fs*12	ONCOGENIC
PD8253a	I	5	170837547	-	TCTG	33.5	161	NPM1_p.W288fs*12	ONCOGENIC
PD7687a	I	5	170837547	-	TCTG	33.6	140	NPM1_p.W288fs*12	ONCOGENIC
PD7803a	I	5	170837547	-	TCTG	33.6	125	NPM1_p.W288fs*12	ONCOGENIC
PD8430a	I	5	170837547	-	TCTG	33.6	122	NPM1_p.W288fs*12	ONCOGENIC
PD8038a	I	5	170837547	-	TCTG	33.7	101	NPM1_p.W288fs*12	ONCOGENIC
PD8235a	I	5	170837547	-	TCTG	33.7	199	NPM1_p.W288fs*12	ONCOGENIC
PD8210a	I	5	170837547	-	TCTG	33.7	86	NPM1_p.W288fs*12	ONCOGENIC
PD7643a	I	5	170837547	-	CCTG	33.8	68	NPM1_p.W288fs*12	ONCOGENIC
PD8120a	I	5	170837547	-	TCTG	33.8	68	NPM1_p.W288fs*12	ONCOGENIC
PD9268a	I	5	170837547	-	TCTG	34	94	NPM1_p.W288fs*12	ONCOGENIC
PD9197a	I	5	170837547	-	TCTG	34	47	NPM1_p.W288fs*12	ONCOGENIC
PD7670a	I	5	170837547	-	TCTG	34.2	79	NPM1_p.W288fs*12	ONCOGENIC
PD7678a	I	5	170837547	-	TCTG	34.2	114	NPM1_p.W288fs*12	ONCOGENIC
PD8031a	I	5	170837547	-	TCTG	34.2	73	NPM1_p.W288fs*12	ONCOGENIC
PD7645a	I	5	170837547	-	CCTG	34.3	70	NPM1_p.W288fs*12	ONCOGENIC
PD8211a	I	5	170837547	-	TCTG	34.3	67	NPM1_p.W288fs*12	ONCOGENIC
PD8363a	I	5	170837547	-	CATG	34.3	166	NPM1_p.W288fs*12	ONCOGENIC
PD8301a	I	5	170837547	-	TCTG	34.4	163	NPM1_p.W288fs*12	ONCOGENIC
PD8127a	I	5	170837547	-	TCTG	34.4	96	NPM1_p.W288fs*12	ONCOGENIC
PD11072a	I	5	170837547	-	TCTG	34.4	64	NPM1_p.W288fs*12	ONCOGENIC
PD11240a	I	5	170837547	-	TCTG	34.4	61	NPM1_p.W288fs*12	ONCOGENIC
PD11113a	I	5	170837547	-	TCTG	34.4	61	NPM1_p.W288fs*12	ONCOGENIC
PD8224a	I	5	170837547	-	TCTG	34.5	84	NPM1_p.W288fs*12	ONCOGENIC
PD11217a	I	5	170837547	-	TCTG	34.6	136	NPM1_p.W288fs*12	ONCOGENIC

PD7946a	I	5	170837547	-	TCTG	34.6	107	NPM1_p.W288fs*12	ONCOGENIC
PD8046a	I	5	170837547	-	TCTG	34.6	78	NPM1_p.W288fs*12	ONCOGENIC
PD8208a	I	5	170837547	-	TCTG	34.7	75	NPM1_p.W288fs*12	ONCOGENIC
PD7683a	I	5	170837547	-	TCTG	34.7	121	NPM1_p.W288fs*12	ONCOGENIC
PD9373a	I	5	170837547	-	TCTG	34.8	69	NPM1_p.W288fs*12	ONCOGENIC
PD7868a	I	5	170837547	-	TCTG	34.8	69	NPM1_p.W288fs*12	ONCOGENIC
PD9241a	I	5	170837547	-	TCTG	34.8	66	NPM1_p.W288fs*12	ONCOGENIC
PD7918a	I	5	170837547	-	TCTG	34.9	63	NPM1_p.W288fs*12	ONCOGENIC
PD7956a	I	5	170837547	-	TCTG	35	60	NPM1_p.W288fs*12	ONCOGENIC
PD11045a	I	5	170837547	-	TCTG	35.1	77	NPM1_p.W288fs*12	ONCOGENIC
PD11250a	I	5	170837547	-	TCTG	35.1	114	NPM1_p.W288fs*12	ONCOGENIC
PD7672a	I	5	170837547	-	TCTG	35.2	105	NPM1_p.W288fs*12	ONCOGENIC
PD8398a	I	5	170837547	-	TATG	35.4	99	NPM1_p.W288fs*12	ONCOGENIC
PD8274a	I	5	170837547	-	TCTG	35.4	130	NPM1_p.W288fs*12	ONCOGENIC
PD7804a	I	5	170837547	-	TCTG	35.4	127	NPM1_p.W288fs*12	ONCOGENIC
PD8365a	I	5	170837547	-	TCTG	35.5	121	NPM1_p.W288fs*12	ONCOGENIC
PD9284a	I	5	170837547	-	TCTG	35.6	59	NPM1_p.W288fs*12	ONCOGENIC
PD10950a	I	5	170837547	-	TCTG	35.6	87	NPM1_p.W288fs*12	ONCOGENIC
PD8323a	I	5	170837547	-	TCTG	35.8	148	NPM1_p.W288fs*12	ONCOGENIC
PD7787a	I	5	170837547	-	TCTG	35.8	120	NPM1_p.W288fs*12	ONCOGENIC
PD10966a	I	5	170837547	-	CATG	35.9	92	NPM1_p.W288fs*12	ONCOGENIC
PD8309a	I	5	170837547	-	TCTG	35.9	142	NPM1_p.W288fs*12	ONCOGENIC
PD8087a	I	5	170837547	-	TCTG	36	89	NPM1_p.W288fs*12	ONCOGENIC
PD7872a	I	5	170837547	-	TCTG	36	75	NPM1_p.W288fs*12	ONCOGENIC
PD10975a	I	5	170837547	-	TCTG	36.2	69	NPM1_p.W288fs*12	ONCOGENIC
PD10917a	I	5	170837547	-	TCTG	36.3	113	NPM1_p.W288fs*12	ONCOGENIC
PD7904a	I	5	170837547	-	TCTG	36.4	55	NPM1_p.W288fs*12	ONCOGENIC
PD11280a	I	5	170837547	-	TCTG	36.4	33	NPM1_p.W288fs*12	ONCOGENIC
PD11073a	I	5	170837547	-	TCTG	36.6	41	NPM1_p.W288fs*12	ONCOGENIC
PD10795a	I	5	170837547	-	TCTG	36.6	82	NPM1_p.W288fs*12	ONCOGENIC
PD11117a	I	5	170837547	-	TCTG	36.6	71	NPM1_p.W288fs*12	ONCOGENIC
PD8380a	I	5	170837547	-	TCTG	36.6	101	NPM1_p.W288fs*12	ONCOGENIC
PD11261a	I	5	170837547	-	TCTG	36.7	79	NPM1_p.W288fs*12	ONCOGENIC
PD7928a	I	5	170837547	-	TCTG	36.8	68	NPM1_p.W288fs*12	ONCOGENIC
PD11196a	I	5	170837547	-	TCTG	36.8	57	NPM1_p.W288fs*12	ONCOGENIC
PD7991a	I	5	170837547	-	TCTG	36.8	76	NPM1_p.W288fs*12	ONCOGENIC
PD8269a	I	5	170837547	-	CATG	36.8	152	NPM1_p.W288fs*12	ONCOGENIC
PD9214a	I	5	170837547	-	TCTG	36.9	84	NPM1_p.W288fs*12	ONCOGENIC
PD8472a	I	5	170837547	-	TCTG	37.2	164	NPM1_p.W288fs*12	ONCOGENIC
PD9374a	I	5	170837547	-	CATG	37.3	67	NPM1_p.W288fs*12	ONCOGENIC
PD8322a	I	5	170837547	-	TCTG	37.3	142	NPM1_p.W288fs*12	ONCOGENIC
PD9226a	I	5	170837547	-	TCTG	37.3	75	NPM1_p.W288fs*12	ONCOGENIC
PD9335a	I	5	170837547	-	TCTG	37.4	91	NPM1_p.W288fs*12	ONCOGENIC
PD10855a	I	5	170837547	-	CCTG	37.5	72	NPM1_p.W288fs*12	ONCOGENIC
PD8297a	I	5	170837547	-	TCTG	37.5	120	NPM1_p.W288fs*12	ONCOGENIC
PD10899a	I	5	170837547	-	TCTG	37.6	117	NPM1_p.W288fs*12	ONCOGENIC
PD7680a	I	5	170837547	-	TCTG	37.6	109	NPM1_p.W288fs*12	ONCOGENIC
PD8470a	I	5	170837547	-	CATG	37.7	77	NPM1_p.W288fs*12	ONCOGENIC
PD9341a	I	5	170837547	-	TCTG	37.8	74	NPM1_p.W288fs*12	ONCOGENIC
PD8190a	I	5	170837547	-	TCTG	38	71	NPM1_p.W288fs*12	ONCOGENIC
PD10957a	I	5	170837547	-	TCTG	38.3	94	NPM1_p.W288fs*12	ONCOGENIC
PD9301a	I	5	170837547	-	TCTG	38.4	86	NPM1_p.W288fs*12	ONCOGENIC
PD10844a	I	5	170837547	-	TCTG	38.6	101	NPM1_p.W288fs*12	ONCOGENIC
PD8057a	I	5	170837547	-	TCTG	38.6	101	NPM1_p.W288fs*12	ONCOGENIC
PD8176a	I	5	170837547	-	TCTG	38.8	67	NPM1_p.W288fs*12	ONCOGENIC

PD8006a	I	5	170837547	-	TCTG	38.8	85	NPM1_p.W288fs*12	ONCOGENIC
PD7612a	I	5	170837547	-	TCTG	38.9	54	NPM1_p.W288fs*12	ONCOGENIC
PD7979a	I	5	170837547	-	TCTG	39	77	NPM1_p.W288fs*12	ONCOGENIC
PD7656a	I	5	170837547	-	TCTG	39	59	NPM1_p.W288fs*12	ONCOGENIC
PD9350a	I	5	170837547	-	TCTG	39.1	46	NPM1_p.W288fs*12	ONCOGENIC
PD8192a	I	5	170837547	-	TCTG	39.5	81	NPM1_p.W288fs*12	ONCOGENIC
PD8374a	I	5	170837547	-	TCTG	39.7	116	NPM1_p.W288fs*12	ONCOGENIC
PD11233a	I	5	170837547	-	TCTG	39.7	121	NPM1_p.W288fs*12	ONCOGENIC
PD8557a	I	5	170837547	-	TCTG	40	70	NPM1_p.W288fs*12	ONCOGENIC
PD11010a	I	5	170837547	-	TCTG	40	55	NPM1_p.W288fs*12	ONCOGENIC
PD8117a	I	5	170837547	-	TCTG	40.4	52	NPM1_p.W288fs*12	ONCOGENIC
PD11186a	I	5	170837547	-	TCTG	40.4	52	NPM1_p.W288fs*12	ONCOGENIC
PD10947a	I	5	170837547	-	TCTG	40.6	64	NPM1_p.W288fs*12	ONCOGENIC
PD10847a	I	5	170837547	-	TCTG	40.7	81	NPM1_p.W288fs*12	ONCOGENIC
PD10999a	I	5	170837547	-	CATG	41.2	68	NPM1_p.W288fs*12	ONCOGENIC
PD11212a	I	5	170837547	-	TCTG	41.2	85	NPM1_p.W288fs*12	ONCOGENIC
PD11048a	I	5	170837547	-	TCTG	41.3	80	NPM1_p.W288fs*12	ONCOGENIC
PD7888a	I	5	170837547	-	TCTG	41.9	62	NPM1_p.W288fs*12	ONCOGENIC
PD10896a	I	5	170837547	-	TCTG	42	112	NPM1_p.W288fs*12	ONCOGENIC
PD11125a	I	5	170837547	-	CATG	42	50	NPM1_p.W288fs*12	ONCOGENIC
PD8023a	I	5	170837547	-	TCTG	42.5	87	NPM1_p.W288fs*12	ONCOGENIC
PD10870a	I	5	170837547	-	TATG	42.7	75	NPM1_p.W288fs*12	ONCOGENIC
PD7655a	I	5	170837547	-	TCTG	43.8	73	NPM1_p.W288fs*12	ONCOGENIC
PD7610a	I	5	170837547	-	TCTG	45.6	68	NPM1_p.W288fs*12	ONCOGENIC
PD7945a	I	5	170837547	-	TCTG	46.4	56	NPM1_p.W288fs*12	ONCOGENIC
PD11133a	I	5	170837547	-	TCTG	48.8	43	NPM1_p.W288fs*12	ONCOGENIC
PD7934a	I	5	170837547	-	CCTG	50	14	NPM1_p.W288fs*12	ONCOGENIC
PD9385a	I	5	170837547	-	TCTG	55.4	74	NPM1_p.W288fs*12	ONCOGENIC
PD9383a	I	5	170837547	-	TCTG	71.7	46	NPM1_p.W288fs*12	ONCOGENIC
PD11037a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8174a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8562a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8303a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD7810a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8540a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8040a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD7634a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8053a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD10862a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD8276a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD10967a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD9240a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD9323a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD9355a	I	5	170837547	-	TCTG	na	na	NPM1_p.W288fs*12	ONCOGENIC
PD7730a	I	5	170837551	-	AGGA	32.1	81	NPM1_p.W290fs*10	ONCOGENIC
PD7805a	I	5	170837551	-	AGGA	32.8	137	NPM1_p.W290fs*10	ONCOGENIC
PD8238a	I	5	170837551	-	AGGT	35.4	189	NPM1_p.W290fs*10	ONCOGENIC
PD8206a	I	5	170837551	-	AGAA	35.8	67	NPM1_p.W290fs*10	ONCOGENIC
PD8455a	I	5	170837552	-	G	0.51	197	NPM1_p.R291fs*8	ONCOGENIC
PD10846a	Sub	7	50455075	C	T	51.4	70	IKZF1_p.R208*	ONCOGENIC
PD9227a	D	7	101801875	a	-	53.7	67	CUX1_p.R238fs*16	ONCOGENIC
PD9223a	Sub	7	101840271	C	T	57.8	64	CUX1_p.P527L	POSSIBLE
PD7756a	D	7	101842089	a	-	29.4	143	CUX1_p.G635fs*4	ONCOGENIC
PD11181a	Sub	7	101842129	C	T	16.2	68	CUX1_p.R648*	ONCOGENIC
PD11043a	Sub	7	101847749	C	T	64.3	14	CUX1_p.R996*	ONCOGENIC

PD8567a	Sub	7	101918631	G	A	54.6	11	CUX1_NA	POSSIBLE
PD9383a	Sub	7	104731735	C	T	43.9	57	MLL5_p.Q566*	ONCOGENIC
PD8006a	Sub	7	104741905	C	T	42.3	97	MLL5_p.Q586*	ONCOGENIC
PD8117a	D	7	104748316	a	-	43.8	128	MLL5_p.N1138fs*4	ONCOGENIC
PD8262a	Sub	7	140453136	A	T	36.8	424	BRAF_p.V600E	ONCOGENIC
PD10971a	Sub	7	140453136	A	T	10.8	279	BRAF_p.V600E	ONCOGENIC
PD8549a	Sub	7	140453136	A	T	4.05	346	BRAF_p.V600E	ONCOGENIC
PD9377a	Sub	7	140453136	A	T	25.5	208	BRAF_p.V600E	ONCOGENIC
PD11067a	Sub	7	140453136	A	T	11.7	341	BRAF_p.V600E	ONCOGENIC
PD9240a	Sub	7	140453145	A	T	41.8	213	BRAF_p.L597Q	ONCOGENIC
PD9379a	Sub	7	140453155	C	T	9.68	217	BRAF_p.D594N	ONCOGENIC
PD11198a	Sub	7	140453155	C	T	20.1	194	BRAF_p.D594N	POSSIBLE
PD8280a	Sub	7	140534570	C	T	4.4	500	BRAF_p.A115T	POSSIBLE
PD11080a	Sub	7	148504761	C	T	20.7	208	EZH2_p.E745K	POSSIBLE
PD8216a	Sub	7	148504761	C	T	43.3	180	EZH2_p.E745K	POSSIBLE
PD7898a	D	7	148504762	g	-	56.1	189	EZH2_p.I744fs*23	ONCOGENIC
PD8373a	I	7	148504766	-	CGATG	33.6	140	EZH2_p.G743fs*26	ONCOGENIC
PD8106a	I	7	148504767	-	ACC	9.02	133	EZH2_p.V742_G743in	ONCOGENIC
PD8265a	I	7	148504784	-	TTCGAAA	24.7	146	EZH2_p.A738fs*5	ONCOGENIC
PD7662a	D	7	148504796	tatc	-	34.2	202	EZH2_p.?	ONCOGENIC
PD11001a	Sub	7	148506167	A	G	20.1	422	EZH2_p.Y731H	ONCOGENIC
PD7992a	Sub	7	148506429	A	G	44.5	364	EZH2_p.S695P	ONCOGENIC
PD8107a	Sub	7	148506431	T	C	26.1	276	EZH2_p.H694R	ONCOGENIC
PD11284a	Sub	7	148506433	A	T	34.9	281	EZH2_p.N693K	ONCOGENIC
PD8370a	Sub	7	148506443	C	T	19.9	211	EZH2_p.R690H	ONCOGENIC
PD9282a	Sub	7	148506443	C	T	58	112	EZH2_p.R690H	ONCOGENIC
PD8231a	Sub	7	148506443	C	T	6.6	500	EZH2_p.R690H	ONCOGENIC
PD10971a	Sub	7	148506443	C	T	96.2	343	EZH2_p.R690H	ONCOGENIC
PD11153a	Sub	7	148506443	C	T	55.5	299	EZH2_p.R690H	ONCOGENIC
PD8018a	Sub	7	148506443	C	T	52.2	295	EZH2_p.R690H	ONCOGENIC
PD7941a	Sub	7	148506461	C	T	54.9	122	EZH2_p.R684H	ONCOGENIC
PD8350a	Sub	7	148507429	G	C	20.8	221	EZH2_p.N675K	ONCOGENIC
PD10892a	Sub	7	148507462	A	T	16.5	328	EZH2_p.D664E	ONCOGENIC
PD8032a	Sub	7	148507463	T	A	41.5	241	EZH2_p.D664V	ONCOGENIC
PD7757a	Sub	7	148507487	G	A	32.8	405	EZH2_p.A656V	ONCOGENIC
PD8360a	Sub	7	148508721	C	T	32.1	333	EZH2_p.G648E	ONCOGENIC
PD9285a	Sub	7	148508722	C	T	94.1	304	EZH2_p.G648R	ONCOGENIC
PD9376a	Sub	7	148508725	A	G	11	245	EZH2_p.C647R	ONCOGENIC
PD7942a	Sub	7	148508728	A	C	12.1	207	EZH2_p.Y646D	ONCOGENIC
PD11127a	Sub	7	148508731	C	T	42.4	198	EZH2_p.E645K	ONCOGENIC
PD7898a	Sub	7	148508781	C	A	45.4	260	EZH2_p.G628V	ONCOGENIC
PD8440a	D	7	148511125	aagta	-	22.7	97	EZH2_p.D586fs*5	ONCOGENIC
PD9308a	Sub	7	148511184	G	A	17.3	254	EZH2_p.T573I	ONCOGENIC
PD11123a	Sub	7	148511200	T	C	93.6	109	EZH2_p.K568E	POSSIBLE
PD11269a	Sub	7	148512036	A	G	31.3	176	EZH2_p.C548R	POSSIBLE
PD11022a	D	7	148515090	g	-	41	78	EZH2_p.T374fs*50	ONCOGENIC
PD7787a	Sub	7	148523657	C	T	42.7	496	EZH2_p.G266R	ONCOGENIC
PD9208a	Sub	7	148523708	C	T	5.6	500	EZH2_p.E249K	ONCOGENIC
PD8108a	Sub	7	148525838	G	A	77.6	392	EZH2_p.R207*	ONCOGENIC
PD7854a	Sub	7	148525838	G	A	43.9	114	EZH2_p.R207*	ONCOGENIC
PD7664a	Sub	7	148526841	C	T	38.3	379	EZH2_p.G155R	ONCOGENIC
PD8198a	Sub	7	148526846	T	C	83.6	73	EZH2_p.Y153C	ONCOGENIC
PD8182a	Sub	7	148526907	A	T	93.2	118	EZH2_p.Y133N	ONCOGENIC
PD7613a	Sub	7	148526912	A	T	84.7	85	EZH2_p.I131N	ONCOGENIC
PD11060a	Sub	7	148526913	T	A	9.35	246	EZH2_p.I131F	ONCOGENIC

PD7866a	Sub	7	148526918	T	C	60	90	EZH2_p.H129R	ONCOGENIC
PD7664a	Sub	7	148529726	C	T	30.8	335	EZH2_p.M121I	POSSIBLE
PD8153a	I	7	148543640	-	T	19.4	155	EZH2_p.N57fs*25	ONCOGENIC
PD11230a	Sub	7	148544309	G	A	97.2	320	EZH2_p.Q28*	ONCOGENIC
PD8130a	Sub	7	148544353	A	G	51.2	215	EZH2_p.V13A	POSSIBLE
PD7660a	Sub	7	148544390	T	C	77.7	292	EZH2_p.M1V	ONCOGENIC
PD9266a	I	7	151841839	-	A	34.5	39.516	MLL3_p.E4768fs*1	ONCOGENIC
PD10818a	I	7	151856060	-	T	73	82.249	MLL3_p.R3853fs*7	ONCOGENIC
PD8243a	Sub	7	151860300	G	T	45	500	MLL3_p.Y3454*	ONCOGENIC
PD7897a	I	7	151874536	-	C	21.4	26	MLL3_p.S2668fs*2	POSSIBLE
PD8104a	Sub	7	151878863	G	A	36.9	363	MLL3_p.R2028*	ONCOGENIC
PD9330a	Sub	7	151879229	G	A	45.5	435	MLL3_p.R1906*	ONCOGENIC
PD9286a	Sub	7	151896463	G	A	35.8	67	MLL3_p.Q1392*	ONCOGENIC
PD7779a	Sub	7	151902212	G	A	6.56	320	MLL3_p.Q1314*	ONCOGENIC
PD8227a	D	7	151945013	a	-	12.8	336	MLL3_p.S836fs*18	ONCOGENIC
PD9296a	D	7	151945321	g	-	31.2	311	MLL3_p.S733fs*4	ONCOGENIC
PD8334a	Sub	8	117859861	G	A	38.7	106	RAD21_p.Q592*	ONCOGENIC
PD8005a	Sub	8	117859879	G	A	22.7	110	RAD21_p.R586*	ONCOGENIC
PD7730a	Sub	8	117859879	G	A	53	115	RAD21_p.R586*	ONCOGENIC
PD11119a	Sub	8	117859879	G	A	51.9	81	RAD21_p.R586*	ONCOGENIC
PD7610a	I	8	117861187	-	A	37.2	191	RAD21_p.Q568fs*6	ONCOGENIC
PD7895a	I	8	117861229	-	GGGGTC	22.2	135	RAD21_p.W556fs*21	ONCOGENIC
PD11057a	Sub	8	117861235	C	A	8.15	184	RAD21_p.E552*	ONCOGENIC
PD8313a	D	8	117863003	g	-	23.6	148	RAD21_p.Q492fs*3	ONCOGENIC
PD11245a	I	8	117864189	-	C	10.3	311	RAD21_p.P490fs*47	ONCOGENIC
PD9383a	Sub	8	117864225	G	A	70.1	97	RAD21_p.R478*	ONCOGENIC
PD8570a	I	8	117864226	-	T	47.6	145	RAD21_p.R478fs*7	ONCOGENIC
PD7712a	I	8	117864320	-	GGGAA	39.7	126	RAD21_p.E446fs*12	ONCOGENIC
PD8225a	Sub	8	117864336	C	T	35	200	RAD21_NA	POSSIBLE
PD8210a	Sub	8	117864787	C	A	16.6	163	RAD21_NA	POSSIBLE
PD11052a	Sub	8	117864787	C	T	56.9	204	RAD21_NA	POSSIBLE
PD10827a	Sub	8	117864815	G	A	47.9	411	RAD21_p.Q432*	ONCOGENIC
PD10865a	Sub	8	117864815	G	A	39.3	206	RAD21_p.Q432*	ONCOGENIC
PD8257a	D	8	117864855	t	-	52.6	270	RAD21_p.E419fs*37	ONCOGENIC
PD10885a	Sub	8	117866483	C	T	38.6	114	RAD21_NA	POSSIBLE
PD8470a	Sub	8	117866483	C	T	34	200	RAD21_NA	POSSIBLE
PD10794a	Sub	8	117866503	C	T	46.7	150	RAD21_p.W381*	ONCOGENIC
PD8347a	Sub	8	117866556	C	T	33.3	183	RAD21_p.W363*	ONCOGENIC
PD7764a	I	8	117866673	-	C	8.79	182	RAD21_p.I325fs*3	ONCOGENIC
PD9255a	D	8	117868514	atcag	-	34.5	29	RAD21_p.P275fs*14	ONCOGENIC
PD8092a	I	8	117868929	-	T	6.02	166	RAD21_p.Q258fs*5	ONCOGENIC
PD8391a	Sub	8	117868930	C	A	24.3	235	RAD21_p.E257*	ONCOGENIC
PD7756a	Sub	8	117869501	C	T	14.8	61	RAD21_NA	POSSIBLE
PD7639a	Sub	8	117869501	C	A	35.2	54	RAD21_NA	POSSIBLE
PD11248a	Sub	8	117869506	C	T	44.4	142	RAD21_p.D230N	POSSIBLE
PD7951a	Sub	8	117869507	T	G	39.8	98	RAD21_p.L229F	POSSIBLE
PD9236a	Sub	8	117869508	A	C	36.4	66	RAD21_p.L229*	ONCOGENIC
PD11195a	D	8	117869633	agtag	-	38.1	63	RAD21_p.M182fs*7	ONCOGENIC
PD10899a	I	8	117870615	-	GA	53.8	160	RAD21_p.I154fs*18	ONCOGENIC
PD8042a	I	8	117870676	-	CC	45	100	RAD21_p.F133fs*4	ONCOGENIC
PD8210a	Sub	8	117874075	C	T	10.6	170	RAD21_NA	POSSIBLE
PD7918a	D	8	117874146	g	-	42.6	183	RAD21_p.A103fs*22	ONCOGENIC
PD7820a	D	8	117875387	ttatc	-	41.5	325	RAD21_p.I85fs*9	ONCOGENIC
PD11131a	I	8	117875393	-	A	9.76	502	RAD21_p.K84fs*1	ONCOGENIC
PD7803a	I	8	117875407	-	TACA	38.9	298	RAD21_p.N79fs*2	ONCOGENIC

PD7799a	I	8	117875417	-	TT	19.1	278	RAD21_p.A76fs*11	ONCOGENIC
PD9232a	I	8	117875424	-	T	26.4	379	RAD21_p.Y73fs*1	ONCOGENIC
PD10991a	Sub	8	117875450	G	A	8.92	381	RAD21_p.R65*	ONCOGENIC
PD8236a	I	8	117875477	-	TGTC	38.5	462	RAD21_p.S56fs*25	ONCOGENIC
PD10844a	I	8	117878856	-	CTAAATT	9.57	115	RAD21_p.E38fs*4	ONCOGENIC
PD8223a	Sub	8	117878859	A	C	43.9	171	RAD21_p.L37*	ONCOGENIC
PD8022a	Sub	8	117878874	A	C	33.5	167	RAD21_p.V32G	POSSIBLE
PD7761a	Sub	8	117878875	C	G	9.95	221	RAD21_p.V32L	POSSIBLE
PD7760a	Sub	8	117878875	C	G	50.4	240	RAD21_p.V32L	POSSIBLE
PD8087a	I	8	117878884	-	GGTTAG(	24.2	161	RAD21_p.K29fs*10	ONCOGENIC
PD8018a	I	8	117878884	-	T	45.8	131	RAD21_p.A30fs*7	ONCOGENIC
PD8032a	I	8	117878886	-	TTA	58.8	187	RAD21_p.L27_T28insI	ONCOGENIC
PD7922a	Sub	8	117878900	C	T	39.1	105	RAD21_p.W23*	ONCOGENIC
PD8394a	Sub	8	117878910	G	A	11.4	184	RAD21_p.A20V	POSSIBLE
PD11004a	Sub	8	117878911	C	T	43.8	185	RAD21_p.A20T	POSSIBLE
PD8379a	Sub	8	117878915	C	T	43.6	156	RAD21_p.W18*	ONCOGENIC
PD7796a	Sub	8	128750639	C	T	42.5	113	MYC_p.A59V	POSSIBLE
PD8514a	Sub	8	128750639	C	T	48.2	54	MYC_p.A59V	POSSIBLE
PD7835a	Sub	8	128750639	C	T	44.8	67	MYC_p.A59V	POSSIBLE
PD9328a	Sub	8	128750678	C	T	20.6	63	MYC_p.P72L	ONCOGENIC
PD11017a	Sub	8	128750681	C	A	40	30	MYC_p.T73N	ONCOGENIC
PD9314a	Sub	8	128750681	C	A	10.5	57	MYC_p.T73N	ONCOGENIC
PD8082a	Sub	8	128750683	C	G	40.9	44	MYC_p.P74A	ONCOGENIC
PD10978a	Sub	8	128750683	C	A	25	28	MYC_p.P74T	ONCOGENIC
PD10851a	Sub	8	128750683	C	G	29.3	58	MYC_p.P74A	ONCOGENIC
PD8180a	Sub	8	128750683	C	G	46.3	41	MYC_p.P74A	ONCOGENIC
PD8568a	Sub	8	128750683	C	G	38.2	55	MYC_p.P74A	ONCOGENIC
PD10964a	Sub	8	128750684	C	A	25	48	MYC_p.P74Q	ONCOGENIC
PD8336a	Sub	8	128750684	C	T	18.7	75	MYC_p.P74L	ONCOGENIC
PD7771a	Sub	8	128750684	C	A	10.8	83	MYC_p.P74Q	ONCOGENIC
PD7661a	Sub	8	128750684	C	A	8.33	60	MYC_p.P74Q	ONCOGENIC
PD7909a	Sub	8	128750684	C	T	57.6	33	MYC_p.P74L	ONCOGENIC
PD7927a	Sub	8	128750684	C	T	44.1	34	MYC_p.P74L	ONCOGENIC
PD9362a	Sub	8	128750684	C	T	45.5	77	MYC_p.P74L	ONCOGENIC
PD8007a	Sub	8	128750684	C	T	16.7	42	MYC_p.P74L	ONCOGENIC
PD10800a	Sub	8	128750684	C	T	22.9	48	MYC_p.P74L	ONCOGENIC
PD8426a	Sub	8	128750684	C	T	26.2	130	MYC_p.P74L	ONCOGENIC
PD8190a	Sub	8	128750684	C	T	42	69	MYC_p.P74L	ONCOGENIC
PD7926a	Sub	8	128750684	C	G	36.8	19	MYC_p.P74R	ONCOGENIC
PD7782a	Sub	8	128750686	C	T	40.2	92	MYC_p.P75S	ONCOGENIC
PD8188a	Sub	8	128750686	C	T	25.6	43	MYC_p.P75S	ONCOGENIC
PD8323a	Sub	8	128750686	C	A	38.3	60	MYC_p.P75T	ONCOGENIC
PD10940a	Sub	8	128750687	C	A	22.6	31	MYC_p.P75H	ONCOGENIC
PD10850a	Sub	8	128750687	C	T	35.4	65	MYC_p.P75L	ONCOGENIC
PD11193a	Sub	9	5073770	G	T	14.4	216	JAK2_p.V617F	ONCOGENIC
PD8531a	Sub	9	5073770	G	T	55.4	224	JAK2_p.V617F	ONCOGENIC
PD8481a	Sub	9	5073770	G	T	35.4	333	JAK2_p.V617F	ONCOGENIC
PD10991a	Sub	9	5073770	G	T	5.37	205	JAK2_p.V617F	ONCOGENIC
PD9296a	Sub	9	5073770	G	T	84	175	JAK2_p.V617F	ONCOGENIC
PD8580a	Sub	9	5073770	G	T	100	135	JAK2_p.V617F	ONCOGENIC
PD10963a	Sub	9	5073770	G	T	65.8	500	JAK2_p.V617F	ONCOGENIC
PD7968a	Sub	9	5073770	G	T	99.3	139	JAK2_p.V617F	ONCOGENIC
PD7942a	Sub	9	5073770	G	T	7.19	153	JAK2_p.V617F	ONCOGENIC
PD8487a	Sub	9	5073770	G	T	43.7	323	JAK2_p.V617F	ONCOGENIC
PD7845a	Sub	9	5073770	G	T	85.2	236	JAK2_p.V617F	ONCOGENIC

PD8260a	Sub	9	21971120	G	A	75.5	102	CDKN2A_p.R80*	ONCOGENIC
PD8573a	Sub	9	21974756	C	G	55	20	CDKN2A_p.R24P	POSSIBLE
PD7639a	Sub	10	89711995	A	G	44.3	185	PTEN_p.M205V	ONCOGENIC
PD8210a	Sub	10	89717672	C	T	6.13	489	PTEN_p.R233*	ONCOGENIC
PD9384a	Sub	10	89725081	C	T	25	24	PTEN_p.S355L	ONCOGENIC
PD11132a	Sub	11	32413555	G	T	47.1	261	WT1_p.H465Q	ONCOGENIC
PD7753a	Sub	11	32413557	G	A	85	227	WT1_p.H465Y	ONCOGENIC
PD7724a	Sub	11	32413557	G	A	33.1	254	WT1_p.H465Y	ONCOGENIC
PD7894a	I	11	32413560	-	T	34.2	120	WT1_p.D464fs*13	ONCOGENIC
PD7953a	Sub	11	32413560	C	T	21.7	217	WT1_p.D464N	ONCOGENIC
PD8019a	Sub	11	32413560	C	G	31.2	183	WT1_p.D464H	ONCOGENIC
PD9229a	Sub	11	32413560	C	T	38.4	133	WT1_p.D464N	ONCOGENIC
PD8061a	Sub	11	32413560	C	T	48.1	231	WT1_p.D464N	ONCOGENIC
PD7899a	Sub	11	32413560	C	T	47.8	203	WT1_p.D464N	ONCOGENIC
PD10870a	Sub	11	32413565	C	G	54.3	175	WT1_p.R462P	ONCOGENIC
PD7648a	Sub	11	32413565	C	A	38.8	178	WT1_p.R462L	ONCOGENIC
PD7620a	Sub	11	32413565	C	T	24.4	131	WT1_p.R462Q	ONCOGENIC
PD7668a	Sub	11	32413565	C	T	52.1	234	WT1_p.R462Q	ONCOGENIC
PD8315a	Sub	11	32413565	C	G	33	309	WT1_p.R462P	ONCOGENIC
PD10869a	Sub	11	32413565	C	A	42.6	223	WT1_p.R462L	ONCOGENIC
PD8036a	Sub	11	32413565	C	G	44.9	216	WT1_p.R462P	ONCOGENIC
PD8296a	Sub	11	32413565	C	T	14.9	375	WT1_p.R462Q	ONCOGENIC
PD7916a	Sub	11	32413565	CG	AC	34.5	127	WT1_p.R462V	ONCOGENIC
PD10961a	Sub	11	32413566	G	A	40.9	171	WT1_p.R462W	ONCOGENIC
PD9328a	Sub	11	32413566	G	A	42.7	464	WT1_p.R462W	ONCOGENIC
PD7675a	Sub	11	32413566	G	A	34.3	315	WT1_p.R462W	ONCOGENIC
PD8207a	Sub	11	32413566	G	A	41.3	218	WT1_p.R462W	ONCOGENIC
PD7622a	I	11	32413573	-	T	21.1	171	WT1_p.F460fs*17	ONCOGENIC
PD7838a	I	11	32413575	-	GAGG	36.7	166	WT1_p.K459fs*19	ONCOGENIC
PD8162a	D	11	32413577	c	-	34	188	WT1_p.R458fs*9	ONCOGENIC
PD11048a	Sub	11	32413577	C	G	36.5	222	WT1_p.R458P	ONCOGENIC
PD7996a	Sub	11	32413578	G	A	47	219	WT1_p.R458*	ONCOGENIC
PD8154a	Sub	11	32413578	G	A	15.6	212	WT1_p.R458*	ONCOGENIC
PD8000a	Sub	11	32413578	G	A	95.8	240	WT1_p.R458*	ONCOGENIC
PD8498a	Sub	11	32413578	G	A	59.2	250	WT1_p.R458*	ONCOGENIC
PD8008a	Sub	11	32413578	G	A	11.9	287	WT1_p.R458*	ONCOGENIC
PD10969a	D	11	32413603	t	-	32.7	159	WT1_p.K449fs*18	ONCOGENIC
PD10881a	I	11	32414210	-	C	35	283	WT1_p.?	ONCOGENIC
PD8014a	Sub	11	32414242	G	A	42.4	255	WT1_p.Q437*	ONCOGENIC
PD7848a	I	11	32414247	-	A	20.4	274	WT1_p.S435fs*20	ONCOGENIC
PD9223a	I	11	32414249	-	CCCGACC	18.2	143	WT1_p.R434_S435ins	ONCOGENIC
PD10980a	Sub	11	32414250	C	G	21.5	274	WT1_p.R434P	ONCOGENIC
PD8277a	Sub	11	32414250	C	G	94.7	360	WT1_p.R434P	ONCOGENIC
PD7890a	Sub	11	32414250	C	T	9.72	288	WT1_p.R434H	ONCOGENIC
PD8040a	Sub	11	32414250	C	T	6.47	170	WT1_p.R434H	ONCOGENIC
PD8003a	Sub	11	32414250	C	T	40.3	263	WT1_p.R434H	ONCOGENIC
PD8356a	I	11	32414251	-	AGAAAA(	23.3	227	WT1_p.S433_R434ins	ONCOGENIC
PD10830a	I	11	32414259	-	AGAAAA(	23.9	180	WT1_p.R434fs*18	ONCOGENIC
PD10970a	Sub	11	32414263	G	A	62.2	325	WT1_p.R430*	ONCOGENIC
PD8140a	Sub	11	32414263	G	A	7.32	164	WT1_p.R430*	ONCOGENIC
PD8437a	Sub	11	32414263	G	A	84	419	WT1_p.R430*	ONCOGENIC
PD8478a	D	11	32414279	gtcac	-	63.9	263	WT1_p.P420fs*5	ONCOGENIC
PD8369a	I	11	32414287	-	GTAT	55.4	314	WT1_p.Q422fs*4	ONCOGENIC
PD10926a	I	11	32417800	-	A	43.1	65	WT1_p.?	ONCOGENIC
PD7978a	D	11	32417882	g	-	35.9	78	WT1_p.F391fs*58	ONCOGENIC

PD8036a	I	11	32417908	-	CGACCG(	19.5	77	WT1_p.A382fs*6	ONCOGENIC
PD10874a	I	11	32417908	-	CGCCCG(	51.6	31	WT1_p.A382fs*7	ONCOGENIC
PD9324a	I	11	32417909	-	GACCGT/	17.2	29	WT1_p.A382fs*9	ONCOGENIC
PD8048a	Sub	11	32417910	G	T	44.8	67	WT1_p.S381*	ONCOGENIC
PD7620a	Sub	11	32417910	G	T	24.1	87	WT1_p.S381*	ONCOGENIC
PD9240a	Sub	11	32417910	G	T	44.7	85	WT1_p.S381*	ONCOGENIC
PD7777a	Sub	11	32417910	G	T	20.2	94	WT1_p.S381*	ONCOGENIC
PD8344a	Sub	11	32417910	G	T	54.3	70	WT1_p.S381*	ONCOGENIC
PD8069a	Sub	11	32417910	G	T	15.1	93	WT1_p.S381*	ONCOGENIC
PD10800a	Sub	11	32417910	G	T	24.7	85	WT1_p.S381*	ONCOGENIC
PD10845a	Sub	11	32417943	C	G	45.2	62	WT1_p.R370P	ONCOGENIC
PD9205a	Sub	11	32417943	C	G	10.9	64	WT1_p.R370P	ONCOGENIC
PD8012a	I	11	32417944	-	G	44.7	47	WT1_p.R370fs*15	ONCOGENIC
PD8086a	Sub	11	32417947	G	A	35.4	65	WT1_p.R369*	ONCOGENIC
PD8088a	Sub	11	32417947	G	A	53.6	69	WT1_p.R369*	ONCOGENIC
PD7611a	Sub	11	32417947	G	A	25.5	55	WT1_p.R369*	ONCOGENIC
PD10979a	Sub	11	32417947	G	C	75.2	109	WT1_p.R369G	ONCOGENIC
PD7838a	Sub	11	32421541	C	T	45.2	104	WT1_p.G351R	POSSIBLE
PD7935a	I	11	32439128	-	A	38.9	144	WT1_p.L315fs*29	ONCOGENIC
PD10841a	D	11	32439184	t	-	47.9	240	WT1_p.M297fs*1	ONCOGENIC
PD11221a	I	11	32439191	-	TAT	38.1	181	WT1_p.L294_Y295ins	ONCOGENIC
PD8534a	Sub	11	32439192	A	T	47.5	223	WT1_p.L294*	ONCOGENIC
PD7749a	Sub	11	32449507	G	T	100	8	WT1_p.Y289*	ONCOGENIC
PD8088a	I	11	32449581	-	G	42.9	49	WT1_p.V267fs*26	ONCOGENIC
PD10916a	I	11	32449587	-	GC	45.8	24	WT1_p.V263fs*24	ONCOGENIC
PD10917a	Sub	11	32449599	G	A	15.8	38	WT1_p.Q259*	ONCOGENIC
PD7851a	D	11	32450042	c	-	46.5	43	WT1_p.?	ONCOGENIC
PD8074a	Sub	11	32450048	G	T	93.1	72	WT1_p.S255*	ONCOGENIC
PD8318a	Sub	11	32450055	G	A	51.2	86	WT1_p.Q253*	ONCOGENIC
PD8071a	I	11	32450102	-	C	6.56	61	WT1_p.A237fs*11	ONCOGENIC
PD8555a	Sub	11	32456273	C	A	25	16	WT1_p.E207*	ONCOGENIC
PD8365a	Sub	11	64532972	G	A	45.8	24	SF1_p.R620*	ONCOGENIC
PD7676a	Sub	11	64532972	G	A	65.1	43	SF1_p.R620*	ONCOGENIC
PD8305a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10867a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8134a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8199a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8262a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8266a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8290a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8319a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8384a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8434a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8437a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8449a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8454a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8580a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8583a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9206a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9215a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9227a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9249a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9326a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9337a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9349a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC

PD9359a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9378a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD9380a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10802a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10804a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10812a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10820a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10836a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10838a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10842a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10865a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10868a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10874a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10894a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10896a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10929a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD10982a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11032a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11035a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11042a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7621a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7634a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7656a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7703a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7720a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7741a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7776a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7779a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7824a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7841a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7853a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7864a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7871a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7906a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7910a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7949a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7989a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7994a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD7995a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8008a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8015a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8062a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8078a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8107a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8118a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8150a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8477a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8508a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8550a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11116a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11119a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11199a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11232a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11238a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD11283a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC

PD11285a	PTD	11	118,307,228	na	na	na	na	MLL_na	ONCOGENIC
PD8028a	Sub	11	118368713	G	A	13.2	304	MLL_p.W1906*	ONCOGENIC
PD9384a	Sub	11	119103255	T	C	52.7	220	CBL_p.I98T	POSSIBLE
PD8156a	Sub	11	119142470	A	G	48.9	327	CBL_p.I157V	POSSIBLE
PD9312a	Sub	11	119144721	C	T	60.4	222	CBL_p.T245I	POSSIBLE
PD8210a	Sub	11	119144723	C	T	13.5	171	CBL_p.R246*	ONCOGENIC
PD8548a	Sub	11	119145629	G	A	5	500	CBL_p.A279T	POSSIBLE
PD7774a	Sub	11	119148874	A	T	39	82	CBL_NA	POSSIBLE
PD10845a	Sub	11	119148875	G	C	91.8	98	CBL_NA	POSSIBLE
PD11254a	Sub	11	119148880	A	C	47.6	208	CBL_p.Q367P	ONCOGENIC
PD10987a	Sub	11	119148882	T	A	28.6	91	CBL_p.Y368N	ONCOGENIC
PD8373a	Sub	11	119148890	A	T	12	108	CBL_p.L370F	ONCOGENIC
PD11243a	Sub	11	119148891	T	C	33.8	320	CBL_p.Y371H	ONCOGENIC
PD11153a	Sub	11	119148892	A	G	19.4	186	CBL_p.Y371C	ONCOGENIC
PD7937a	Sub	11	119148907	C	T	32.4	102	CBL_p.S376F	ONCOGENIC
PD10972a	Sub	11	119148919	T	C	52.5	221	CBL_p.L380P	ONCOGENIC
PD8210a	Sub	11	119148919	T	C	17.4	86	CBL_p.L380P	ONCOGENIC
PD11022a	Sub	11	119148919	T	C	11.7	111	CBL_p.L380P	ONCOGENIC
PD8030a	Sub	11	119148919	T	C	87.3	149	CBL_p.L380P	ONCOGENIC
PD8056a	Sub	11	119148929	A	G	28	175	CBL_p.I383M	ONCOGENIC
PD11024a	Sub	11	119148958	T	A	46.2	104	CBL_p.I393N	ONCOGENIC
PD8456a	Sub	11	119148966	T	C	76.6	269	CBL_p.C396R	ONCOGENIC
PD11022a	Sub	11	119148966	T	C	18	128	CBL_p.C396R	ONCOGENIC
PD9327a	Sub	11	119148966	T	C	95.4	260	CBL_p.C396R	ONCOGENIC
PD11065a	Sub	11	119148966	T	C	81.1	175	CBL_p.C396R	ONCOGENIC
PD9348a	Sub	11	119148974	C	A	50.5	291	CBL_p.H398Q	ONCOGENIC
PD8393a	Sub	11	119148976	T	A	32.1	212	CBL_p.L399H	ONCOGENIC
PD10801a	Sub	11	119148982	G	C	35.4	257	CBL_p.C401S	ONCOGENIC
PD10806a	Sub	11	119148982	G	C	21.7	226	CBL_p.C401S	ONCOGENIC
PD8385a	Sub	11	119148990	T	A	68	128	CBL_p.C404S	ONCOGENIC
PD10894a	Sub	11	119148991	G	A	52.1	282	CBL_p.C404Y	ONCOGENIC
PD11153a	Sub	11	119149219	G	A	53.9	178	CBL_NA	ONCOGENIC
PD9220a	Sub	11	119149245	T	C	57.1	140	CBL_p.F418S	ONCOGENIC
PD9297a	Sub	11	119149245	T	C	9.56	293	CBL_p.F418S	ONCOGENIC
PD9220a	Sub	11	119149246	C	A	58	143	CBL_p.F418L	ONCOGENIC
PD8278a	Sub	11	119149248	G	A	94	235	CBL_p.C419Y	ONCOGENIC
PD9214a	Sub	11	119149248	G	A	69.5	200	CBL_p.C419Y	ONCOGENIC
PD8094a	Sub	11	119149304	G	A	6.9	174	CBL_p.G438R	ONCOGENIC
PD7619a	Sub	11	119149313	A	T	53.1	177	CBL_p.S441C	ONCOGENIC
PD11283a	Sub	11	119170354	G	A	43.2	199	CBL_p.E862K	ONCOGENIC
PD10897a	Sub	11	119170354	G	A	24.8	303	CBL_p.E862K	ONCOGENIC
PD9376a	Sub	11	119170370	A	G	10.5	76	CBL_p.Q867R	POSSIBLE
PD8076a	Sub	11	119170384	C	T	7.62	223	CBL_p.Q872*	ONCOGENIC
PD9310a	Sub	11	119170431	G	A	6	500	CBL_p.M887I	ONCOGENIC
PD8501a	I	12	406317	-	A	0.59	170	KDM5A_p.C1375fs*2	ONCOGENIC
PD9205a	Sub	12	416618	G	A	7.33	232	KDM5A_NA	POSSIBLE
PD8313a	Sub	12	420121	G	A	19.7	71	KDM5A_p.A1049V	POSSIBLE
PD9312a	Sub	12	420175	C	T	7.69	78	KDM5A_p.R1031H	ONCOGENIC
PD7929a	Sub	12	420175	C	T	48.9	137	KDM5A_p.R1031H	ONCOGENIC
PD9300a	Sub	12	420223	C	T	19.4	129	KDM5A_p.S1015N	POSSIBLE
PD9282a	Sub	12	430178	G	A	5.05	396	KDM5A_p.Q842*	ONCOGENIC
PD9381a	Sub	12	430211	G	A	5.9	322	KDM5A_p.Q831*	ONCOGENIC
PD8533a	Sub	12	438033	C	A	15.5	58	KDM5A_p.E646*	ONCOGENIC
PD9381a	Sub	12	438104	G	A	14	500	KDM5A_p.A622V	ONCOGENIC
PD9306a	Sub	12	440985	C	T	12.7	394	KDM5A_p.W591*	ONCOGENIC

PD9205a	Sub	12	443452	C	T	8.68	403	KDM5A_p.W482*	ONCOGENIC
PD10917a	Sub	12	443568	C	T	6.25	288	KDM5A_p.W443*	ONCOGENIC
PD8270a	Sub	12	463306	C	T	39.2	406	KDM5A_p.C322Y	ONCOGENIC
PD10927a	Sub	12	11905432	G	C	40.9	154	ETV6_p.A28P	ONCOGENIC
PD7915a	I	12	11992104	-	CG	41.8	55	ETV6_p.V66fs*2	ONCOGENIC
PD9372a	I	12	11992109	-	C	32.5	120	ETV6_p.Q68fs*7	ONCOGENIC
PD7706a	Sub	12	11992136	G	T	6.2	129	ETV6_p.E76*	ONCOGENIC
PD11089a	Sub	12	11992146	T	A	22.2	108	ETV6_p.L79*	ONCOGENIC
PD8084a	D	12	11992214	t	-	36.6	82	ETV6_p.R103fs*19	ONCOGENIC
PD7630a	D	12	11992216	tcgct	-	22.5	102	ETV6_p.Y104_R105de	ONCOGENIC
PD7687a	Sub	12	11992218	G	C	39.9	178	ETV6_p.R103P	POSSIBLE
PD8551a	Sub	12	11992223	C	T	58.4	149	ETV6_p.R105*	ONCOGENIC
PD11009a	Sub	12	11992223	C	T	41.7	144	ETV6_p.R105*	ONCOGENIC
PD8325a	Sub	12	11992223	C	G	38.9	144	ETV6_p.R105G	ONCOGENIC
PD8362a	Sub	12	12006360	G	T	44.9	265	ETV6_NA	POSSIBLE
PD8437a	Sub	12	12006364	A	T	15.1	292	ETV6_p.D111V	ONCOGENIC
PD8437a	Sub	12	12006365	T	A	16	294	ETV6_p.D111E	ONCOGENIC
PD8549a	D	12	12022363	tg	-	56.2	73	ETV6_p.V158fs*10	ONCOGENIC
PD7768a	D	12	12022540	ga	-	31.1	103	ETV6_p.R217fs*26	ONCOGENIC
PD7682a	Sub	12	12022672	C	T	45.6	79	ETV6_p.Q260*	ONCOGENIC
PD8265a	I	12	12022779	-	C	42.2	109	ETV6_p.G296fs*4	ONCOGENIC
PD8085a	Sub	12	12037401	C	A	24.1	162	ETV6_p.Y344*	ONCOGENIC
PD11019a	I	12	12037402	-	TCTA	26.7	131	ETV6_p.Q347fs*6	ONCOGENIC
PD8077a	I	12	12037426	-	CTGACAC	28.7	101	ETV6_p.S352_R353ins	ONCOGENIC
PD9274a	D	12	12038959	aggta	-	23.5	98	ETV6_p.?	ONCOGENIC
PD8052a	Sub	12	25378561	G	A	26.1	165	KRAS_p.A146V	ONCOGENIC
PD8061a	Sub	12	25378561	GC	AT	46	149	KRAS_p.A146I	ONCOGENIC
PD8489a	Sub	12	25378562	C	T	44.3	282	KRAS_p.A146T	ONCOGENIC
PD8452a	Sub	12	25378562	C	T	61.1	280	KRAS_p.A146T	ONCOGENIC
PD7912a	Sub	12	25378647	T	G	26.7	161	KRAS_p.K117N	POSSIBLE
PD8318a	Sub	12	25378647	T	A	4.48	268	KRAS_p.K117N	POSSIBLE
PD11164a	Sub	12	25378647	T	G	22.2	198	KRAS_p.K117N	POSSIBLE
PD8239a	Sub	12	25378647	T	A	58.3	360	KRAS_p.K117N	POSSIBLE
PD10989a	Sub	12	25380275	T	G	50.4	129	KRAS_p.Q61H	ONCOGENIC
PD8544a	Sub	12	25380275	T	G	8.57	105	KRAS_p.Q61H	ONCOGENIC
PD7732a	Sub	12	25380275	T	G	11.9	202	KRAS_p.Q61H	ONCOGENIC
PD7699a	Sub	12	25380275	T	A	24.3	107	KRAS_p.Q61H	ONCOGENIC
PD8255a	Sub	12	25380275	T	G	29	186	KRAS_p.Q61H	ONCOGENIC
PD8460a	Sub	12	25380275	T	G	5.15	233	KRAS_p.Q61H	ONCOGENIC
PD7865a	Sub	12	25380275	T	G	20.7	58	KRAS_p.Q61H	ONCOGENIC
PD11017a	Sub	12	25380276	T	G	74.3	101	KRAS_p.Q61P	ONCOGENIC
PD8044a	Sub	12	25380285	G	A	17.3	75	KRAS_p.T58I	POSSIBLE
PD7756a	Sub	12	25398240	G	A	20.3	69	KRAS_p.H27Y	POSSIBLE
PD10857a	Sub	12	25398281	C	T	5.45	202	KRAS_p.G13D	ONCOGENIC
PD11057a	Sub	12	25398281	C	T	15.8	114	KRAS_p.G13D	ONCOGENIC
PD10859a	Sub	12	25398281	C	T	20.6	165	KRAS_p.G13D	ONCOGENIC
PD8572a	Sub	12	25398281	C	T	11.1	171	KRAS_p.G13D	ONCOGENIC
PD8167a	Sub	12	25398281	C	T	6.3	127	KRAS_p.G13D	ONCOGENIC
PD8313a	Sub	12	25398281	C	T	55.7	386	KRAS_p.G13D	ONCOGENIC
PD7818a	Sub	12	25398281	C	T	12.5	240	KRAS_p.G13D	ONCOGENIC
PD10862a	Sub	12	25398281	C	T	32.5	197	KRAS_p.G13D	ONCOGENIC
PD8134a	Sub	12	25398281	C	T	21.3	108	KRAS_p.G13D	ONCOGENIC
PD11141a	Sub	12	25398281	C	T	7.94	126	KRAS_p.G13D	ONCOGENIC
PD7832a	Sub	12	25398281	C	T	9.61	229	KRAS_p.G13D	ONCOGENIC
PD8041a	Sub	12	25398281	C	T	33.5	164	KRAS_p.G13D	ONCOGENIC

PD10938a	Sub	12	25398281	C	T	18.6	204	KRAS_p.G13D	ONCOGENIC
PD8078a	Sub	12	25398281	C	T	12	150	KRAS_p.G13D	ONCOGENIC
PD8332a	Sub	12	25398281	C	T	23.3	146	KRAS_p.G13D	ONCOGENIC
PD9278a	Sub	12	25398281	C	T	6.3	127	KRAS_p.G13D	ONCOGENIC
PD8077a	Sub	12	25398281	C	T	37.7	114	KRAS_p.G13D	ONCOGENIC
PD10967a	Sub	12	25398281	C	T	32	231	KRAS_p.G13D	ONCOGENIC
PD10996a	Sub	12	25398281	C	T	5.59	179	KRAS_p.G13D	ONCOGENIC
PD8587a	Sub	12	25398281	C	T	22.2	162	KRAS_p.G13D	ONCOGENIC
PD7660a	Sub	12	25398281	C	T	5.96	235	KRAS_p.G13D	ONCOGENIC
PD8265a	Sub	12	25398284	C	A	55.4	240	KRAS_p.G12V	ONCOGENIC
PD10961a	Sub	12	25398284	C	T	37.6	218	KRAS_p.G12D	ONCOGENIC
PD10976a	Sub	12	25398284	C	T	10.2	245	KRAS_p.G12D	ONCOGENIC
PD8329a	Sub	12	25398284	C	A	17.1	129	KRAS_p.G12V	ONCOGENIC
PD10955a	Sub	12	25398284	C	T	15.1	205	KRAS_p.G12D	ONCOGENIC
PD10859a	Sub	12	25398284	C	A	7.06	170	KRAS_p.G12V	ONCOGENIC
PD9265a	Sub	12	25398284	C	G	19.8	222	KRAS_p.G12A	ONCOGENIC
PD8115a	Sub	12	25398284	C	T	36.4	110	KRAS_p.G12D	ONCOGENIC
PD11013a	Sub	12	25398284	C	T	6.73	104	KRAS_p.G12D	ONCOGENIC
PD8184a	Sub	12	25398284	C	A	23.7	114	KRAS_p.G12V	ONCOGENIC
PD7985a	Sub	12	25398284	C	T	9.52	147	KRAS_p.G12D	ONCOGENIC
PD8542a	Sub	12	25398284	C	G	28.7	174	KRAS_p.G12A	ONCOGENIC
PD10851a	Sub	12	25398284	C	T	28.1	185	KRAS_p.G12D	ONCOGENIC
PD8590a	Sub	12	25398284	C	G	23.8	105	KRAS_p.G12A	ONCOGENIC
PD8334a	Sub	12	25398284	C	A	22.5	120	KRAS_p.G12V	ONCOGENIC
PD7655a	Sub	12	25398284	C	G	25.9	116	KRAS_p.G12A	ONCOGENIC
PD7859a	Sub	12	25398284	C	G	32.6	46	KRAS_p.G12A	ONCOGENIC
PD10948a	Sub	12	25398284	C	T	5.82	189	KRAS_p.G12D	ONCOGENIC
PD7801a	Sub	12	25398284	C	G	8.28	157	KRAS_p.G12A	ONCOGENIC
PD8323a	Sub	12	25398284	C	T	7.02	228	KRAS_p.G12D	ONCOGENIC
PD9299a	Sub	12	25398284	C	A	31.6	177	KRAS_p.G12V	ONCOGENIC
PD10935a	Sub	12	25398284	C	G	26.4	216	KRAS_p.G12A	ONCOGENIC
PD10890a	Sub	12	25398284	C	T	6.03	282	KRAS_p.G12D	ONCOGENIC
PD9334a	Sub	12	25398284	C	T	36.4	209	KRAS_p.G12D	ONCOGENIC
PD10899a	Sub	12	25398284	C	A	43	286	KRAS_p.G12V	ONCOGENIC
PD8084a	Sub	12	25398284	C	T	37.4	131	KRAS_p.G12D	ONCOGENIC
PD7956a	Sub	12	25398284	C	A	7.26	124	KRAS_p.G12V	ONCOGENIC
PD11021a	Sub	12	25398284	C	T	34.6	153	KRAS_p.G12D	ONCOGENIC
PD8366a	Sub	12	25398284	C	T	26	169	KRAS_p.G12D	ONCOGENIC
PD7619a	Sub	12	25398284	C	T	8.28	157	KRAS_p.G12D	ONCOGENIC
PD8275a	Sub	12	25398284	C	T	30.3	244	KRAS_p.G12D	ONCOGENIC
PD9279a	Sub	12	25398284	C	G	15.8	101	KRAS_p.G12A	ONCOGENIC
PD7868a	Sub	12	25398284	C	T	24.1	112	KRAS_p.G12D	ONCOGENIC
PD7783a	Sub	12	25398284	C	T	7.79	154	KRAS_p.G12D	ONCOGENIC
PD11036a	Sub	12	25398284	C	T	7.65	170	KRAS_p.G12D	ONCOGENIC
PD8251a	Sub	12	25398285	C	A	9.54	262	KRAS_p.G12C	ONCOGENIC
PD11275a	Sub	12	25398285	C	T	25	112	KRAS_p.G12S	ONCOGENIC
PD10928a	Sub	12	25398285	C	G	26	208	KRAS_p.G12R	ONCOGENIC
PD11089a	Sub	12	25398285	C	T	9.6	177	KRAS_p.G12S	ONCOGENIC
PD10790a	Sub	12	25398285	C	T	11.7	145	KRAS_p.G12S	ONCOGENIC
PD7949a	Sub	12	25398285	C	T	8.57	175	KRAS_p.G12S	ONCOGENIC
PD7636a	Sub	12	49415846	G	A	9.74	154	MLL2_p.R5501*	ONCOGENIC
PD8076a	I	12	49422950	-	C	29.4	17	MLL2_p.E4717fs*65	ONCOGENIC
PD10943a	Sub	12	49425038	G	A	27.3	44	MLL2_p.R4484*	ONCOGENIC
PD10990a	I	12	49425823	-	GCT	25	32	MLL2_p.Q4221_L422	ONCOGENIC
PD7848a	Sub	12	49427369	G	A	26.5	83	MLL2_p.R3707*	ONCOGENIC

PD10795a	Sub	12	49427537	G	A	17.2	29	MLL2_p.Q3651*	ONCOGENIC
PD8548a	I	12	49431447	-	C	27.7	47	MLL2_p.D3231fs*2	ONCOGENIC
PD7854a	Sub	12	49432741	G	A	38.5	39	MLL2_p.Q2800*	ONCOGENIC
PD7707a	Sub	12	49434325	G	A	37.8	37	MLL2_p.R2410*	ONCOGENIC
PD9221a	Sub	12	49434880	C	A	53.9	13	MLL2_p.E2225*	ONCOGENIC
PD8483a	Sub	12	49435045	G	A	87.7	179	MLL2_p.Q2170*	ONCOGENIC
PD7800a	Sub	12	49440475	A	T	15.8	38	MLL2_p.C1445*	ONCOGENIC
PD9384a	Sub	12	49443839	G	A	33.3	15	MLL2_p.Q1178*	ONCOGENIC
PD8452a	Sub	12	49446697	C	T	52.6	500	MLL2_NA	POSSIBLE
PD8538a	Sub	12	50029684	G	T	8.18	110	PRPF40B_p.G423V	POSSIBLE
PD9330a	Sub	12	50031283	C	T	16.1	62	PRPF40B_p.Q509*	ONCOGENIC
PD9310a	Sub	12	50037088	G	A	30.8	13	PRPF40B_p.G742D	ONCOGENIC
PD8265a	Sub	12	111885473	C	A	95	40	SH2B3_p.S417*	ONCOGENIC
PD8225a	Sub	12	112888156	A	T	10.1	79	PTPN11_p.N58Y	ONCOGENIC
PD8398a	Sub	12	112888158	C	A	13	100	PTPN11_p.N58K	ONCOGENIC
PD7631a	Sub	12	112888158	C	G	20.2	94	PTPN11_p.N58K	ONCOGENIC
PD10793a	Sub	12	112888163	G	T	12.9	171	PTPN11_p.G60V	ONCOGENIC
PD10857a	Sub	12	112888163	G	T	36.5	148	PTPN11_p.G60V	ONCOGENIC
PD10827a	Sub	12	112888163	G	T	42.7	171	PTPN11_p.G60V	ONCOGENIC
PD8249a	Sub	12	112888163	G	T	10.2	197	PTPN11_p.G60V	ONCOGENIC
PD9278a	Sub	12	112888163	G	C	9.09	88	PTPN11_p.G60A	ONCOGENIC
PD8427a	Sub	12	112888163	G	T	8.66	231	PTPN11_p.G60V	ONCOGENIC
PD10996a	Sub	12	112888163	G	T	22.7	163	PTPN11_p.G60V	ONCOGENIC
PD11261a	Sub	12	112888163	G	T	8.29	181	PTPN11_p.G60V	ONCOGENIC
PD8491a	Sub	12	112888165	G	A	28.8	160	PTPN11_p.D61N	ONCOGENIC
PD10831a	Sub	12	112888165	G	T	47.9	169	PTPN11_p.D61Y	ONCOGENIC
PD7939a	Sub	12	112888165	G	C	40.4	99	PTPN11_p.D61H	ONCOGENIC
PD11093a	Sub	12	112888165	G	C	5.61	107	PTPN11_p.D61H	ONCOGENIC
PD10844a	Sub	12	112888165	G	A	35.5	138	PTPN11_p.D61N	ONCOGENIC
PD10954a	Sub	12	112888165	G	C	10.5	152	PTPN11_p.D61H	ONCOGENIC
PD9320a	Sub	12	112888165	G	C	11.2	107	PTPN11_p.D61H	ONCOGENIC
PD11206a	Sub	12	112888165	G	C	36.9	84	PTPN11_p.D61H	ONCOGENIC
PD8012a	Sub	12	112888165	GA	TT	48.4	126	PTPN11_p.D61F	ONCOGENIC
PD8544a	Sub	12	112888166	A	T	11.1	144	PTPN11_p.D61V	ONCOGENIC
PD11038a	Sub	12	112888166	A	T	9.59	146	PTPN11_p.D61V	ONCOGENIC
PD9377a	Sub	12	112888166	A	T	9.09	165	PTPN11_p.D61V	ONCOGENIC
PD8568a	Sub	12	112888166	A	G	39.6	207	PTPN11_p.D61G	ONCOGENIC
PD8005a	Sub	12	112888166	A	C	11.6	147	PTPN11_p.D61A	ONCOGENIC
PD7855a	Sub	12	112888166	A	T	47.2	72	PTPN11_p.D61V	ONCOGENIC
PD7924a	Sub	12	112888166	A	T	35	117	PTPN11_p.D61V	ONCOGENIC
PD7889a	Sub	12	112888168	T	G	6.54	153	PTPN11_p.Y62D	ONCOGENIC
PD8495a	Sub	12	112888189	G	A	6.06	297	PTPN11_p.E69K	ONCOGENIC
PD7672a	Sub	12	112888189	G	A	14.4	201	PTPN11_p.E69K	ONCOGENIC
PD8192a	Sub	12	112888189	G	A	22.5	142	PTPN11_p.E69K	ONCOGENIC
PD11022a	Sub	12	112888195	T	C	8	125	PTPN11_p.F71L	ONCOGENIC
PD8184a	Sub	12	112888197	T	A	15.6	180	PTPN11_p.F71L	ONCOGENIC
PD9247a	Sub	12	112888197	T	A	6.38	94	PTPN11_p.F71L	ONCOGENIC
PD8470a	Sub	12	112888197	T	A	4.32	162	PTPN11_p.F71L	ONCOGENIC
PD8256a	Sub	12	112888198	G	A	18.6	172	PTPN11_p.A72T	ONCOGENIC
PD11159a	Sub	12	112888198	G	A	19.1	162	PTPN11_p.A72T	ONCOGENIC
PD8096a	Sub	12	112888198	G	A	29.4	248	PTPN11_p.A72T	ONCOGENIC
PD7946a	Sub	12	112888198	G	A	37.3	193	PTPN11_p.A72T	ONCOGENIC
PD11236a	Sub	12	112888198	G	A	5.45	385	PTPN11_p.A72T	ONCOGENIC
PD9307a	Sub	12	112888198	G	A	7.88	203	PTPN11_p.A72T	ONCOGENIC
PD8005a	Sub	12	112888198	G	A	17.5	183	PTPN11_p.A72T	ONCOGENIC

PD11139a	Sub	12	112888198	G	A	14.2	134	PTPN11_p.A72T	ONCOGENIC
PD11133a	Sub	12	112888199	C	A	35.6	87	PTPN11_p.A72D	ONCOGENIC
PD7662a	Sub	12	112888199	C	T	9.13	230	PTPN11_p.A72V	ONCOGENIC
PD8090a	Sub	12	112888199	C	G	11.7	162	PTPN11_p.A72G	ONCOGENIC
PD10807a	Sub	12	112888199	C	T	11.1	162	PTPN11_p.A72V	ONCOGENIC
PD7796a	Sub	12	112888199	C	T	40.6	170	PTPN11_p.A72V	ONCOGENIC
PD10885a	Sub	12	112888199	C	T	36	247	PTPN11_p.A72V	ONCOGENIC
PD8330a	Sub	12	112888199	C	A	48.9	180	PTPN11_p.A72D	ONCOGENIC
PD8409a	Sub	12	112888199	C	T	22.8	158	PTPN11_p.A72V	ONCOGENIC
PD7936a	Sub	12	112888199	C	T	25.6	129	PTPN11_p.A72V	ONCOGENIC
PD9237a	Sub	12	112888199	C	T	17.2	145	PTPN11_p.A72V	ONCOGENIC
PD8427a	Sub	12	112888199	C	T	18.4	266	PTPN11_p.A72V	ONCOGENIC
PD9350a	Sub	12	112888199	C	T	39.4	188	PTPN11_p.A72V	ONCOGENIC
PD11059a	Sub	12	112888199	C	G	20.1	269	PTPN11_p.A72G	ONCOGENIC
PD8587a	Sub	12	112888199	C	T	9.43	159	PTPN11_p.A72V	ONCOGENIC
PD8256a	Sub	12	112888202	C	T	5.52	181	PTPN11_p.T73I	ONCOGENIC
PD9273a	Sub	12	112888202	C	T	28.3	113	PTPN11_p.T73I	ONCOGENIC
PD7659a	Sub	12	112888202	C	T	7.18	209	PTPN11_p.T73I	ONCOGENIC
PD10954a	Sub	12	112888202	C	T	28.7	192	PTPN11_p.T73I	ONCOGENIC
PD10921a	Sub	12	112888202	C	T	16.1	224	PTPN11_p.T73I	ONCOGENIC
PD9214a	Sub	12	112888202	C	T	15.4	175	PTPN11_p.T73I	ONCOGENIC
PD9209a	Sub	12	112888210	G	A	44	159	PTPN11_p.E76K	ONCOGENIC
PD8236a	Sub	12	112888210	G	A	37.6	314	PTPN11_p.E76K	ONCOGENIC
PD11031a	Sub	12	112888210	G	C	49	151	PTPN11_p.E76Q	ONCOGENIC
PD8225a	Sub	12	112888210	G	A	7.92	101	PTPN11_p.E76K	ONCOGENIC
PD9385a	Sub	12	112888210	G	A	11.2	178	PTPN11_p.E76K	ONCOGENIC
PD8294a	Sub	12	112888210	G	A	6.47	201	PTPN11_p.E76K	ONCOGENIC
PD8004a	Sub	12	112888210	G	A	24.2	182	PTPN11_p.E76K	ONCOGENIC
PD10970a	Sub	12	112888210	G	A	29.2	199	PTPN11_p.E76K	ONCOGENIC
PD7767a	Sub	12	112888210	G	A	48.5	161	PTPN11_p.E76K	ONCOGENIC
PD11169a	Sub	12	112888210	G	A	44.5	245	PTPN11_p.E76K	ONCOGENIC
PD10997a	Sub	12	112888211	A	G	23.1	208	PTPN11_p.E76G	ONCOGENIC
PD8196a	Sub	12	112888211	A	G	47.4	152	PTPN11_p.E76G	ONCOGENIC
PD11128a	Sub	12	112888211	A	C	28.1	128	PTPN11_p.E76A	ONCOGENIC
PD11097a	Sub	12	112888211	A	G	41.1	129	PTPN11_p.E76G	ONCOGENIC
PD8271a	Sub	12	112888211	A	G	33.7	199	PTPN11_p.E76G	ONCOGENIC
PD8446a	Sub	12	112888211	A	C	31.8	195	PTPN11_p.E76A	ONCOGENIC
PD10923a	Sub	12	112888211	A	G	20.8	216	PTPN11_p.E76G	ONCOGENIC
PD8124a	Sub	12	112888211	A	G	8.33	96	PTPN11_p.E76G	ONCOGENIC
PD11247a	Sub	12	112888211	A	C	16.2	148	PTPN11_p.E76A	ONCOGENIC
PD7752a	Sub	12	112888211	A	T	8.64	220	PTPN11_p.E76V	ONCOGENIC
PD7803a	Sub	12	112888220	A	G	34.6	156	PTPN11_p.Q79R	ONCOGENIC
PD11047a	Sub	12	112888220	A	G	8.47	189	PTPN11_p.Q79R	ONCOGENIC
PD8571a	Sub	12	112891081	G	A	18.8	192	PTPN11_p.E139K	ONCOGENIC
PD7672a	Sub	12	112891083	G	C	21.2	212	PTPN11_p.E139D	ONCOGENIC
PD8291a	Sub	12	112910844	T	C	12	367	PTPN11_p.F285L	ONCOGENIC
PD7873a	Sub	12	112915455	T	C	28.5	193	PTPN11_p.F285S	ONCOGENIC
PD10973a	Sub	12	112915455	T	C	39.3	201	PTPN11_p.F285S	ONCOGENIC
PD9294a	Sub	12	112915532	A	G	44.9	285	PTPN11_p.M311V	POSSIBLE
PD9311a	Sub	12	112924363	G	A	12.8	78	PTPN11_p.D437N	POSSIBLE
PD8557a	Sub	12	112926249	C	G	44.5	227	PTPN11_p.A461G	ONCOGENIC
PD9377a	Sub	12	112926249	C	G	34.3	271	PTPN11_p.A461G	ONCOGENIC
PD7634a	Sub	12	112926258	G	A	30	190	PTPN11_p.G464D	ONCOGENIC
PD7771a	Sub	12	112926851	C	T	5.64	408	PTPN11_p.P491S	ONCOGENIC
PD8472a	Sub	12	112926852	C	T	13.2	228	PTPN11_p.P491L	ONCOGENIC

PD9302a	Sub	12	112926852	C	T	27.8	421	PTPN11_p.P491L	ONCOGENIC
PD7923a	Sub	12	112926852	C	T	13.6	376	PTPN11_p.P491L	ONCOGENIC
PD11010a	Sub	12	112926852	C	T	35.7	263	PTPN11_p.P491L	ONCOGENIC
PD7683a	Sub	12	112926884	T	G	8.39	477	PTPN11_p.S502A	ONCOGENIC
PD8332a	Sub	12	112926884	T	C	40.4	366	PTPN11_p.S502P	ONCOGENIC
PD11125a	Sub	12	112926884	T	G	30.8	370	PTPN11_p.S502A	ONCOGENIC
PD9386a	Sub	12	112926884	T	C	27.4	500	PTPN11_p.S502P	ONCOGENIC
PD10833a	Sub	12	112926884	T	G	25.5	372	PTPN11_p.S502A	ONCOGENIC
PD7727a	Sub	12	112926884	T	G	10.6	464	PTPN11_p.S502A	ONCOGENIC
PD11199a	Sub	12	112926885	C	T	18.5	270	PTPN11_p.S502L	ONCOGENIC
PD8213a	Sub	12	112926885	C	T	43.8	290	PTPN11_p.S502L	ONCOGENIC
PD11113a	Sub	12	112926885	C	T	23.1	425	PTPN11_p.S502L	ONCOGENIC
PD9213a	Sub	12	112926885	C	T	44.4	500	PTPN11_p.S502L	ONCOGENIC
PD7927a	Sub	12	112926885	C	T	27.8	317	PTPN11_p.S502L	ONCOGENIC
PD9358a	Sub	12	112926885	C	T	38.7	442	PTPN11_p.S502L	ONCOGENIC
PD7837a	Sub	12	112926885	C	T	14	500	PTPN11_p.S502L	ONCOGENIC
PD7986a	Sub	12	112926887	G	A	36.7	324	PTPN11_p.G503R	ONCOGENIC
PD8213a	Sub	12	112926887	G	A	5.56	288	PTPN11_p.G503R	ONCOGENIC
PD7727a	Sub	12	112926887	G	A	14.4	485	PTPN11_p.G503R	ONCOGENIC
PD8173a	Sub	12	112926887	G	T	16.9	304	PTPN11_p.G503L	ONCOGENIC
PD8370a	Sub	12	112926888	G	T	6.9	449	PTPN11_p.G503V	ONCOGENIC
PD7683a	Sub	12	112926888	G	T	18.5	481	PTPN11_p.G503V	ONCOGENIC
PD10805a	Sub	12	112926888	G	C	47.1	452	PTPN11_p.G503A	ONCOGENIC
PD8439a	Sub	12	112926888	G	T	40.5	472	PTPN11_p.G503V	ONCOGENIC
PD11072a	Sub	12	112926888	G	C	5.96	369	PTPN11_p.G503A	ONCOGENIC
PD8038a	Sub	12	112926888	G	T	6.04	414	PTPN11_p.G503V	ONCOGENIC
PD8389a	Sub	12	112926888	G	T	6.16	422	PTPN11_p.G503V	ONCOGENIC
PD7744a	Sub	12	112926888	G	T	17.9	375	PTPN11_p.G503V	ONCOGENIC
PD7730a	Sub	12	112926888	G	A	10.2	500	PTPN11_p.G503E	ONCOGENIC
PD7947a	Sub	12	112926888	G	C	47.6	500	PTPN11_p.G503A	ONCOGENIC
PD9239a	Sub	12	112926900	C	A	12.2	410	PTPN11_p.T507K	ONCOGENIC
PD8251a	Sub	12	112926910	G	C	28.4	500	PTPN11_p.Q510H	ONCOGENIC
PD8004a	Sub	12	112926910	G	C	12.4	461	PTPN11_p.Q510H	ONCOGENIC
PD7991a	Sub	12	112926910	G	T	20.2	307	PTPN11_p.Q510H	ONCOGENIC
PD7971a	Sub	13	28589784	T	C	51.5	134	FLT3_p.T866A	POSSIBLE
PD8413a	Sub	13	28589814	C	A	50.9	218	FLT3_p.A856S	POSSIBLE
PD7634a	Sub	13	28592620	T	C	17.8	174	FLT3_p.Y842C	ONCOGENIC
PD8013a	Sub	13	28592622	G	T	5	240	FLT3_p.N841K	ONCOGENIC
PD8365a	Sub	13	28592622	G	T	7.52	319	FLT3_p.N841K	ONCOGENIC
PD8426a	Sub	13	28592622	G	T	4.57	481	FLT3_p.N841K	ONCOGENIC
PD7793a	Sub	13	28592622	G	T	7.55	331	FLT3_p.N841K	ONCOGENIC
PD8407a	Sub	13	28592623	T	A	7.81	192	FLT3_p.N841I	ONCOGENIC
PD9234a	Sub	13	28592623	T	G	22.1	240	FLT3_p.N841T	ONCOGENIC
PD7703a	Sub	13	28592623	T	G	3.83	261	FLT3_p.N841T	ONCOGENIC
PD10953a	Sub	13	28592623	T	G	8.43	261	FLT3_p.N841T	ONCOGENIC
PD8007a	Sub	13	28592623	T	G	8.39	274	FLT3_p.N841T	ONCOGENIC
PD7750a	Sub	13	28592623	T	G	47.5	257	FLT3_p.N841T	ONCOGENIC
PD10819a	Sub	13	28592628	A	T	13.4	305	FLT3_p.D839E	ONCOGENIC
PD8335a	Sub	13	28592629	T	C	18.4	234	FLT3_p.D839G	ONCOGENIC
PD11073a	Sub	13	28592629	T	C	14.7	129	FLT3_p.D839G	ONCOGENIC
PD7774a	Sub	13	28592629	T	C	5.84	257	FLT3_p.D839G	ONCOGENIC
PD10867a	Sub	13	28592629	T	C	35.7	196	FLT3_p.D839G	ONCOGENIC
PD10908a	Sub	13	28592629	T	C	41.6	269	FLT3_p.D839G	ONCOGENIC
PD8570a	Sub	13	28592629	T	C	44.1	227	FLT3_p.D839G	ONCOGENIC
PD8151a	Sub	13	28592629	T	C	41.2	260	FLT3_p.D839G	ONCOGENIC

PD8362a	Sub	13	28592629	T	C	58	500	FLT3_p.D839G	ONCOGENIC
PD8484a	Sub	13	28592633	T	C	48.2	500	FLT3_p.S838G	ONCOGENIC
PD8062a	D	13	28592635	atg	-	1.61	248	FLT3_p.I836delI	ONCOGENIC
PD7761a	D	13	28592635	atg	-	2.17	368	FLT3_p.I836delI	ONCOGENIC
PD7891a	D	13	28592635	atg	-	2.36	212	FLT3_p.I836delI	ONCOGENIC
PD8306a	D	13	28592635	atg	-	3.51	370	FLT3_p.I836delI	ONCOGENIC
PD10938a	D	13	28592635	atg	-	3.6	250	FLT3_p.I836delI	ONCOGENIC
PD8550a	D	13	28592635	atg	-	3.91	256	FLT3_p.I836delI	ONCOGENIC
PD8336a	D	13	28592635	atg	-	6.25	224	FLT3_p.I836delI	ONCOGENIC
PD7895a	D	13	28592635	atg	-	6.36	173	FLT3_p.I836delI	ONCOGENIC
PD8472a	D	13	28592635	atg	-	7.73	233	FLT3_p.I836delI	ONCOGENIC
PD8032a	D	13	28592635	atg	-	16.2	216	FLT3_p.I836delI	ONCOGENIC
PD7760a	D	13	28592635	atg	-	16.6	434	FLT3_p.I836delI	ONCOGENIC
PD7776a	D	13	28592635	atg	-	29.3	259	FLT3_p.I836delI	ONCOGENIC
PD11283a	Sub	13	28592640	A	C	32.2	258	FLT3_p.D835E	ONCOGENIC
PD10964a	Sub	13	28592640	A	C	35.2	318	FLT3_p.D835E	ONCOGENIC
PD7797a	Sub	13	28592640	A	C	66.8	380	FLT3_p.D835E	ONCOGENIC
PD8399a	Sub	13	28592640	A	C	42	269	FLT3_p.D835E	ONCOGENIC
PD8142a	Sub	13	28592640	A	C	11.3	275	FLT3_p.D835E	ONCOGENIC
PD7774a	Sub	13	28592640	A	T	4	275	FLT3_p.D835E	ONCOGENIC
PD8553a	Sub	13	28592640	A	C	43.7	261	FLT3_p.D835E	ONCOGENIC
PD8157a	Sub	13	28592640	A	C	23.6	276	FLT3_p.D835E	ONCOGENIC
PD8309a	Sub	13	28592640	A	C	23.6	441	FLT3_p.D835E	ONCOGENIC
PD10911a	Sub	13	28592640	A	C	22.6	306	FLT3_p.D835E	ONCOGENIC
PD8183a	Sub	13	28592640	A	C	30.5	190	FLT3_p.D835E	ONCOGENIC
PD8504a	Sub	13	28592640	A	C	22.7	308	FLT3_p.D835E	ONCOGENIC
PD8427a	Sub	13	28592640	A	T	6.4	484	FLT3_p.D835E	ONCOGENIC
PD7658a	Sub	13	28592640	A	C	33.8	287	FLT3_p.D835E	ONCOGENIC
PD7823a	Sub	13	28592640	A	C	8.46	331	FLT3_p.D835E	ONCOGENIC
PD8046a	Sub	13	28592640	A	C	37	200	FLT3_p.D835E	ONCOGENIC
PD8473a	Sub	13	28592640	A	C	32.1	480	FLT3_p.D835E	ONCOGENIC
PD9197a	Sub	13	28592641	T	A	20.4	181	FLT3_p.D835V	ONCOGENIC
PD7851a	Sub	13	28592641	T	A	12.6	159	FLT3_p.D835V	ONCOGENIC
PD10995a	Sub	13	28592641	T	A	4.49	356	FLT3_p.D835V	ONCOGENIC
PD10980a	Sub	13	28592641	T	A	15.9	252	FLT3_p.D835V	ONCOGENIC
PD10884a	Sub	13	28592641	T	G	30.8	325	FLT3_p.D835A	ONCOGENIC
PD7928a	Sub	13	28592641	T	A	15.6	180	FLT3_p.D835V	ONCOGENIC
PD8107a	Sub	13	28592641	T	A	22.8	215	FLT3_p.D835V	ONCOGENIC
PD8006a	Sub	13	28592641	T	A	13.9	194	FLT3_p.D835V	ONCOGENIC
PD8206a	Sub	13	28592641	T	A	44.2	299	FLT3_p.D835V	ONCOGENIC
PD7815a	Sub	13	28592641	T	A	40.3	290	FLT3_p.D835V	ONCOGENIC
PD8137a	Sub	13	28592641	T	A	4.82	228	FLT3_p.D835V	ONCOGENIC
PD7614a	Sub	13	28592641	T	A	47.4	266	FLT3_p.D835V	ONCOGENIC
PD8477a	Sub	13	28592641	T	A	30.6	500	FLT3_p.D835V	ONCOGENIC
PD10814a	Sub	13	28592641	T	G	20.8	303	FLT3_p.D835A	ONCOGENIC
PD8388a	Sub	13	28592641	T	A	34.8	221	FLT3_p.D835V	ONCOGENIC
PD7787a	Sub	13	28592641	T	A	6.35	252	FLT3_p.D835V	ONCOGENIC
PD10923a	Sub	13	28592641	T	A	12	300	FLT3_p.D835V	ONCOGENIC
PD9226a	Sub	13	28592641	T	A	46.2	247	FLT3_p.D835V	ONCOGENIC
PD7639a	Sub	13	28592641	T	A	19.9	261	FLT3_p.D835V	ONCOGENIC
PD8070a	Sub	13	28592641	T	A	44.5	238	FLT3_p.D835V	ONCOGENIC
PD8466a	Sub	13	28592642	C	A	37.9	346	FLT3_p.D835Y	ONCOGENIC
PD10847a	Sub	13	28592642	C	A	32	306	FLT3_p.D835Y	ONCOGENIC
PD7903a	Sub	13	28592642	C	A	46.8	237	FLT3_p.D835Y	ONCOGENIC
PD8203a	Sub	13	28592642	C	A	11.3	222	FLT3_p.D835Y	ONCOGENIC

PD7682a	Sub	13	28592642	C	A	38.2	304	FLT3_p.D835Y	ONCOGENIC
PD7965a	Sub	13	28592642	C	A	44	209	FLT3_p.D835Y	ONCOGENIC
PD7959a	Sub	13	28592642	C	A	45.1	253	FLT3_p.D835Y	ONCOGENIC
PD10957a	Sub	13	28592642	C	A	45	338	FLT3_p.D835Y	ONCOGENIC
PD7732a	Sub	13	28592642	C	A	19.6	286	FLT3_p.D835Y	ONCOGENIC
PD7873a	Sub	13	28592642	C	A	7.28	302	FLT3_p.D835Y	ONCOGENIC
PD10995a	Sub	13	28592642	C	A	33.2	362	FLT3_p.D835Y	ONCOGENIC
PD8286a	Sub	13	28592642	C	A	34.4	460	FLT3_p.D835Y	ONCOGENIC
PD8013a	Sub	13	28592642	C	G	39	249	FLT3_p.D835H	ONCOGENIC
PD8086a	Sub	13	28592642	C	A	43.9	214	FLT3_p.D835Y	ONCOGENIC
PD8235a	Sub	13	28592642	C	G	6.2	500	FLT3_p.D835H	ONCOGENIC
PD8412a	Sub	13	28592642	C	G	21.8	289	FLT3_p.D835H	ONCOGENIC
PD9287a	Sub	13	28592642	C	A	5.38	260	FLT3_p.D835Y	ONCOGENIC
PD8075a	Sub	13	28592642	C	A	10.1	218	FLT3_p.D835Y	ONCOGENIC
PD7886a	Sub	13	28592642	C	G	33.2	244	FLT3_p.D835H	ONCOGENIC
PD7634a	Sub	13	28592642	C	A	5.24	191	FLT3_p.D835Y	ONCOGENIC
PD7830a	Sub	13	28592642	C	A	51.8	218	FLT3_p.D835Y	ONCOGENIC
PD7610a	Sub	13	28592642	C	A	39.9	261	FLT3_p.D835Y	ONCOGENIC
PD7935a	Sub	13	28592642	C	A	32.3	130	FLT3_p.D835Y	ONCOGENIC
PD7922a	Sub	13	28592642	C	A	33.1	154	FLT3_p.D835Y	ONCOGENIC
PD8445a	Sub	13	28592642	C	A	43	349	FLT3_p.D835Y	ONCOGENIC
PD8512a	Sub	13	28592642	C	A	5.24	267	FLT3_p.D835Y	ONCOGENIC
PD8282a	Sub	13	28592642	C	G	5.46	293	FLT3_p.D835H	ONCOGENIC
PD10886a	Sub	13	28592642	C	G	10.5	343	FLT3_p.D835H	ONCOGENIC
PD7774a	Sub	13	28592642	C	A	4.79	292	FLT3_p.D835Y	ONCOGENIC
PD7950a	Sub	13	28592642	C	A	42.4	304	FLT3_p.D835Y	ONCOGENIC
PD7901a	Sub	13	28592642	C	G	30.5	256	FLT3_p.D835H	ONCOGENIC
PD9380a	Sub	13	28592642	C	A	41.4	290	FLT3_p.D835Y	ONCOGENIC
PD10918a	Sub	13	28592642	C	A	20.1	294	FLT3_p.D835Y	ONCOGENIC
PD9223a	Sub	13	28592642	C	A	42.3	213	FLT3_p.D835Y	ONCOGENIC
PD8379a	Sub	13	28592642	C	A	25.5	271	FLT3_p.D835Y	ONCOGENIC
PD7724a	Sub	13	28592642	C	A	24.9	354	FLT3_p.D835Y	ONCOGENIC
PD8116a	Sub	13	28592642	C	A	46.9	254	FLT3_p.D835Y	ONCOGENIC
PD7881a	Sub	13	28592642	C	G	20.5	352	FLT3_p.D835H	ONCOGENIC
PD7993a	Sub	13	28592642	C	A	6.59	258	FLT3_p.D835Y	ONCOGENIC
PD8137a	Sub	13	28592642	C	G	31.3	227	FLT3_p.D835H	ONCOGENIC
PD7618a	Sub	13	28592642	C	A	20.8	269	FLT3_p.D835Y	ONCOGENIC
PD8024a	Sub	13	28592642	C	A	47.1	244	FLT3_p.D835Y	ONCOGENIC
PD10814a	Sub	13	28592642	C	T	21.3	305	FLT3_p.D835N	ONCOGENIC
PD8580a	Sub	13	28592642	C	G	32.4	216	FLT3_p.D835H	ONCOGENIC
PD7821a	Sub	13	28592642	C	A	36.2	312	FLT3_p.D835Y	ONCOGENIC
PD11124a	Sub	13	28592642	C	A	40.9	203	FLT3_p.D835Y	ONCOGENIC
PD8033a	Sub	13	28592642	C	A	49.1	326	FLT3_p.D835Y	ONCOGENIC
PD10940a	Sub	13	28592642	C	A	32.9	325	FLT3_p.D835Y	ONCOGENIC
PD8319a	Sub	13	28592642	C	A	29.1	444	FLT3_p.D835Y	ONCOGENIC
PD8059a	Sub	13	28592642	C	A	5.1	196	FLT3_p.D835Y	ONCOGENIC
PD7974a	Sub	13	28592642	C	A	34.6	188	FLT3_p.D835Y	ONCOGENIC
PD7730a	Sub	13	28592642	C	A	12.4	274	FLT3_p.D835Y	ONCOGENIC
PD10984a	Sub	13	28592642	C	A	46.3	253	FLT3_p.D835Y	ONCOGENIC
PD8079a	Sub	13	28592642	C	A	8.33	288	FLT3_p.D835Y	ONCOGENIC
PD10850a	Sub	13	28592642	C	G	32	325	FLT3_p.D835H	ONCOGENIC
PD7805a	Sub	13	28592642	C	A	26.2	290	FLT3_p.D835Y	ONCOGENIC
PD7721a	Sub	13	28592642	C	A	20.8	250	FLT3_p.D835Y	ONCOGENIC
PD8474a	Sub	13	28592642	C	A	42.1	489	FLT3_p.D835Y	ONCOGENIC
PD7639a	Sub	13	28592642	C	A	8.91	258	FLT3_p.D835Y	ONCOGENIC

PD8260a	Sub	13	28592642	C	G	42.9	413	FLT3_p.D835H	ONCOGENIC
PD7901a	Sub	13	28592642	C	A	9.43	244	FLT3_p.D835Y	ONCOGENIC
PD8137a	Sub	13	28592642	C	A	10.2	216	FLT3_p.D835Y	ONCOGENIC
PD7868a	Sub	13	28592644	C	T	49.4	245	FLT3_p.R834Q	ONCOGENIC
PD9311a	Sub	13	28592689	A	G	13.8	247	FLT3_p.V819A	POSSIBLE
PD8483a	Sub	13	28592704	G	A	93.4	500	FLT3_p.A814V	POSSIBLE
PD11150a	Sub	13	28597555	T	C	5.05	396	FLT3_p.T784A	POSSIBLE
PD7827a	Sub	13	28597562	A	C	47.6	288	FLT3_p.N781K	POSSIBLE
PD8554a	Sub	13	28601244	G	A	5.95	168	FLT3_p.Q730*	POSSIBLE
PD8463a	Sub	13	28602329	G	A	32.6	227	FLT3_p.A680V	POSSIBLE
PD8328a	Sub	13	28602329	G	A	8.16	147	FLT3_p.A680V	POSSIBLE
PD11061a	Sub	13	28602329	G	A	47.1	138	FLT3_p.A680V	POSSIBLE
PD8216a	Sub	13	28602329	G	A	25	120	FLT3_p.A680V	POSSIBLE
PD8291a	Sub	13	28602329	G	A	13.3	211	FLT3_p.A680V	POSSIBLE
PD11086a	Sub	13	28602329	G	A	29.2	161	FLT3_p.A680V	POSSIBLE
PD8416a	Sub	13	28602329	G	A	17.7	79	FLT3_p.A680V	POSSIBLE
PD10907a	Sub	13	28602329	G	A	16.1	149	FLT3_p.A680V	POSSIBLE
PD11202a	Sub	13	28602329	G	A	6.47	170	FLT3_p.A680V	POSSIBLE
PD9285a	Sub	13	28602329	G	A	31.2	173	FLT3_p.A680V	POSSIBLE
PD8020a	Sub	13	28602340	G	T	8.2	61	FLT3_p.N676K	POSSIBLE
PD9343a	Sub	13	28602340	G	C	30.5	154	FLT3_p.N676K	POSSIBLE
PD11172a	Sub	13	28602340	G	T	35.6	146	FLT3_p.N676K	POSSIBLE
PD11073a	Sub	13	28602340	G	T	32.8	64	FLT3_p.N676K	POSSIBLE
PD11185a	Sub	13	28602340	G	T	39.1	238	FLT3_p.N676K	POSSIBLE
PD9206a	Sub	13	28602340	G	T	7.26	124	FLT3_p.N676K	POSSIBLE
PD8379a	Sub	13	28602340	G	T	18.8	138	FLT3_p.N676K	POSSIBLE
PD8386a	Sub	13	28602340	G	C	15.5	71	FLT3_p.N676K	POSSIBLE
PD10953a	Sub	13	28602340	G	T	10.4	144	FLT3_p.N676K	POSSIBLE
PD11093a	Sub	13	28602340	G	T	51.2	84	FLT3_p.N676K	POSSIBLE
PD9262a	Sub	13	28602340	G	T	84.7	124	FLT3_p.N676K	POSSIBLE
PD11239a	Sub	13	28602340	G	C	14.5	117	FLT3_p.N676K	POSSIBLE
PD7868a	Sub	13	28602340	G	T	7.38	122	FLT3_p.N676K	POSSIBLE
PD10925a	Sub	13	28602341	T	G	27.1	140	FLT3_p.N676T	POSSIBLE
PD10959a	Sub	13	28602376	C	A	43.5	108	FLT3_p.M664I	POSSIBLE
PD8071a	Sub	13	28602376	C	A	18.8	138	FLT3_p.M664I	POSSIBLE
PD7896a	Sub	13	28602376	C	T	12.6	87	FLT3_p.M664I	POSSIBLE
PD11244a	Sub	13	28602380	T	C	5.92	152	FLT3_p.K663R	POSSIBLE
PD7617a	Sub	13	28602391	C	T	40	100	FLT3_p.M659I	POSSIBLE
PD7864a	Sub	13	28608262	T	G	35.2	159	FLT3_p.E598D	POSSIBLE
PD9229a	Sub	13	28608276	A	C	26.4	295	FLT3_p.F594V	POSSIBLE
PD8203a	Sub	13	28608281	A	T	21.9	288	FLT3_p.V592D	ONCOGENIC
PD8202a	Sub	13	28608281	A	G	24.9	237	FLT3_p.V592A	ONCOGENIC
PD7864a	Sub	13	28608285	A	C	29.9	174	FLT3_p.Y591D	POSSIBLE
PD8504a	Sub	13	28608320	A	T	10.9	421	FLT3_p.V579E	POSSIBLE
PD9302a	Sub	13	28608323	A	G	31.3	262	FLT3_p.M578T	POSSIBLE
PD10907a	Sub	13	28608329	A	G	20.6	350	FLT3_p.L576P	POSSIBLE
PD11118a	Sub	13	28608333	G	C	4.4	250	FLT3_p.Q575E	POSSIBLE
PD8398a	Sub	13	28608341	T	C	18.3	344	FLT3_p.Y572C	ONCOGENIC
PD9247a	Sub	13	28608499	A	G	42.3	272	FLT3_p.I548T	POSSIBLE
PD8313a	Sub	13	28608500	T	C	47.7	172	FLT3_p.I548V	POSSIBLE
PD11024a	Sub	13	28609637	G	C	56.1	148	FLT3_p.S531C	POSSIBLE
PD7890a	Sub	13	28609637	G	C	47.2	229	FLT3_p.S531C	POSSIBLE
PD8396a	Sub	13	28609673	G	T	50.8	333	FLT3_p.S519Y	POSSIBLE
PD11090a	Sub	13	28609710	T	C	48.9	366	FLT3_p.I507V	POSSIBLE
PD8102a	Sub	13	28609710	T	C	47.8	435	FLT3_p.I507V	POSSIBLE

PD8280a	Sub	13	28609712	G	A	5.19	405	FLT3_p.A506V	POSSIBLE
PD7612a	Sub	13	28609748	T	A	15.4	293	FLT3_p.Q494L	POSSIBLE
PD9268a	Sub	13	28609758	C	A	20.7	372	FLT3_p.V491L	POSSIBLE
PD7959a	Sub	13	28609758	C	A	5.17	290	FLT3_p.V491L	POSSIBLE
PD10976a	Sub	13	28609758	C	G	4.67	321	FLT3_p.V491L	POSSIBLE
PD8336a	Sub	13	28609758	C	A	9.35	321	FLT3_p.V491L	POSSIBLE
PD8559a	Sub	13	28609758	C	G	6.77	310	FLT3_p.V491L	POSSIBLE
PD11113a	Sub	13	28609758	C	G	7.58	264	FLT3_p.V491L	POSSIBLE
PD8303a	Sub	13	28609758	C	G	12	450	FLT3_p.V491L	POSSIBLE
PD7990a	Sub	13	28609758	C	G	14.1	262	FLT3_p.V491L	POSSIBLE
PD7867a	Sub	13	28609758	C	A	4.4	318	FLT3_p.V491L	POSSIBLE
PD8113a	Sub	13	28609758	C	G	47.6	309	FLT3_p.V491L	POSSIBLE
PD11119a	Sub	13	28609758	C	A	33.3	165	FLT3_p.V491L	POSSIBLE
PD8376a	Sub	13	28609758	C	G	7.72	246	FLT3_p.V491L	POSSIBLE
PD10934a	Sub	13	28609758	C	G	20.1	399	FLT3_p.V491L	POSSIBLE
PD10950a	Sub	13	28609758	C	G	4.63	367	FLT3_p.V491L	POSSIBLE
PD7732a	Sub	13	28610138	G	A	5.62	409	FLT3_p.S451F	ONCOGENIC
PD9337a	Sub	13	28610138	G	A	15.1	450	FLT3_p.S451F	ONCOGENIC
PD7867a	Sub	13	28610138	G	A	26.7	360	FLT3_p.S451F	ONCOGENIC
PD7624a	Sub	13	28610138	G	A	48.6	245	FLT3_p.S451F	ONCOGENIC
PD10967a	Sub	13	28610159	T	A	4.57	394	FLT3_p.E444V	POSSIBLE
PD8472a	Sub	13	28610160	C	T	11.7	309	FLT3_p.E444K	POSSIBLE
PD7634a	Sub	13	48955432	G	A	20.4	147	RB1_p.W516*	POSSIBLE
PD11134a	Sub	13	49030387	G	A	44.3	440	RB1_p.R621H	POSSIBLE
PD9384a	Sub	13	49037945	A	G	50.6	316	RB1_p.K729E	POSSIBLE
PD11153a	Sub	13	49050869	G	A	7.86	280	RB1_p.M851I	POSSIBLE
PD7842a	Sub	13	49050870	G	A	7.61	197	RB1_p.V852I	POSSIBLE
PD10802a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10994a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8226a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8270a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8384a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11064a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8375a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8211a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8334a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8284a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8585a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8020a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11006a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10957a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8410a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9284a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9240a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9317a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9335a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9361a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8205a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9278a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10922a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11096a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10968a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9243a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9256a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9258a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC

PD9277a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11013a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11103a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9198a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9299a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9301a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8199a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9318a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9354a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9362a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9365a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9376a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9202a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9228a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9252a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9255a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9292a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8233a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9323a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9324a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9341a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9348a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9364a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9326a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9339a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9373a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9383a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9239a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8259a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9328a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7615a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7626a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7637a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7650a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7679a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7702a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7740a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7764a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7766a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8264a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7784a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7786a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7799a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7808a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7811a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7816a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7843a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7847a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7863a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7878a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8359a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7910a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7962a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7984a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7997a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC

PD8009a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8034a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8045a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8050a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8128a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8392a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8156a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8194a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8467a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8510a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7625a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7687a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7807a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7822a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7831a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8397a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7849a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7862a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7871a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7889a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7929a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7932a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7989a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7994a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10822a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8401a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7995a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8001a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8029a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8048a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8055a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8087a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8103a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8433a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8114a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8150a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8162a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8191a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD10804a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8562a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7670a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7689a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7733a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7737a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7800a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD10848a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7810a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7833a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7835a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7872a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7888a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7904a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7911a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7934a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7944a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8003a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8021a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8028a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8031a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8090a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8127a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8148a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD10869a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8543a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8551a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7854a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7879a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7899a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10883a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8190a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8192a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8470a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8494a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7662a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7905a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8238a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7945a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8083a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7791a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7942a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8004a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7667a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7978a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8266a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7749a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8018a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8014a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7756a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11256a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11199a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11245a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10868a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8285a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11263a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11176a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11195a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11212a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11248a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11262a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11280a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11287a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11131a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8339a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11162a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11192a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11197a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11233a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11246a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11129a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11250a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8344a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11150a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10987a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11171a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11221a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11232a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD8484a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD10884a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7890a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8398a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8355a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10819a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD10938a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9337a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7993a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8416a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD7793a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD9285a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8395a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8400a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8422a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8441a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10900a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD10800a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10803a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10812a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10829a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10853a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10870a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10880a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10896a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10906a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10916a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10943a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10944a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10947a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10972a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10975a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
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PD11045a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11048a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11052a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11076a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10926a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11098a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC

PD11111a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8269a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8276a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8301a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8316a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8322a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8324a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8337a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8374a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10951a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8380a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8413a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8435a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8438a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8448a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8582a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10855a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10895a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10905a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD11047a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10958a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8188a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8253a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8274a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8297a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8298a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8419a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8424a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8456a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10807a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10904a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10969a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD10981a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8323a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8346a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8363a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8417a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8436a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8210a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8225a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8256a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD8370a	ITD	13	na	na	na	na	na	FLT3_ITD	ONCOGENIC
PD7879a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD8064a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD7937a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD8478a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD7884a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD7938a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD8035a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD7636a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD8559a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD7880a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD11166a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD11216a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD11095a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC

PD10910a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD10841a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD10871a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD8212a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD10796a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD9276a	Sub	13	na	na	na	na	na	FLT3_p.D835	ONCOGENIC
PD11273a	Sub	15	90631835	T	A	10	50	IDH2_p.H173L	POSSIBLE
PD10992a	Sub	15	90631838	C	T	40	40	IDH2_p.R172K	ONCOGENIC
PD10965a	Sub	15	90631838	C	T	46.3	41	IDH2_p.R172K	ONCOGENIC
PD10816a	Sub	15	90631838	C	T	53.7	41	IDH2_p.R172K	ONCOGENIC
PD8166a	Sub	15	90631838	C	T	50	6	IDH2_p.R172K	ONCOGENIC
PD10882a	Sub	15	90631838	C	T	38.5	52	IDH2_p.R172K	ONCOGENIC
PD11144a	Sub	15	90631838	C	T	52.4	42	IDH2_p.R172K	ONCOGENIC
PD10849a	Sub	15	90631838	C	T	58.8	51	IDH2_p.R172K	ONCOGENIC
PD7741a	Sub	15	90631838	C	T	23.5	17	IDH2_p.R172K	ONCOGENIC
PD8062a	Sub	15	90631838	C	T	12.2	49	IDH2_p.R172K	ONCOGENIC
PD10810a	Sub	15	90631838	C	T	50	40	IDH2_p.R172K	ONCOGENIC
PD7850a	Sub	15	90631838	C	T	37.9	29	IDH2_p.R172K	ONCOGENIC
PD7907a	Sub	15	90631838	C	T	35.7	42	IDH2_p.R172K	ONCOGENIC
PD11003a	Sub	15	90631838	C	T	50	64	IDH2_p.R172K	ONCOGENIC
PD9316a	Sub	15	90631838	C	T	50	46	IDH2_p.R172K	ONCOGENIC
PD10839a	Sub	15	90631838	C	T	37.5	32	IDH2_p.R172K	ONCOGENIC
PD11131a	Sub	15	90631838	C	T	32.6	43	IDH2_p.R172K	ONCOGENIC
PD7976a	Sub	15	90631838	C	T	48.8	43	IDH2_p.R172K	ONCOGENIC
PD11269a	Sub	15	90631838	C	T	21.1	71	IDH2_p.R172K	ONCOGENIC
PD7720a	Sub	15	90631838	C	T	31.3	32	IDH2_p.R172K	ONCOGENIC
PD8040a	Sub	15	90631838	C	T	48.7	37	IDH2_p.R172K	ONCOGENIC
PD7913a	Sub	15	90631838	C	T	48.5	33	IDH2_p.R172K	ONCOGENIC
PD11253a	Sub	15	90631838	C	T	40	20	IDH2_p.R172K	ONCOGENIC
PD11014a	Sub	15	90631838	C	T	33.3	42	IDH2_p.R172K	ONCOGENIC
PD8147a	Sub	15	90631838	C	T	61.1	18	IDH2_p.R172K	ONCOGENIC
PD11074a	Sub	15	90631838	C	T	66.7	33	IDH2_p.R172K	ONCOGENIC
PD8364a	Sub	15	90631838	C	T	39.3	61	IDH2_p.R172K	ONCOGENIC
PD7743a	Sub	15	90631838	C	T	20	25	IDH2_p.R172K	ONCOGENIC
PD8343a	Sub	15	90631838	C	T	22.7	22	IDH2_p.R172K	ONCOGENIC
PD10941a	Sub	15	90631838	C	T	47.8	46	IDH2_p.R172K	ONCOGENIC
PD10901a	Sub	15	90631838	C	T	25	28	IDH2_p.R172K	ONCOGENIC
PD11035a	Sub	15	90631838	C	T	46.9	32	IDH2_p.R172K	ONCOGENIC
PD11004a	Sub	15	90631838	C	T	36.1	61	IDH2_p.R172K	ONCOGENIC
PD11278a	Sub	15	90631838	C	T	9.23	65	IDH2_p.R172K	ONCOGENIC
PD7885a	Sub	15	90631838	C	T	38.5	39	IDH2_p.R172K	ONCOGENIC
PD8161a	Sub	15	90631838	C	T	25	28	IDH2_p.R172K	ONCOGENIC
PD11166a	Sub	15	90631838	C	T	30.8	26	IDH2_p.R172K	ONCOGENIC
PD9201a	Sub	15	90631838	C	T	29	38	IDH2_p.R172K	ONCOGENIC
PD8214a	Sub	15	90631838	C	T	37	73	IDH2_p.R172K	ONCOGENIC
PD8252a	Sub	15	90631838	C	T	59.3	59	IDH2_p.R172K	ONCOGENIC
PD8295a	Sub	15	90631839	T	A	26.3	57	IDH2_p.R172W	ONCOGENIC
PD10988a	Sub	15	90631934	C	T	44.6	92	IDH2_p.R140Q	ONCOGENIC
PD11145a	Sub	15	90631934	C	T	41.5	41	IDH2_p.R140Q	ONCOGENIC
PD9268a	Sub	15	90631934	C	T	51.1	47	IDH2_p.R140Q	ONCOGENIC
PD11122a	Sub	15	90631934	C	T	37.5	56	IDH2_p.R140Q	ONCOGENIC
PD8193a	Sub	15	90631934	C	T	23.5	34	IDH2_p.R140Q	ONCOGENIC
PD8144a	Sub	15	90631934	C	T	60.4	48	IDH2_p.R140Q	ONCOGENIC
PD11226a	Sub	15	90631934	C	T	35.1	114	IDH2_p.R140Q	ONCOGENIC
PD11176a	Sub	15	90631934	C	T	45.3	75	IDH2_p.R140Q	ONCOGENIC

PD8328a	Sub	15	90631934	C	T	50	56	IDH2_p.R140Q	ONCOGENIC
PD11032a	Sub	15	90631934	C	T	63.8	58	IDH2_p.R140Q	ONCOGENIC
PD11029a	Sub	15	90631934	C	T	15.8	38	IDH2_p.R140Q	ONCOGENIC
PD11159a	Sub	15	90631934	C	T	61.3	31	IDH2_p.R140Q	ONCOGENIC
PD8172a	Sub	15	90631934	C	T	48.9	47	IDH2_p.R140Q	ONCOGENIC
PD11114a	Sub	15	90631934	C	T	35.3	34	IDH2_p.R140Q	ONCOGENIC
PD8554a	Sub	15	90631934	C	T	81.8	22	IDH2_p.R140Q	ONCOGENIC
PD11190a	Sub	15	90631934	C	T	41.9	31	IDH2_p.R140Q	ONCOGENIC
PD10997a	Sub	15	90631934	C	T	43.8	73	IDH2_p.R140Q	ONCOGENIC
PD7977a	Sub	15	90631934	C	T	45.5	55	IDH2_p.R140Q	ONCOGENIC
PD8052a	Sub	15	90631934	C	T	52.6	38	IDH2_p.R140Q	ONCOGENIC
PD8060a	Sub	15	90631934	C	T	30.4	46	IDH2_p.R140Q	ONCOGENIC
PD8317a	Sub	15	90631934	C	T	31.4	70	IDH2_p.R140Q	ONCOGENIC
PD8472a	Sub	15	90631934	C	T	7.04	213	IDH2_p.R140Q	ONCOGENIC
PD9292a	Sub	15	90631934	C	T	44.9	49	IDH2_p.R140Q	ONCOGENIC
PD11184a	Sub	15	90631934	C	T	27	37	IDH2_p.R140Q	ONCOGENIC
PD11024a	Sub	15	90631934	C	T	48.5	33	IDH2_p.R140Q	ONCOGENIC
PD8015a	Sub	15	90631934	C	T	30.4	46	IDH2_p.R140Q	ONCOGENIC
PD8118a	Sub	15	90631934	C	T	40	35	IDH2_p.R140Q	ONCOGENIC
PD8412a	Sub	15	90631934	C	T	15.9	44	IDH2_p.R140Q	ONCOGENIC
PD8583a	Sub	15	90631934	C	T	52.9	34	IDH2_p.R140Q	ONCOGENIC
PD7982a	Sub	15	90631934	C	T	42.3	26	IDH2_p.R140Q	ONCOGENIC
PD7988a	Sub	15	90631934	C	T	48.7	39	IDH2_p.R140Q	ONCOGENIC
PD11244a	Sub	15	90631934	C	T	36.4	33	IDH2_p.R140Q	ONCOGENIC
PD8291a	Sub	15	90631934	C	T	40.3	72	IDH2_p.R140Q	ONCOGENIC
PD8153a	Sub	15	90631934	C	T	31.9	47	IDH2_p.R140Q	ONCOGENIC
PD11276a	Sub	15	90631934	C	T	52.2	92	IDH2_p.R140Q	ONCOGENIC
PD8282a	Sub	15	90631934	C	T	25.6	43	IDH2_p.R140Q	ONCOGENIC
PD9340a	Sub	15	90631934	C	T	36.8	57	IDH2_p.R140Q	ONCOGENIC
PD7946a	Sub	15	90631934	C	T	43.4	53	IDH2_p.R140Q	ONCOGENIC
PD8023a	Sub	15	90631934	C	T	50	50	IDH2_p.R140Q	ONCOGENIC
PD8441a	Sub	15	90631934	C	T	24.7	81	IDH2_p.R140Q	ONCOGENIC
PD8506a	Sub	15	90631934	C	T	39.5	38	IDH2_p.R140Q	ONCOGENIC
PD7621a	Sub	15	90631934	C	T	46.8	62	IDH2_p.R140Q	ONCOGENIC
PD10918a	Sub	15	90631934	C	T	19.4	36	IDH2_p.R140Q	ONCOGENIC
PD11236a	Sub	15	90631934	C	T	14.3	35	IDH2_p.R140Q	ONCOGENIC
PD8253a	Sub	15	90631934	C	T	49	104	IDH2_p.R140Q	ONCOGENIC
PD7739a	Sub	15	90631934	C	T	52.5	40	IDH2_p.R140Q	ONCOGENIC
PD10983a	Sub	15	90631934	C	T	52	50	IDH2_p.R140Q	ONCOGENIC
PD7909a	Sub	15	90631934	C	T	50	40	IDH2_p.R140Q	ONCOGENIC
PD8219a	Sub	15	90631934	C	T	51.9	52	IDH2_p.R140Q	ONCOGENIC
PD8091a	Sub	15	90631934	C	T	16.1	56	IDH2_p.R140Q	ONCOGENIC
PD11117a	Sub	15	90631934	C	T	50	14	IDH2_p.R140Q	ONCOGENIC
PD9249a	Sub	15	90631934	C	T	48.2	27	IDH2_p.R140Q	ONCOGENIC
PD10973a	Sub	15	90631934	C	T	41.5	41	IDH2_p.R140Q	ONCOGENIC
PD11094a	Sub	15	90631934	C	T	34.6	26	IDH2_p.R140Q	ONCOGENIC
PD11231a	Sub	15	90631934	C	T	34.6	26	IDH2_p.R140Q	ONCOGENIC
PD8057a	Sub	15	90631934	C	T	33.9	56	IDH2_p.R140Q	ONCOGENIC
PD8131a	Sub	15	90631934	C	T	48.7	37	IDH2_p.R140Q	ONCOGENIC
PD10966a	Sub	15	90631934	C	T	57.8	45	IDH2_p.R140Q	ONCOGENIC
PD9239a	Sub	15	90631934	C	T	47.2	36	IDH2_p.R140Q	ONCOGENIC
PD11268a	Sub	15	90631934	C	T	29.2	120	IDH2_p.R140Q	ONCOGENIC
PD7981a	Sub	15	90631934	C	T	59.6	52	IDH2_p.R140Q	ONCOGENIC
PD10954a	Sub	15	90631934	C	T	21.9	32	IDH2_p.R140Q	ONCOGENIC
PD7670a	Sub	15	90631934	C	T	32.8	58	IDH2_p.R140Q	ONCOGENIC

PD9254a	Sub	15	90631934	C	T	25.7	35	IDH2_p.R140Q	ONCOGENIC
PD8307a	Sub	15	90631934	C	T	25	56	IDH2_p.R140Q	ONCOGENIC
PD8218a	Sub	15	90631934	C	T	35.9	39	IDH2_p.R140Q	ONCOGENIC
PD8494a	Sub	15	90631934	C	T	49.5	95	IDH2_p.R140Q	ONCOGENIC
PD10905a	Sub	15	90631934	C	T	42.1	57	IDH2_p.R140Q	ONCOGENIC
PD10939a	Sub	15	90631934	C	T	35.9	53	IDH2_p.R140Q	ONCOGENIC
PD8185a	Sub	15	90631934	C	T	54.2	48	IDH2_p.R140Q	ONCOGENIC
PD10872a	Sub	15	90631934	C	T	33.3	39	IDH2_p.R140Q	ONCOGENIC
PD11186a	Sub	15	90631934	C	T	48.7	37	IDH2_p.R140Q	ONCOGENIC
PD8228a	Sub	15	90631934	C	T	37.5	56	IDH2_p.R140Q	ONCOGENIC
PD7956a	Sub	15	90631934	C	T	45.5	44	IDH2_p.R140Q	ONCOGENIC
PD7643a	Sub	15	90631934	C	T	47	83	IDH2_p.R140Q	ONCOGENIC
PD10999a	Sub	15	90631934	C	T	45.5	55	IDH2_p.R140Q	ONCOGENIC
PD11162a	Sub	15	90631934	C	T	65.3	49	IDH2_p.R140Q	ONCOGENIC
PD7631a	Sub	15	90631934	C	T	24.6	61	IDH2_p.R140Q	ONCOGENIC
PD11054a	Sub	15	90631934	C	T	61.4	44	IDH2_p.R140Q	ONCOGENIC
PD8112a	Sub	15	90631934	C	T	54.4	57	IDH2_p.R140Q	ONCOGENIC
PD9253a	Sub	15	90631934	C	T	31	29	IDH2_p.R140Q	ONCOGENIC
PD8241a	Sub	15	90631934	C	T	33.3	69	IDH2_p.R140Q	ONCOGENIC
PD7824a	Sub	15	90631934	C	T	40.3	67	IDH2_p.R140Q	ONCOGENIC
PD8187a	Sub	15	90631934	C	T	16.7	36	IDH2_p.R140Q	ONCOGENIC
PD10825a	Sub	15	90631934	C	T	11.5	52	IDH2_p.R140Q	ONCOGENIC
PD8044a	Sub	15	90631934	C	T	43.3	30	IDH2_p.R140Q	ONCOGENIC
PD9220a	Sub	15	90631934	C	T	25	24	IDH2_p.R140Q	ONCOGENIC
PD8578a	Sub	15	90631934	C	T	46.4	28	IDH2_p.R140Q	ONCOGENIC
PD9350a	Sub	15	90631934	C	T	53.9	26	IDH2_p.R140Q	ONCOGENIC
PD8079a	Sub	15	90631934	C	T	46.2	39	IDH2_p.R140Q	ONCOGENIC
PD8424a	Sub	15	90631934	C	T	27.2	81	IDH2_p.R140Q	ONCOGENIC
PD11134a	Sub	15	90631934	C	T	57.7	26	IDH2_p.R140Q	ONCOGENIC
PD8376a	Sub	15	90631934	C	T	52.4	21	IDH2_p.R140Q	ONCOGENIC
PD9248a	Sub	15	90631934	C	T	32.4	37	IDH2_p.R140Q	ONCOGENIC
PD8473a	Sub	15	90631934	C	T	33.3	114	IDH2_p.R140Q	ONCOGENIC
PD8176a	Sub	15	90631934	C	T	52.8	53	IDH2_p.R140Q	ONCOGENIC
PD10820a	Sub	15	90631934	C	T	43.8	32	IDH2_p.R140Q	ONCOGENIC
PD10891a	Sub	15	90631934	C	T	57.1	21	IDH2_p.R140Q	ONCOGENIC
PD10974a	Sub	15	90631934	C	T	15.5	58	IDH2_p.R140Q	ONCOGENIC
PD11261a	Sub	15	90631934	C	T	54.6	22	IDH2_p.R140Q	ONCOGENIC
PD7781a	Sub	15	90631934	C	T	41.9	86	IDH2_p.R140Q	ONCOGENIC
PD10897a	Sub	15	90631934	C	T	22.5	49	IDH2_p.R140Q	ONCOGENIC
PD7942a	Sub	15	90631934	C	T	62.9	35	IDH2_p.R140Q	ONCOGENIC
PD11170a	Sub	15	90631934	C	T	45.1	51	IDH2_p.R140Q	ONCOGENIC
PD11216a	Sub	15	90631934	C	T	46.7	15	IDH2_p.R140Q	ONCOGENIC
PD8008a	Sub	15	90631934	C	T	61.1	36	IDH2_p.R140Q	ONCOGENIC
PD11229a	Sub	15	90631934	C	T	56	25	IDH2_p.R140Q	ONCOGENIC
PD8550a	Sub	15	90631934	C	T	44.1	34	IDH2_p.R140Q	ONCOGENIC
PD8571a	Sub	15	90631935	G	A	53.9	39	IDH2_p.R140W	ONCOGENIC
PD9307a	Sub	15	90631935	G	C	34	50	IDH2_p.R140G	ONCOGENIC
PD11144a	Sub	15	90631946	T	C	23	61	IDH2_p.N136S	POSSIBLE
PD10941a	Sub	16	3779482	G	A	20	55	CREBBP_p.Q1856*	ONCOGENIC
PD11131a	Sub	16	3779764	T	A	37.9	66	CREBBP_p.K1762*	ONCOGENIC
PD8289a	Sub	16	3779814	C	T	17.2	58	CREBBP_p.W1745*	ONCOGENIC
PD11177a	Sub	16	3789613	C	A	36	100	CREBBP_p.E1416*	ONCOGENIC
PD9364a	Sub	16	3789726	C	T	19.6	46	CREBBP_NA	ONCOGENIC
PD11234a	Sub	16	3823897	G	A	42.7	82	CREBBP_p.P773L	ONCOGENIC
PD8138a	Sub	16	3824569	C	T	9.23	195	CREBBP_NA	POSSIBLE

PD7726a	Sub	16	3830776	C	A	38.7	150	CREBBP_p.E594*	ONCOGENIC
PD11148a	Sub	16	3832757	G	A	8.7	161	CREBBP_p.Q501*	ONCOGENIC
PD8203a	Sub	16	3843382	C	T	43.3	104	CREBBP_NA	POSSIBLE
PD11020a	D	17	7572955	a	-	53.7	82	TP53_p.F385fs*37	ONCOGENIC
PD9227a	Sub	17	7574003	G	A	44.4	133	TP53_p.R342*	ONCOGENIC
PD8552a	I	17	7574004	-	A	27.8	97	TP53_p.R342fs*5	ONCOGENIC
PD8310a	Sub	17	7574034	C	T	87.9	141	TP53_NA	POSSIBLE
PD11169a	Sub	17	7576852	C	T	89.9	286	TP53_NA	POSSIBLE
PD9317a	Sub	17	7577069	C	T	45.7	197	TP53_p.R290H	ONCOGENIC
PD7867a	Sub	17	7577090	C	T	48	250	TP53_p.R283H	ONCOGENIC
PD11194a	Sub	17	7577097	C	T	89.6	106	TP53_p.D281N	ONCOGENIC
PD9355a	Sub	17	7577106	G	A	27	319	TP53_p.P278S	ONCOGENIC
PD9260a	Sub	17	7577112	C	G	5.78	173	TP53_p.A276P	ONCOGENIC
PD8333a	Sub	17	7577114	C	T	86.5	89	TP53_p.C275Y	ONCOGENIC
PD7836a	Sub	17	7577115	A	G	33.9	192	TP53_p.C275R	ONCOGENIC
PD11226a	Sub	17	7577120	C	T	81.2	500	TP53_p.R273H	ONCOGENIC
PD7717a	Sub	17	7577120	C	T	37.9	177	TP53_p.R273H	ONCOGENIC
PD8418a	Sub	17	7577120	C	T	8.79	239	TP53_p.R273H	ONCOGENIC
PD8189a	Sub	17	7577121	G	A	13.7	131	TP53_p.R273C	ONCOGENIC
PD11012a	Sub	17	7577121	G	A	89.5	76	TP53_p.R273C	ONCOGENIC
PD11200a	Sub	17	7577121	G	A	76	50	TP53_p.R273C	ONCOGENIC
PD8312a	Sub	17	7577121	G	A	71	296	TP53_p.R273C	ONCOGENIC
PD7829a	Sub	17	7577124	C	T	34.4	192	TP53_p.V272M	ONCOGENIC
PD7806a	Sub	17	7577124	C	T	14.9	202	TP53_p.V272M	ONCOGENIC
PD7814a	Sub	17	7577138	C	G	25.5	208	TP53_p.R267P	ONCOGENIC
PD9237a	Sub	17	7577139	G	A	46.4	110	TP53_p.R267W	ONCOGENIC
PD9227a	Sub	17	7577142	C	G	46.3	160	TP53_p.G266R	ONCOGENIC
PD7752a	Sub	17	7577144	A	G	90.9	77	TP53_p.L265P	ONCOGENIC
PD11178a	Sub	17	7577153	C	A	43.7	158	TP53_p.G262V	ONCOGENIC
PD8145a	Sub	17	7577508	T	G	23.3	116	TP53_p.E258A	ONCOGENIC
PD9357a	Sub	17	7577520	A	T	5.15	233	TP53_p.I254N	ONCOGENIC
PD7682a	Sub	17	7577521	T	C	53.3	137	TP53_p.I254V	ONCOGENIC
PD11068a	Sub	17	7577538	C	T	77.7	184	TP53_p.R248Q	ONCOGENIC
PD8537a	Sub	17	7577538	C	T	94.1	101	TP53_p.R248Q	ONCOGENIC
PD8227a	Sub	17	7577538	C	T	88	167	TP53_p.R248Q	ONCOGENIC
PD10963a	Sub	17	7577538	C	T	83.8	253	TP53_p.R248Q	ONCOGENIC
PD9260a	Sub	17	7577538	C	T	12.8	218	TP53_p.R248Q	ONCOGENIC
PD11085a	Sub	17	7577538	C	T	77.2	92	TP53_p.R248Q	ONCOGENIC
PD9230a	Sub	17	7577538	C	T	77.7	193	TP53_p.R248Q	ONCOGENIC
PD10931a	Sub	17	7577539	G	A	47.2	180	TP53_p.R248W	ONCOGENIC
PD8099a	Sub	17	7577539	G	A	64.4	87	TP53_p.R248W	ONCOGENIC
PD11288a	Sub	17	7577547	C	T	54.1	122	TP53_p.G245D	ONCOGENIC
PD11015a	Sub	17	7577547	C	T	22.5	129	TP53_p.G245D	ONCOGENIC
PD11138a	Sub	17	7577556	C	G	29	176	TP53_p.C242S	ONCOGENIC
PD7931a	Sub	17	7577559	G	A	72.3	101	TP53_p.S241F	ONCOGENIC
PD7744a	Sub	17	7577559	G	A	84.4	115	TP53_p.S241F	ONCOGENIC
PD7869a	Sub	17	7577559	G	T	69.8	116	TP53_p.S241Y	ONCOGENIC
PD10990a	Sub	17	7577559	G	A	7.69	221	TP53_p.S241F	ONCOGENIC
PD7795a	Sub	17	7577559	G	A	7.2	250	TP53_p.S241F	ONCOGENIC
PD11223a	Sub	17	7577566	T	C	57	128	TP53_p.N239D	ONCOGENIC
PD11175a	Sub	17	7577566	T	C	93.2	176	TP53_p.N239D	ONCOGENIC
PD9217a	Sub	17	7577568	C	T	96.3	300	TP53_p.C238Y	ONCOGENIC
PD11168a	Sub	17	7577570	C	T	15.5	374	TP53_p.M237I	ONCOGENIC
PD8054a	Sub	17	7577570	C	T	79.4	97	TP53_p.M237I	ONCOGENIC
PD7966a	Sub	17	7577570	C	T	73.7	148	TP53_p.M237I	ONCOGENIC

PD11056a	Sub	17	7577571	A	T	94.5	201	TP53_p.M237K	ONCOGENIC
PD8485a	Sub	17	7577580	T	C	68	234	TP53_p.Y234C	ONCOGENIC
PD9312a	Sub	17	7577609	C	T	20.6	73	TP53_NA	ONCOGENIC
PD10919a	Sub	17	7578182	G	A	4.66	386	TP53_p.P223S	ONCOGENIC
PD11154a	Sub	17	7578190	T	C	72.1	161	TP53_p.Y220C	ONCOGENIC
PD8577a	Sub	17	7578190	T	C	30.8	234	TP53_p.Y220C	ONCOGENIC
PD11044a	Sub	17	7578190	T	C	33.2	184	TP53_p.Y220C	ONCOGENIC
PD9270a	Sub	17	7578190	T	C	37.6	101	TP53_p.Y220C	ONCOGENIC
PD11257a	Sub	17	7578190	T	C	64.2	338	TP53_p.Y220C	ONCOGENIC
PD9211a	Sub	17	7578191	A	G	62.7	158	TP53_p.Y220H	ONCOGENIC
PD11066a	Sub	17	7578204	A	C	11	272	TP53_p.S215R	ONCOGENIC
PD11213a	Sub	17	7578204	A	C	27	226	TP53_p.S215R	ONCOGENIC
PD11143a	Sub	17	7578212	G	A	87.2	297	TP53_p.R213*	ONCOGENIC
PD8390a	Sub	17	7578236	A	C	9.96	251	TP53_p.Y205D	ONCOGENIC
PD8066a	Sub	17	7578241	A	T	31.8	236	TP53_p.V203E	ONCOGENIC
PD9260a	Sub	17	7578262	C	T	14	186	TP53_p.R196Q	ONCOGENIC
PD11102a	Sub	17	7578265	A	T	49.5	95	TP53_p.I195N	ONCOGENIC
PD9267a	Sub	17	7578266	T	A	84.8	223	TP53_p.I195F	ONCOGENIC
PD11160a	Sub	17	7578272	G	T	69.9	153	TP53_p.H193N	ONCOGENIC
PD11213a	Sub	17	7578290	C	T	19.4	144	TP53_NA	ONCOGENIC
PD11178a	D	17	7578369	accat	-	52	75	TP53_p.?	ONCOGENIC
PD10909a	Sub	17	7578403	C	A	69.7	89	TP53_p.C176F	ONCOGENIC
PD10903a	Sub	17	7578406	C	T	77	113	TP53_p.R175H	ONCOGENIC
PD9259a	Sub	17	7578406	C	T	71.9	57	TP53_p.R175H	ONCOGENIC
PD9312a	Sub	17	7578406	C	T	22.9	35	TP53_p.R175H	ONCOGENIC
PD9379a	Sub	17	7578406	C	T	28.9	83	TP53_p.R175H	ONCOGENIC
PD9291a	Sub	17	7578406	C	T	71.6	67	TP53_p.R175H	ONCOGENIC
PD8576a	Sub	17	7578406	C	T	89	91	TP53_p.R175H	ONCOGENIC
PD8457a	Sub	17	7578406	C	T	13.4	164	TP53_p.R175H	ONCOGENIC
PD9368a	Sub	17	7578413	C	A	88	100	TP53_p.V173L	ONCOGENIC
PD8578a	Sub	17	7578427	T	G	94.4	36	TP53_p.H168P	ONCOGENIC
PD10840a	Sub	17	7578437	G	A	36.6	71	TP53_p.Q165*	ONCOGENIC
PD7983a	Sub	17	7578437	G	A	91.5	47	TP53_p.Q165*	ONCOGENIC
PD11168a	Sub	17	7578440	T	C	16.2	154	TP53_p.K164E	ONCOGENIC
PD7698a	Sub	17	7578440	T	C	58.8	51	TP53_p.K164E	ONCOGENIC
PD9216a	Sub	17	7578442	T	C	58.9	56	TP53_p.Y163C	ONCOGENIC
PD7735a	Sub	17	7578442	T	C	96.8	31	TP53_p.Y163C	ONCOGENIC
PD11215a	D	17	7578458	g	-	16.4	55	TP53_p.R158fs*12	ONCOGENIC
PD8141a	Sub	17	7578469	C	T	12.5	48	TP53_p.G154D	ONCOGENIC
PD7924a	D	17	7578491	c	-	90	40	TP53_p.V147fs*23	ONCOGENIC
PD11154a	Sub	17	7578492	C	T	7.69	78	TP53_p.W146*	ONCOGENIC
PD9309a	Sub	17	7578493	C	T	17.3	156	TP53_p.W146*	ONCOGENIC
PD8280a	Sub	17	7578503	C	T	8.7	69	TP53_p.V143M	ONCOGENIC
PD7711a	Sub	17	7578511	G	T	44.2	86	TP53_p.T140N	ONCOGENIC
PD8496a	Sub	17	7578530	A	T	54.4	103	TP53_p.F134I	ONCOGENIC
PD8122a	Sub	17	7578535	T	C	76.7	30	TP53_p.K132R	ONCOGENIC
PD9260a	Sub	17	7578535	T	C	38.6	83	TP53_p.K132R	ONCOGENIC
PD11030a	Sub	17	7578542	G	C	12.2	49	TP53_p.L130V	ONCOGENIC
PD11277a	Sub	17	7578542	G	C	58.5	41	TP53_p.L130V	ONCOGENIC
PD7949a	Sub	17	7578555	C	T	89.2	37	TP53_NA	ONCOGENIC
PD8026a	Sub	17	7578556	T	C	78.1	32	TP53_NA	ONCOGENIC
PD11247a	Sub	17	7579358	C	A	34.9	43	TP53_p.R110L	ONCOGENIC
PD11264a	Sub	17	7579361	A	C	41.2	34	TP53_p.F109C	ONCOGENIC
PD11215a	I	17	7579366	-	T	25.5	47	TP53_p.Y107fs*1	ONCOGENIC
PD8083a	Sub	17	7579527	A	G	16.9	124	TP53_p.F54L	ONCOGENIC

PD7968a	Sub	17	7579528	C	T	97	66	TP53_p.W53*	ONCOGENIC
PD11152a	Sub	17	7579533	G	A	84.1	157	TP53_p.Q52*	ONCOGENIC
PD7662a	Sub	17	7579882	C	T	52.6	249	TP53_p.E11K	ONCOGENIC
PD11151a	Sub	17	7579888	T	C	15.7	70	TP53_p.S9G	ONCOGENIC
PD8267a	D	17	29483087	c	-	34.3	420	NF1_p.Y49fs*1	ONCOGENIC
PD7881a	I	17	29486060	-	T	23.7	114	NF1_p.Y80fs*27	ONCOGENIC
PD9270a	I	17	29490389	-	T	37	46	NF1_p.T159fs*15	ONCOGENIC
PD7967a	Sub	17	29508735	G	A	32.4	71	NF1_p.W221*	ONCOGENIC
PD8583a	Sub	17	29533378	C	T	18	161	NF1_p.R461*	ONCOGENIC
PD10826a	Sub	17	29541543	T	A	81.8	77	NF1_p.Y489*	ONCOGENIC
PD9300a	Sub	17	29552221	C	T	14.1	446	NF1_p.R652C	POSSIBLE
PD11085a	I	17	29553583	-	TCC	49.2	124	NF1_p.R711_H712ins	ONCOGENIC
PD11009a	I	17	29553634	-	CAGT	30.4	289	NF1_p.H729fs*3	ONCOGENIC
PD8036a	Sub	17	29553697	C	A	11.8	272	NF1_p.S749*	ONCOGENIC
PD8242a	Sub	17	29554283	G	T	4.55	264	NF1_p.E767*	ONCOGENIC
PD9319a	Sub	17	29554571	C	T	41.1	168	NF1_p.Q786*	ONCOGENIC
PD10929a	D	17	29556114	t	-	20.2	252	NF1_p.L828fs*13	ONCOGENIC
PD11154a	I	17	29556389	-	AAGA	8.48	165	NF1_p.D919fs*18	ONCOGENIC
PD9269a	Sub	17	29556877	C	T	25	212	NF1_p.Q959*	ONCOGENIC
PD11154a	I	17	29557939	-	A	8.45	213	NF1_p.T1065fs*24	ONCOGENIC
PD8154a	I	17	29557945	-	A	31.9	342	NF1_p.?	ONCOGENIC
PD8445a	I	17	29559128	-	T	45.1	144	NF1_p.L1080fs*9	ONCOGENIC
PD9228a	Sub	17	29560043	C	T	8.24	461	NF1_p.Q1174*	ONCOGENIC
PD7992a	Sub	17	29560071	T	C	43.7	428	NF1_p.L1183P	POSSIBLE
PD8237a	Sub	17	29562641	C	T	72.4	228	NF1_p.R1241*	ONCOGENIC
PD11179a	Sub	17	29563007	G	A	4.64	431	NF1_p.W1314*	ONCOGENIC
PD8547a	I	17	29585393	-	CGGCC	25	116	NF1_p.A1404fs*4	ONCOGENIC
PD9279a	I	17	29587399	-	GGGGAC	13.3	83	NF1_p.I1482fs*6	ONCOGENIC
PD8267a	I	17	29587473	-	TTTA	39.3	239	NF1_p.H1508fs*23	ONCOGENIC
PD8161a	Sub	17	29588751	C	T	23.3	215	NF1_p.R1534*	ONCOGENIC
PD11008a	D	17	29592294	gtatt	-	30.6	183	NF1_p.S1591fs*24	ONCOGENIC
PD9268a	I	17	29652909	-	AA	21.3	197	NF1_p.P1638fs*6	ONCOGENIC
PD7646a	D	17	29653198	t	-	46.6	148	NF1_p.L1733fs*1	ONCOGENIC
PD11011a	Sub	17	29654664	C	T	47.8	255	NF1_p.Q1806*	ONCOGENIC
PD10879a	I	17	29661982	-	A	83	88	NF1_p.M1981fs*5	ONCOGENIC
PD11000a	I	17	29661995	-	CCATCAA	23.3	43	NF1_p.E1985fs*30	ONCOGENIC
PD7967a	I	17	29663398	-	GC	18.8	85	NF1_p.T2020fs*8	ONCOGENIC
PD8353a	I	17	29663739	-	G	26.4	91	NF1_p.A2079fs*17	ONCOGENIC
PD8257a	Sub	17	29665110	C	T	30.6	160	NF1_p.R2258*	ONCOGENIC
PD10950a	Sub	17	29665110	C	T	20.5	132	NF1_p.R2258*	ONCOGENIC
PD7646a	Sub	17	29667527	C	A	35.9	209	NF1_p.S2309*	ONCOGENIC
PD8149a	D	17	29667528	g	-	93.2	176	NF1_p.P2310fs*9	ONCOGENIC
PD11049a	Sub	17	29684004	C	T	50.7	207	NF1_p.Q2589*	ONCOGENIC
PD9251a	Sub	17	29685622	C	T	4.54	485	NF1_p.Q2699*	ONCOGENIC
PD7675a	D	17	74732401	tggac	-	38.5	78	SRSF2_p.R168_S169d	ONCOGENIC
PD7838a	D	17	74732896	ccgta	-	100	2	SRSF2_p.?	ONCOGENIC
PD8057a	D	17	74732936	ggcgg	-	3.33	30	SRSF2_p.P95_R102de	ONCOGENIC
PD8241a	D	17	74732936	ggcgg	-	7	13	SRSF2_p.P95_R102de	ONCOGENIC
PD7982a	D	17	74732936	ggcgg	-	20	5	SRSF2_p.P95_R102de	ONCOGENIC
PD11145a	D	17	74732936	ggcgg	-	27.3	11	SRSF2_p.P95_R102de	ONCOGENIC
PD8371a	D	17	74732936	ggcgg	-	28.6	7	SRSF2_p.P95_R102de	ONCOGENIC
PD11249a	D	17	74732936	ggcgg	-	35.7	14	SRSF2_p.P95_R102de	ONCOGENIC
PD11276a	D	17	74732936	ggcgg	-	36.4	11	SRSF2_p.P95_R102de	ONCOGENIC
PD7900a	D	17	74732936	ggcgg	-	38.5	13	SRSF2_p.P95_R102de	ONCOGENIC
PD9307a	D	17	74732936	ggcgg	-	40	5	SRSF2_p.P95_R102de	ONCOGENIC

PD8202a	D	17	74732936	ggcgg	-	42.9	7	SRSF2_p.P95_R102de	ONCOGENIC
PD10891a	D	17	74732936	ggcgg	-	50	6	SRSF2_p.P95_R102de	ONCOGENIC
PD8114a	D	17	74732936	ggcgg	-	55.6	9	SRSF2_p.P95_R102de	ONCOGENIC
PD10877a	D	17	74732936	ggcgg	-	57.1	7	SRSF2_p.P95_R102de	ONCOGENIC
PD11282a	D	17	74732936	ggcgg	-	57.1	7	SRSF2_p.P95_R102de	ONCOGENIC
PD10889a	D	17	74732936	ggcgg	-	60	5	SRSF2_p.P95_R102de	ONCOGENIC
PD9235a	D	17	74732936	ggcgg	-	63.6	11	SRSF2_p.P95_R102de	ONCOGENIC
PD7722a	Sub	17	74732956	G	A	31.6	19	SRSF2_p.P96L	ONCOGENIC
PD7819a	I	17	74732959	-	GGC	32.1	28	SRSF2_p.R94_P95insF	ONCOGENIC
PD7739a	I	17	74732959	-	GGC	34.8	23	SRSF2_p.R94_P95insF	ONCOGENIC
PD10939a	I	17	74732959	-	GGC	35.3	17	SRSF2_p.R94_P95insF	ONCOGENIC
PD10875a	I	17	74732959	-	GGC	50	8	SRSF2_p.R94_P95insF	ONCOGENIC
PD11040a	I	17	74732959	-	GGC	53.8	13	SRSF2_p.R94_P95insF	ONCOGENIC
PD9355a	Sub	17	74732959	G	A	68.2	22	SRSF2_p.P95L	ONCOGENIC
PD11087a	Sub	17	74732959	G	A	33.3	15	SRSF2_p.P95L	ONCOGENIC
PD8068a	Sub	17	74732959	G	T	61.1	18	SRSF2_p.P95H	ONCOGENIC
PD8541a	Sub	17	74732959	G	T	33.3	9	SRSF2_p.P95H	ONCOGENIC
PD11129a	Sub	17	74732959	G	T	33.3	12	SRSF2_p.P95H	ONCOGENIC
PD8407a	Sub	17	74732959	G	C	33.3	12	SRSF2_p.P95R	ONCOGENIC
PD9224a	Sub	17	74732959	G	T	44.4	18	SRSF2_p.P95H	ONCOGENIC
PD10859a	Sub	17	74732959	G	T	50	14	SRSF2_p.P95H	ONCOGENIC
PD11136a	Sub	17	74732959	G	T	36.4	11	SRSF2_p.P95H	ONCOGENIC
PD8357a	Sub	17	74732959	G	T	40	20	SRSF2_p.P95H	ONCOGENIC
PD11019a	Sub	17	74732959	G	T	36.4	11	SRSF2_p.P95H	ONCOGENIC
PD7852a	Sub	17	74732959	G	T	20	15	SRSF2_p.P95H	ONCOGENIC
PD10902a	Sub	17	74732959	G	C	50	18	SRSF2_p.P95R	ONCOGENIC
PD11209a	Sub	17	74732959	G	C	48.3	29	SRSF2_p.P95R	ONCOGENIC
PD11147a	Sub	17	74732959	G	A	50	10	SRSF2_p.P95L	ONCOGENIC
PD8052a	Sub	17	74732959	G	A	50	16	SRSF2_p.P95L	ONCOGENIC
PD10849a	Sub	17	74732959	G	C	46.2	13	SRSF2_p.P95R	ONCOGENIC
PD11266a	Sub	17	74732959	G	A	50	10	SRSF2_p.P95L	ONCOGENIC
PD10894a	Sub	17	74732959	G	T	52.4	21	SRSF2_p.P95H	ONCOGENIC
PD8146a	Sub	17	74732959	G	T	55.6	18	SRSF2_p.P95H	ONCOGENIC
PD7769a	Sub	17	74732959	G	C	38.5	26	SRSF2_p.P95R	ONCOGENIC
PD11101a	Sub	17	74732959	G	C	44.4	18	SRSF2_p.P95R	ONCOGENIC
PD11258a	Sub	17	74732959	G	C	16.7	24	SRSF2_p.P95R	ONCOGENIC
PD7958a	Sub	17	74732959	G	A	28.6	14	SRSF2_p.P95L	ONCOGENIC
PD11255a	Sub	17	74732959	G	C	60	10	SRSF2_p.P95R	ONCOGENIC
PD11183a	Sub	17	74732959	G	A	43.8	16	SRSF2_p.P95L	ONCOGENIC
PD7715a	Sub	17	74732959	G	T	35	20	SRSF2_p.P95H	ONCOGENIC
PD9340a	Sub	17	74732959	G	T	31.3	16	SRSF2_p.P95H	ONCOGENIC
PD7659a	Sub	17	74732959	G	T	31.3	16	SRSF2_p.P95H	ONCOGENIC
PD9296a	Sub	17	74732959	G	A	35.3	17	SRSF2_p.P95L	ONCOGENIC
PD10983a	Sub	17	74732959	G	T	45.5	11	SRSF2_p.P95H	ONCOGENIC
PD10949a	Sub	17	74732959	G	T	45	20	SRSF2_p.P95H	ONCOGENIC
PD11240a	Sub	17	74732959	G	C	44.4	9	SRSF2_p.P95R	ONCOGENIC
PD8488a	Sub	17	74732959	G	C	48.2	27	SRSF2_p.P95R	ONCOGENIC
PD8477a	Sub	17	74732959	G	T	60	30	SRSF2_p.P95H	ONCOGENIC
PD8580a	Sub	17	74732959	G	C	62.5	8	SRSF2_p.P95R	ONCOGENIC
PD11007a	Sub	17	74732959	G	C	41.2	17	SRSF2_p.P95R	ONCOGENIC
PD11124a	Sub	17	74732959	G	A	50	16	SRSF2_p.P95L	ONCOGENIC
PD10872a	Sub	17	74732959	G	A	68.8	16	SRSF2_p.P95L	ONCOGENIC
PD9283a	Sub	17	74732959	G	A	28.6	14	SRSF2_p.P95L	ONCOGENIC
PD9253a	Sub	17	74732959	G	T	55.6	9	SRSF2_p.P95H	ONCOGENIC
PD8209a	Sub	17	74732959	G	T	52.4	21	SRSF2_p.P95H	ONCOGENIC

PD7824a	Sub	17	74732959	G	C	33.3	18	SRSF2_p.P95R	ONCOGENIC
PD11119a	Sub	17	74732959	G	C	83.3	6	SRSF2_p.P95R	ONCOGENIC
PD9324a	Sub	17	74732959	G	T	23.5	17	SRSF2_p.P95H	ONCOGENIC
PD8451a	Sub	17	74732959	G	A	50	22	SRSF2_p.P95L	ONCOGENIC
PD10974a	Sub	17	74732959	G	T	30	10	SRSF2_p.P95H	ONCOGENIC
PD11262a	Sub	17	74732959	G	T	71.4	7	SRSF2_p.P95H	ONCOGENIC
PD7775a	Sub	17	74732959	G	T	60	25	SRSF2_p.P95H	ONCOGENIC
PD8214a	Sub	17	74732959	G	C	68.4	19	SRSF2_p.P95R	ONCOGENIC
PD8383a	Sub	17	74732959	G	T	41.7	12	SRSF2_p.P95H	ONCOGENIC
PD11224a	Sub	17	74732959	G	T	35.3	17	SRSF2_p.P95H	ONCOGENIC
PD10865a	Sub	17	74732959	G	C	18.2	11	SRSF2_P95H	ONCOGENIC
PD11043a	Sub	17	74732959	G	T	28.6	14	SRSF2_P95H	ONCOGENIC
PD11135a	Sub	17	74732959	G	T	50	4	SRSF2_P95H	ONCOGENIC
PD11197a	Sub	17	74732959	G	T	22.2	9	SRSF2_P95H	ONCOGENIC
PD11243a	Sub	17	74732959	G	T	7.41	27	SRSF2_P95H	ONCOGENIC
PD8261a	Sub	17	74732959	G	T	6.06	33	SRSF2_P95H	ONCOGENIC
PD11134a	Sub	17	74732959	G	A	33.3	12	SRSF2_P95L	ONCOGENIC
PD11174a	Sub	17	74732959	G	A	25	12	SRSF2_P95L	ONCOGENIC
PD11227a	Sub	17	74732959	G	A	22.2	9	SRSF2_P95L	ONCOGENIC
PD9348a	Sub	17	74732959	G	A	15.4	13	SRSF2_P95L	ONCOGENIC
PD11122a	Sub	17	74732960	G	T	35.7	28	SRSF2_p.P95T	ONCOGENIC
PD10898a	Sub	17	74732960	G	C	60	15	SRSF2_p.P95A	ONCOGENIC
PD7795a	Sub	17	74732961	G	C	5.26	38	SRSF2_P95H	ONCOGENIC
PD7625a	Sub	17	74732961	G	A	64.3	14	SRSF2_P95R	ONCOGENIC
PD11005a	Sub	17	74733073	A	T	24.2	33	SRSF2_p.F57Y	POSSIBLE
PD8426a	Sub	17	74733073	A	T	49.2	61	SRSF2_p.F57Y	POSSIBLE
PD8118a	Sub	17	74733113	A	G	15.4	39	SRSF2_p.Y44H	POSSIBLE
PD8382a	D	19	33792294	g	-	na	31	CEBPA_p.R343fs*79	ONCOGENIC
PD7666a	Sub	19	33792303	C	T	52.8	36	CEBPA_p.G340S	ONCOGENIC
PD7805a	Sub	19	33792303	C	T	40	55	CEBPA_p.G340S	ONCOGENIC
PD8160a	Sub	19	33792308	A	G	71.4	14	CEBPA_p.L338P	ONCOGENIC
PD7955a	I	19	33792350	-	G	48.6	37	CEBPA_p.L324fs*79	ONCOGENIC
PD7613a	Sub	19	33792359	T	C	17.4	46	CEBPA_p.N321S	ONCOGENIC
PD7926a	Sub	19	33792359	T	C	69	29	CEBPA_p.N321S	ONCOGENIC
PD8065a	Sub	19	33792360	T	C	13.1	61	CEBPA_p.N321D	ONCOGENIC
PD9204a	Sub	19	33792362	T	C	16.3	43	CEBPA_p.D320G	ONCOGENIC
PD11189a	I	19	33792372	-	GTCAG	30.8	13	CEBPA_p.S319fs*1	ONCOGENIC
PD7765a	I	19	33792372	-	ACG	42.1	38	CEBPA_p.E316_L317ii	ONCOGENIC
PD8121a	I	19	33792372	-	ACG	69.2	26	CEBPA_p.E316_L317ii	ONCOGENIC
PD7916a	I	19	33792373	-	AGC	42.9	28	CEBPA_p.L317_T318ii	ONCOGENIC
PD8140a	I	19	33792374	-	GGT	88.9	36	CEBPA_p.E316>DQ	ONCOGENIC
PD7898a	I	19	33792376	-	AGG	53.5	43	CEBPA_p.L315_E316ii	ONCOGENIC
PD8340a	I	19	33792377	-	GCACCTT	na	73	CEBPA_p.V314_L315ii	ONCOGENIC
PD10818a	Sub	19	33792380	A	G	10.9	46	CEBPA_p.V314A	ONCOGENIC
PD8074a	I	19	33792381	-	CTT	29.2	72	CEBPA_p.K313_V314i	ONCOGENIC
PD7896a	I	19	33792381	-	CTT	29.5	44	CEBPA_p.K313_V314i	ONCOGENIC
PD8318a	I	19	33792381	-	CTT	30.5	95	CEBPA_p.K313_V314i	ONCOGENIC
PD7978a	I	19	33792381	-	CTT	31.5	54	CEBPA_p.K313_V314i	ONCOGENIC
PD7894a	I	19	33792381	-	CTT	32.5	40	CEBPA_p.K313_V314i	ONCOGENIC
PD8405a	I	19	33792381	-	CTT	33.3	42	CEBPA_p.K313_V314i	ONCOGENIC
PD7858a	I	19	33792381	-	CTT	34.4	32	CEBPA_p.K313_V314i	ONCOGENIC
PD8475a	I	19	33792381	-	CTT	35.2	91	CEBPA_p.K313_V314i	ONCOGENIC
PD8299a	I	19	33792381	-	CTT	40.9	66	CEBPA_p.K313_V314i	ONCOGENIC
PD10809a	I	19	33792381	-	CTT	41.2	51	CEBPA_p.K313_V314i	ONCOGENIC
PD10970a	I	19	33792381	-	CTTCTGC	na	64	CEBPA_p.K313_V314i	ONCOGENIC

PD8351a	I	19	33792382	-	TGG	18.8	32	CEBPA_p.K313>NQ	ONCOGENIC
PD8249a	I	19	33792382	-	AGCACC	26.8	56	CEBPA_p.L315_E316ir	ONCOGENIC
PD7973a	D	19	33792382	ctt	-	36.7	49	CEBPA_p.K313delK	ONCOGENIC
PD7748a	I	19	33792384	-	CTG	27.3	44	CEBPA_p.Q312_K313i	ONCOGENIC
PD7619a	I	19	33792384	-	CTG	28	50	CEBPA_p.Q312_K313i	ONCOGENIC
PD8277a	I	19	33792384	-	CTG	31.9	69	CEBPA_p.Q312_K313i	ONCOGENIC
PD7622a	I	19	33792384	-	CTG	33.3	57	CEBPA_p.Q312_K313i	ONCOGENIC
PD10811a	I	19	33792384	-	CTG	33.3	51	CEBPA_p.Q312_K313i	ONCOGENIC
PD8585a	I	19	33792384	-	CTG	42.4	33	CEBPA_p.Q312_K313i	ONCOGENIC
PD7749a	I	19	33792386	-	TCT	32	25	CEBPA_p.K313_V314i	ONCOGENIC
PD8284a	I	19	33792386	-	TCT	39.3	28	CEBPA_p.K313_V314i	ONCOGENIC
PD7607a	I	19	33792386	-	TCT	41.7	48	CEBPA_p.K313_V314i	ONCOGENIC
PD8475a	Sub	19	33792387	G	T	6.94	72	CEBPA_p.Q312K	ONCOGENIC
PD9330a	I	19	33792389	-	GCA	22.9	35	CEBPA_p.T310_Q311i	ONCOGENIC
PD10866a	I	19	33792390	-	CGT	31.6	38	CEBPA_p.T310_Q311i	ONCOGENIC
PD8292a	I	19	33792390	-	CGT	32.7	49	CEBPA_p.T310_Q311i	ONCOGENIC
PD7789a	I	19	33792390	-	CTGCTT	40	40	CEBPA_p.T310_Q311i	ONCOGENIC
PD7789a	Sub	19	33792390	G	T	13.9	36	CEBPA_p.Q311K	ONCOGENIC
PD8219a	I	19	33792391	-	TGC	32.4	37	CEBPA_p.Q312_K313i	ONCOGENIC
PD9222a	I	19	33792394	-	TCCACGT	4.76	21	CEBPA_p.V308_E309i	ONCOGENIC
PD8450a	I	19	33792394	-	TCCACGT	25	16	CEBPA_p.V308_E309i	ONCOGENIC
PD8014a	I	19	33792394	-	CTC	43.8	48	CEBPA_p.E309_T310ir	ONCOGENIC
PD8268a	I	19	33792394	-	TTT	97.7	43	CEBPA_p.E309_T310ir	ONCOGENIC
PD9325a	I	19	33792395	-	CCACGTT	6.67	30	CEBPA_p.V308_E309i	ONCOGENIC
PD7926a	I	19	33792395	-	CCACGTT	13.3	15	CEBPA_p.V308_E309i	ONCOGENIC
PD8178a	D	19	33792395	tccac	-	26.1	23	CEBPA_p.N307_E309:	ONCOGENIC
PD10830a	I	19	33792395	-	GGCGCC	26.9	26	CEBPA_p.E309>GRQ	ONCOGENIC
PD10815a	D	19	33792395	tccac	-	30	20	CEBPA_p.N307_E309:	ONCOGENIC
PD8200a	I	19	33792395	-	GAC	42.1	38	CEBPA_p.E309>GQ	ONCOGENIC
PD8350a	I	19	33792395	-	TCT	86.7	15	CEBPA_p.E309_T310ir	ONCOGENIC
PD8229a	I	19	33792397	-	ACG	51.7	29	CEBPA_p.V308_E309i	ONCOGENIC
PD7794a	I	19	33792399	-	GTT	32.2	59	CEBPA_p.N307_V308i	ONCOGENIC
PD7728a	I	19	33792400	-	TTGCGCT	11.1	36	CEBPA_p.R306_N307i	ONCOGENIC
PD7996a	I	19	33792400	-	TTGCGC	18.6	43	CEBPA_p.R306_N307i	ONCOGENIC
PD8514a	Sub	19	33792404	C	G	39.1	46	CEBPA_p.R306P	ONCOGENIC
PD10861a	I	19	33792408	-	CTTGGC	21.4	42	CEBPA_p.K304_Q305i	ONCOGENIC
PD8018a	I	19	33792408	-	CAA	39.6	48	CEBPA_p.K304_Q305i	ONCOGENIC
PD7723a	D	19	33792409	cttgg	-	29	31	CEBPA_p.A303_K304(	ONCOGENIC
PD11063a	I	19	33792411	-	CTGCTT	26.8	41	CEBPA_p.A303_K304i	ONCOGENIC
PD8287a	I	19	33792413	-	ACTTGG	27.3	55	CEBPA_p.K304_Q305i	ONCOGENIC
PD11090a	Sub	19	33792414	C	G	44	50	CEBPA_p.A303P	ONCOGENIC
PD8111a	I	19	33792418	-	CGCTGCT	10.7	28	CEBPA_p.R306_N307i	ONCOGENIC
PD10890a	I	19	33792420	-	CACGTTG	10.7	28	CEBPA_p.R300_D301i	ONCOGENIC
PD7897a	Sub	19	33792420	C	T	97.5	40	CEBPA_p.D301N	ONCOGENIC
PD8437a	Sub	19	33792420	C	T	90.2	51	CEBPA_p.D301N	ONCOGENIC
PD7897a	Sub	19	33792422	C	T	95.2	42	CEBPA_p.R300H	ONCOGENIC
PD8184a	Sub	19	33792422	C	A	42.9	70	CEBPA_p.R300L	ONCOGENIC
PD7866a	Sub	19	33792422	C	A	73.2	56	CEBPA_p.R300L	ONCOGENIC
PD8437a	Sub	19	33792422	C	T	90.2	51	CEBPA_p.R300H	ONCOGENIC
PD7980a	Sub	19	33792423	G	A	44.4	54	CEBPA_p.R300C	ONCOGENIC
PD8126a	Sub	19	33792429	T	G	43.2	44	CEBPA_p.K298Q	ONCOGENIC
PD8347a	Sub	19	33792431	C	G	28.3	53	CEBPA_p.R297P	ONCOGENIC
PD9271a	Sub	19	33792431	C	G	31.3	16	CEBPA_p.R297P	ONCOGENIC
PD8126a	Sub	19	33792431	C	G	39.1	46	CEBPA_p.R297P	ONCOGENIC
PD11284a	Sub	19	33792432	G	A	56	25	CEBPA_p.R297C	ONCOGENIC

PD8356a	Sub	19	33792437	G	T	18.9	37	CEBPA_p.A295E	ONCOGENIC
PD10919a	I	19	33792438	-	CGC	40.9	22	CEBPA_p.I294_A295ir	ONCOGENIC
PD7864a	Sub	19	33792443	T	C	33.3	39	CEBPA_p.N293S	ONCOGENIC
PD8192a	Sub	19	33792443	T	C	39.6	48	CEBPA_p.N293S	ONCOGENIC
PD8270a	Sub	19	33792455	C	A	18	100	CEBPA_p.R289L	ONCOGENIC
PD11204a	D	19	33792481	-	AGGAA	na	22	CEBPA_na	ONCOGENIC
PD7943a	D	19	33792506	c	-	52.4	21	CEBPA_p.G272fs*46	ONCOGENIC
PD8318a	D	19	33793003	aa	-	44.4	9	CEBPA_p.F106fs*1	ONCOGENIC
PD11064a	D	19	33793010	ccgcc	-	100	1	CEBPA_p.G96fs*56	ONCOGENIC
PD10811a	D	19	33793030	ggggc	-	80	5	CEBPA_p.A94fs*62	ONCOGENIC
PD7973a	D	19	33793073	tggaa	-	44.4	9	CEBPA_p.L81fs*77	ONCOGENIC
PD8585a	D	19	33793074	g	-	33.3	9	CEBPA_p.Q83fs*77	ONCOGENIC
PD8405a	D	19	33793074	g	-	44.4	9	CEBPA_p.Q83fs*77	ONCOGENIC
PD7622a	D	19	33793074	g	-	83.3	6	CEBPA_p.Q83fs*77	ONCOGENIC
PD8356a	D	19	33793083	c	-	30.8	13	CEBPA_p.D80fs*80	ONCOGENIC
PD9317a	I	19	33793111	-	G	41.7	12	CEBPA_p.A71fs*37	ONCOGENIC
PD8000a	I	19	33793115	-	TG	na	7	CEBPA_p.D69fs*92	ONCOGENIC
PD8043a	I	19	33793119	-	GTAG	33.3	21	CEBPA_p.I68fs*41	ONCOGENIC
PD11171a	I	19	33793120	-	C	41.7	12	CEBPA_p.Y67fs*1	ONCOGENIC
PD11001a	I	19	33793122	-	TA	50	16	CEBPA_p.I68fs*93	ONCOGENIC
PD7765a	I	19	33793122	-	G	60	20	CEBPA_p.Y67fs*41	ONCOGENIC
PD7916a	D	19	33793123	g	-	36.4	11	CEBPA_p.Y67fs*93	ONCOGENIC
PD11120a	D	19	33793123	g	-	100	9	CEBPA_p.Y67fs*93	ONCOGENIC
PD8292a	D	19	33793124	gcgct	-	53.8	13	CEBPA_p.I62fs*41	ONCOGENIC
PD10861a	I	19	33793124	-	TAGG	56.3	16	CEBPA_p.I68fs*41	ONCOGENIC
PD7898a	D	19	33793132	g	-	60	20	CEBPA_p.D63fs*97	ONCOGENIC
PD8229a	D	19	33793135	g	-	40	10	CEBPA_p.I62fs*98	ONCOGENIC
PD7980a	I	19	33793135	-	A	47.1	17	CEBPA_p.D63fs*45	ONCOGENIC
PD7794a	D	19	33793141	cgtct	-	40	15	CEBPA_p.E59fs*47	ONCOGENIC
PD7748a	I	19	33793144	-	CCACGTC	50	8	CEBPA_p.S61fs*49	ONCOGENIC
PD10793a	D	19	33793159	gccgc	-	55.6	9	CEBPA_p.L52fs*53	ONCOGENIC
PD8277a	D	19	33793161	-	T	na	25	CEBPA_na	ONCOGENIC
PD7657a	D	19	33793167	gcggc	-	42.9	7	CEBPA_p.P49fs*55	ONCOGENIC
PD8226a	D	19	33793179	c	-	27.3	11	CEBPA_p.A48fs*112	ONCOGENIC
PD7709a	D	19	33793180	g	-	58.3	12	CEBPA_p.A48fs*112	ONCOGENIC
PD7648a	D	19	33793187	g	-	na	10	CEBPA_p.P45fs*115	ONCOGENIC
PD8178a	D	19	33793192	g	-	na	6	CEBPA_p.A44fs*116	ONCOGENIC
PD10979a	D	19	33793203	cgggg	-	20	5	CEBPA_p.G36fs*67	ONCOGENIC
PD7749a	D	19	33793206	ggccc	-	na	3	CEBPA_p.A37fs*121	ONCOGENIC
PD8383a	I	19	33793232	-	G	90	10	CEBPA_p.F31fs*77	ONCOGENIC
PD9325a	D	19	33793243	g	-	na	6	CEBPA_p.S27fs*133	ONCOGENIC
PD7761a	I	19	33793258	-	G	27.3	11	CEBPA_p.H24fs*84	ONCOGENIC
PD8018a	I	19	33793269	-	TG	85.7	7	CEBPA_p.L19fs*142	ONCOGENIC
PD7864a	Sub	19	56172503	C	T	46.8	62	U2AF2_p.T145I	POSSIBLE
PD11275a	Sub	19	56172530	G	T	34.2	79	U2AF2_p.G154V	POSSIBLE
PD10898a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10993a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11002a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11100a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8384a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10914a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11108a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10928a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8211a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8334a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC

PD11113a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD9317a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD9330a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7837a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7760a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11221a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11286a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11122a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11147a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10830a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11050a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11090a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11106a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8287a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8340a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10796a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10809a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11063a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8200a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8219a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8268a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8284a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10815a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10818a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8351a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10890a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10970a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11053a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8389a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10919a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11001a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8249a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8347a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7766a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7614a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7607a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8043a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7723a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7728a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7978a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8000a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8074a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8111a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7619a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7894a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8124a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8506a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7996a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8014a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8180a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8079a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11233a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11050a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11106a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11053a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC

PD8389a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7766a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7614a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8124a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8506a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8180a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8079a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD11233a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8375a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD9243a	I	19	na	na	na	na	na	CEBPA_p.Q83fs	ONCOGENIC
PD9356a	I	19	na	na	na	na	na	CEBPA_p.Y108fs	ONCOGENIC
PD9342a	I	19	na	na	na	na	na	CEBPA_p.R35fs	ONCOGENIC
PD9222a	I	19	na	na	na	na	na	CEBPA_p.G102fs	ONCOGENIC
PD9342a	I	19	na	na	na	na	na	CEBPA_p.T318fs	ONCOGENIC
PD9356a	I	19	na	na	na	na	na	CEBPA_p.V314fs	ONCOGENIC
PD7667a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7880a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8092a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8036a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10866a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD7896a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10876a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10872a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10796a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10876a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD10872a	ID	19	na	na	na	na	na	CEBPA_na	ONCOGENIC
PD8533a	Sub	20	30956873	G	T	6.8	147	ASXL1_p.G67*	ONCOGENIC
PD8367a	Sub	20	31015932	A	G	48.7	150	ASXL1_p.K85R	POSSIBLE
PD7767a	Sub	20	31021250	C	T	41.7	156	ASXL1_p.R417*	ONCOGENIC
PD8454a	Sub	20	31021283	C	T	21.6	185	ASXL1_p.Q428*	ONCOGENIC
PD11264a	D	20	31021372	c	-	42.3	97	ASXL1_p.P458fs*4	ONCOGENIC
PD10996a	Sub	20	31021472	C	T	46.4	97	ASXL1_p.Q491*	ONCOGENIC
PD8026a	Sub	20	31021532	C	T	45.7	208	ASXL1_p.P511S	POSSIBLE
PD7852a	D	20	31021543	tg	-	24.3	70	ASXL1_p.V515fs*13	ONCOGENIC
PD7775a	Sub	20	31021590	C	T	52.2	134	ASXL1_p.A530V	POSSIBLE
PD9308a	Sub	20	31022264	G	A	43.4	53	ASXL1_p.W583*	ONCOGENIC
PD11287a	Sub	20	31022277	C	T	51	51	ASXL1_p.Q588*	ONCOGENIC
PD11209a	Sub	20	31022277	C	T	47.2	106	ASXL1_p.Q588*	ONCOGENIC
PD11153a	Sub	20	31022277	C	T	62.5	32	ASXL1_p.Q588*	ONCOGENIC
PD9221a	Sub	20	31022277	C	T	28.1	32	ASXL1_p.Q588*	ONCOGENIC
PD9265a	I	20	31022284	-	TT	42.1	38	ASXL1_p.Y591fs*113	ONCOGENIC
PD8334a	Sub	20	31022332	G	A	16.7	42	ASXL1_p.R606Q	POSSIBLE
PD9205a	D	20	31022342	t	-	39.4	33	ASXL1_p.G610fs*93	ONCOGENIC
PD8144a	Sub	20	31022346	G	A	58.2	55	ASXL1_p.A611T	POSSIBLE
PD11255a	I	20	31022366	-	T	58.3	24	ASXL1_p.K618fs*1	ONCOGENIC
PD8108a	D	20	31022403	cacca	-	30	20	ASXL1_p.E635fs*15	ONCOGENIC
PD11134a	D	20	31022403	cacca	-	33.3	9	ASXL1_p.E635fs*15	ONCOGENIC
PD8107a	D	20	31022403	cacca	-	36.4	11	ASXL1_p.E635fs*15	ONCOGENIC
PD8583a	D	20	31022403	cacca	-	40	10	ASXL1_p.E635fs*15	ONCOGENIC
PD9218a	D	20	31022403	cacca	-	40	15	ASXL1_p.E635fs*15	ONCOGENIC
PD11089a	D	20	31022403	cacca	-	40	15	ASXL1_p.E635fs*15	ONCOGENIC
PD9381a	D	20	31022403	cacca	-	40.8	49	ASXL1_p.E635fs*15	ONCOGENIC
PD8112a	D	20	31022403	cacca	-	40.9	22	ASXL1_p.E635fs*15	ONCOGENIC
PD8457a	D	20	31022403	cacca	-	42.3	26	ASXL1_p.E635fs*15	ONCOGENIC
PD7819a	D	20	31022403	cacca	-	46.7	15	ASXL1_p.E635fs*15	ONCOGENIC

PD8420a	D	20	31022403	cacca	-	47.2	53	ASXL1_p.E635fs*15	ONCOGENIC
PD8153a	D	20	31022403	cacca	-	50	20	ASXL1_p.E635fs*15	ONCOGENIC
PD10790a	D	20	31022403	cacca	-	50	12	ASXL1_p.E635fs*15	ONCOGENIC
PD11124a	D	20	31022403	cacca	-	50	20	ASXL1_p.E635fs*15	ONCOGENIC
PD9210a	I	20	31022525	-	CC	50	42	ASXL1_p.A671fs*33	ONCOGENIC
PD9332a	I	20	31022575	-	T	60.4	53	ASXL1_p.T688fs*30	ONCOGENIC
PD8068a	Sub	20	31022592	C	T	50.5	109	ASXL1_p.R693*	ONCOGENIC
PD11147a	Sub	20	31022592	C	T	48.6	72	ASXL1_p.R693*	ONCOGENIC
PD11183a	Sub	20	31022592	C	T	54.9	71	ASXL1_p.R693*	ONCOGENIC
PD7715a	Sub	20	31022592	C	T	37.8	90	ASXL1_p.R693*	ONCOGENIC
PD7913a	Sub	20	31022592	C	T	9.65	114	ASXL1_p.R693*	ONCOGENIC
PD11027a	Sub	20	31022592	C	T	45.5	101	ASXL1_p.R693*	ONCOGENIC
PD7846a	Sub	20	31022592	C	T	44.9	69	ASXL1_p.R693*	ONCOGENIC
PD7857a	Sub	20	31022592	C	T	46.6	58	ASXL1_p.R693*	ONCOGENIC
PD7942a	Sub	20	31022592	C	T	47.2	53	ASXL1_p.R693*	ONCOGENIC
PD8447a	I	20	31022600	-	G	44.4	126	ASXL1_p.L696fs*22	ONCOGENIC
PD11259a	D	20	31022662	c	-	17.2	128	ASXL1_p.A716fs*9	ONCOGENIC
PD10915a	I	20	31022768	-	G	8.82	102	ASXL1_p.A752fs*22	ONCOGENIC
PD11181a	D	20	31022778	g	-	11.1	117	ASXL1_p.D756fs*16	ONCOGENIC
PD11268a	D	20	31022778	g	-	29.2	168	ASXL1_p.D756fs*16	ONCOGENIC
PD9282a	I	20	31022800	-	T	34.8	46	ASXL1_p.L762fs*12	ONCOGENIC
PD9385a	Sub	20	31022829	G	A	32.4	68	ASXL1_p.A772T	POSSIBLE
PD7859a	Sub	20	31022839	T	G	27.6	87	ASXL1_p.L775*	ONCOGENIC
PD7986a	Sub	20	31022847	C	T	32.9	85	ASXL1_p.Q778*	ONCOGENIC
PD8472a	I	20	31022860	-	C	0.69	145	ASXL1_p.P783fs*4	ONCOGENIC
PD7990a	Sub	20	31022872	G	A	50.6	79	ASXL1_p.R786K	ONCOGENIC
PD7712a	Sub	20	31022875	C	A	45.5	121	ASXL1_p.T787N	POSSIBLE
PD8345a	D	20	31022896	cttc	-	49.2	59	ASXL1_p.S795fs*22	ONCOGENIC
PD7691a	Sub	20	31022904	G	T	39.1	115	ASXL1_p.E797*	ONCOGENIC
PD9230a	D	20	31022916	gagga	-	42	131	ASXL1_p.E801fs*19	ONCOGENIC
PD7686a	D	20	31022916	gag	-	48.4	161	ASXL1_p.E801delE	ONCOGENIC
PD8114a	D	20	31022937	c	-	53.3	90	ASXL1_p.P808fs*10	ONCOGENIC
PD9310a	Sub	20	31022941	C	T	14.3	42	ASXL1_p.A809V	POSSIBLE
PD11241a	D	20	31022988	a	-	48.1	185	ASXL1_p.G826fs*12	ONCOGENIC
PD11246a	Sub	20	31022988	A	T	45.9	85	ASXL1_p.K825*	ONCOGENIC
PD11060a	Sub	20	31023000	C	T	15.6	135	ASXL1_p.Q829*	ONCOGENIC
PD8214a	Sub	20	31023208	G	A	47.2	176	ASXL1_p.W898*	ONCOGENIC
PD11119a	Sub	20	31023294	G	T	40	25	ASXL1_p.G927*	ONCOGENIC
PD8463a	Sub	20	31023395	G	A	35.4	246	ASXL1_p.W960*	ONCOGENIC
PD10949a	I	20	31023436	-	A	31.1	119	ASXL1_p.Y974fs*1	ONCOGENIC
PD8493a	I	20	31023460	-	A	5.22	115	ASXL1_p.L983fs*8	ONCOGENIC
PD8103a	Sub	20	31023694	T	A	11.8	110	ASXL1_p.V1060D	POSSIBLE
PD7982a	Sub	20	57484420	C	T	48.7	150	GNAS_p.R844C	ONCOGENIC
PD7819a	Sub	20	57484421	G	A	46.1	232	GNAS_p.R844H	ONCOGENIC
PD7989a	I	21	36164567	-	GAGGCC(	28.6	7	RUNX1_p.T437fs*165	ONCOGENIC
PD8571a	I	21	36164612	-	C	58.3	12	RUNX1_p.E422fs*178	ONCOGENIC
PD11251a	I	21	36164652	-	T	30.8	13	RUNX1_p.G408fs*192	ONCOGENIC
PD7841a	I	21	36164657	-	CGTAG	37.5	16	RUNX1_p.G408fs*188	ONCOGENIC
PD10802a	I	21	36164685	-	G	54.5	33	RUNX1_p.Q397fs*203	ONCOGENIC
PD10929a	D	21	36164710	ac	-	38.1	21	RUNX1_p.S389fs*210	ONCOGENIC
PD9253a	D	21	36164716	cgggg	-	28.6	7	RUNX1_p.Y377fs*212	ONCOGENIC
PD8040a	I	21	36164721	-	A	46.2	26	RUNX1_p.Y385fs*215	ONCOGENIC
PD10860a	I	21	36164764	-	CCAT	43.3	30	RUNX1_p.G372fs*229	ONCOGENIC
PD10849a	D	21	36164772	atgcc	-	45.2	31	RUNX1_p.I364fs*231	ONCOGENIC
PD11035a	I	21	36164838	-	G	31.8	44	RUNX1_p.R346fs*254	ONCOGENIC

PD7882a	I	21	36164838	-	G	36.4	44	RUNX1_p.R346fs*254	ONCOGENIC
PD10976a	I	21	36164843	-	G	44.4	27	RUNX1_p.R346fs*254	ONCOGENIC
PD8266a	I	21	36164852	-	CCCG	39.1	23	RUNX1_p.I342fs*259	ONCOGENIC
PD11022a	I	21	36164863	-	G	37.5	40	RUNX1_p.A338fs*262	ONCOGENIC
PD8487a	I	21	36164867	-	G	47.9	48	RUNX1_p.A338fs*262	ONCOGENIC
PD8113a	I	21	36164871	-	AGCGCGG	21.1	19	RUNX1_p.P340fs*264	ONCOGENIC
PD11227a	I	21	36164892	-	GCTG	37.5	16	RUNX1_p.F330fs*271	ONCOGENIC
PD7703a	I	21	36164903	-	T	50	14	RUNX1_p.P325fs*275	ONCOGENIC
PD9318a	I	21	36171599	-	GTCCC	16.3	49	RUNX1_p.T323fs*7	ONCOGENIC
PD8458a	I	21	36171620	-	A	2.99	67	RUNX1_p.E316fs*284	ONCOGENIC
PD7853a	D	21	36171623	ag	-	49.3	75	RUNX1_p.S314fs*285	ONCOGENIC
PD8345a	I	21	36171634	-	CGAGC	33.3	30	RUNX1_p.T311fs*19	ONCOGENIC
PD9380a	I	21	36171643	-	G	33	100	RUNX1_p.S308fs*292	ONCOGENIC
PD9296a	D	21	36171656	t	-	40.5	79	RUNX1_p.P304fs*7	ONCOGENIC
PD11229a	D	21	36171672	gg	-	58.3	24	RUNX1_p.P298fs*301	ONCOGENIC
PD11278a	I	21	36171674	-	A	40	50	RUNX1_p.A299fs*301	ONCOGENIC
PD10996a	Sub	21	36171722	G	C	32.4	105	RUNX1_p.Y281*	ONCOGENIC
PD7741a	Sub	21	36171760	C	T	33.9	56	RUNX1_NA	POSSIBLE
PD8388a	Sub	21	36171760	C	A	82.9	35	RUNX1_NA	POSSIBLE
PD7776a	Sub	21	36206706	C	G	93.8	16	RUNX1_NA	POSSIBLE
PD11101a	Sub	21	36206711	C	T	27.8	18	RUNX1_p.M267I	ONCOGENIC
PD8449a	Sub	21	36206711	C	T	48.7	37	RUNX1_p.M267I	ONCOGENIC
PD11069a	D	21	36206713	tc	-	51.6	31	RUNX1_p.Q266fs*333	ONCOGENIC
PD8355a	D	21	36206730	gg	-	52.4	21	RUNX1_p.P261fs*338	ONCOGENIC
PD8350a	Sub	21	36206732	G	T	64	25	RUNX1_p.N260K	ONCOGENIC
PD8011a	I	21	36206743	-	G	48.8	41	RUNX1_p.T257fs*4	ONCOGENIC
PD8139a	Sub	21	36206764	G	A	53.1	32	RUNX1_p.R250C	ONCOGENIC
PD10928a	Sub	21	36206827	C	A	38.7	62	RUNX1_p.E229*	ONCOGENIC
PD10877a	I	21	36206834	-	CGC	71.4	14	RUNX1_p.S226>RR	ONCOGENIC
PD8477a	I	21	36206836	-	T	43.2	111	RUNX1_p.S226fs*2	ONCOGENIC
PD8112a	I	21	36206842	-	CT	52.7	55	RUNX1_p.R224fs*14	ONCOGENIC
PD7695a	I	21	36206863	-	G	41.2	17	RUNX1_p.G217fs*11	ONCOGENIC
PD8186a	Sub	21	36206892	C	G	50.8	67	RUNX1_p.R207P	ONCOGENIC
PD8547a	D	21	36231765	actt	-	24.2	91	RUNX1_p.K182fs*41	ONCOGENIC
PD10858a	D	21	36231769	acttc	-	27.2	103	RUNX1_p.R180fs*>46	ONCOGENIC
PD11204a	I	21	36231769	-	CT	50	88	RUNX1_p.S181fs*44	ONCOGENIC
PD11145a	Sub	21	36231773	C	T	40.6	165	RUNX1_p.R204Q	ONCOGENIC
PD11260a	Sub	21	36231773	C	T	46.4	151	RUNX1_p.R204Q	ONCOGENIC
PD11129a	Sub	21	36231773	C	T	33.6	119	RUNX1_p.R204Q	ONCOGENIC
PD8281a	Sub	21	36231773	C	T	11.9	210	RUNX1_p.R204Q	ONCOGENIC
PD11150a	Sub	21	36231773	C	T	25.4	130	RUNX1_p.R204Q	ONCOGENIC
PD8114a	Sub	21	36231774	G	A	71.1	121	RUNX1_p.R204*	ONCOGENIC
PD11246a	Sub	21	36231774	G	A	34.1	135	RUNX1_p.R204*	ONCOGENIC
PD8420a	Sub	21	36231774	G	A	95.4	366	RUNX1_p.R204*	ONCOGENIC
PD8580a	Sub	21	36231774	G	A	53.1	113	RUNX1_p.R204*	ONCOGENIC
PD11119a	Sub	21	36231774	G	A	44.4	72	RUNX1_p.R204*	ONCOGENIC
PD8141a	Sub	21	36231782	C	T	25	120	RUNX1_p.R201Q	ONCOGENIC
PD10894a	Sub	21	36231782	C	T	55.6	162	RUNX1_p.R201Q	ONCOGENIC
PD7819a	Sub	21	36231782	C	T	42.1	140	RUNX1_p.R201Q	ONCOGENIC
PD10987a	Sub	21	36231782	C	T	27.1	181	RUNX1_p.R201Q	ONCOGENIC
PD7779a	Sub	21	36231782	C	T	56.3	144	RUNX1_p.R201Q	ONCOGENIC
PD8138a	Sub	21	36231782	C	T	29.9	134	RUNX1_p.R201Q	ONCOGENIC
PD9285a	Sub	21	36231782	C	T	89.1	138	RUNX1_p.R201Q	ONCOGENIC
PD8139a	Sub	21	36231783	G	C	51.6	122	RUNX1_p.R201G	ONCOGENIC
PD9250a	Sub	21	36231783	G	A	24.5	53	RUNX1_p.R201*	ONCOGENIC

PD7986a	Sub	21	36231783	G	A	28.8	132	RUNX1_p.R201*	ONCOGENIC
PD8146a	Sub	21	36231783	G	A	49.6	127	RUNX1_p.R201*	ONCOGENIC
PD7818a	Sub	21	36231783	G	C	39.8	191	RUNX1_p.R201G	ONCOGENIC
PD10952a	Sub	21	36231786	G	A	6.42	187	RUNX1_p.P200S	ONCOGENIC
PD11255a	Sub	21	36231786	G	A	16.4	110	RUNX1_p.P200S	ONCOGENIC
PD11197a	Sub	21	36231791	T	C	18.5	81	RUNX1_p.D198G	ONCOGENIC
PD11230a	Sub	21	36231791	T	C	17.2	87	RUNX1_p.D198G	ONCOGENIC
PD9223a	Sub	21	36231791	T	C	45.3	148	RUNX1_p.D198G	ONCOGENIC
PD8426a	Sub	21	36231791	T	C	91.7	217	RUNX1_p.D198G	ONCOGENIC
PD10974a	Sub	21	36231791	T	C	39.3	150	RUNX1_p.D198G	ONCOGENIC
PD9384a	Sub	21	36231792	C	T	11.4	132	RUNX1_p.D198N	ONCOGENIC
PD11135a	Sub	21	36231792	C	T	50.9	110	RUNX1_p.D198N	ONCOGENIC
PD11205a	I	21	36231795	-	T	20.3	79	RUNX1_p.V197fs*16	ONCOGENIC
PD9344a	I	21	36231820	-	TGGCTCT	11.4	88	RUNX1_p.I193fs*23	ONCOGENIC
PD10864a	Sub	21	36231871	T	G	45.6	114	RUNX1_p.K171N	ONCOGENIC
PD10887a	Sub	21	36231871	T	G	46.9	175	RUNX1_p.K171N	ONCOGENIC
PD11222a	I	21	36252849	-	AAA	31.6	98	RUNX1_p.?	ONCOGENIC
PD8370a	Sub	21	36252849	C	T	50	144	RUNX1_NA	POSSIBLE
PD9308a	Sub	21	36252849	C	T	17.9	229	RUNX1_NA	POSSIBLE
PD9265a	I	21	36252851	-	ACCTCTT	22.6	93	RUNX1_p.?	ONCOGENIC
PD8188a	I	21	36252853	-	CTCT	28.3	106	RUNX1_p.G170fs*44	ONCOGENIC
PD7873a	I	21	36252855	-	CTTCCA	21.3	164	RUNX1_p.G168_R169	ONCOGENIC
PD8590a	I	21	36252855	-	C	31	126	RUNX1_p.G170fs*43	ONCOGENIC
PD8186a	I	21	36252856	-	T	43.8	96	RUNX1_p.R169fs*44	ONCOGENIC
PD11282a	I	21	36252856	-	TT	54.4	136	RUNX1_p.R169fs*8	ONCOGENIC
PD11129a	I	21	36252858	-	CCACTTC	24.8	125	RUNX1_p.R169fs*46	ONCOGENIC
PD8590a	Sub	21	36252860	C	T	28.5	144	RUNX1_p.G168R	ONCOGENIC
PD8019a	Sub	21	36252862	C	T	38.6	189	RUNX1_p.S167N	ONCOGENIC
PD11224a	I	21	36252864	-	GA	2.67	374	RUNX1_p.S167fs*10	ONCOGENIC
PD11086a	I	21	36252864	-	GC	87.5	104	RUNX1_p.S167fs*10	ONCOGENIC
PD11081a	Sub	21	36252865	C	A	43.3	157	RUNX1_p.R166L	ONCOGENIC
PD11183a	Sub	21	36252865	C	T	42.5	120	RUNX1_p.R166Q	ONCOGENIC
PD8488a	Sub	21	36252865	C	T	48.5	229	RUNX1_p.R166Q	ONCOGENIC
PD8103a	Sub	21	36252865	C	T	27.3	176	RUNX1_p.R166Q	ONCOGENIC
PD10825a	Sub	21	36252865	C	T	64.6	206	RUNX1_p.R166Q	ONCOGENIC
PD9208a	Sub	21	36252865	C	T	71.6	208	RUNX1_p.R166Q	ONCOGENIC
PD11081a	Sub	21	36252866	G	A	47.8	157	RUNX1_p.R166*	ONCOGENIC
PD8540a	Sub	21	36252866	G	A	43.5	147	RUNX1_p.R166*	ONCOGENIC
PD11031a	Sub	21	36252866	G	C	38.4	177	RUNX1_p.R166G	ONCOGENIC
PD8032a	Sub	21	36252866	G	A	19.1	168	RUNX1_p.R166*	ONCOGENIC
PD10971a	Sub	21	36252866	G	C	17.6	250	RUNX1_p.R166G	ONCOGENIC
PD11025a	Sub	21	36252866	G	C	94.6	110	RUNX1_p.R166G	ONCOGENIC
PD10927a	I	21	36252869	-	GACA	40.4	156	RUNX1_p.G165fs*49	ONCOGENIC
PD11242a	Sub	21	36252869	C	A	15	187	RUNX1_p.G165C	ONCOGENIC
PD7762a	Sub	21	36252869	C	G	23.9	284	RUNX1_p.G165R	ONCOGENIC
PD8138a	Sub	21	36252869	C	A	35.5	107	RUNX1_p.G165C	ONCOGENIC
PD11145a	Sub	21	36252877	C	T	35.4	175	RUNX1_p.R162K	ONCOGENIC
PD10952a	Sub	21	36252877	C	T	52.1	217	RUNX1_p.R162K	ONCOGENIC
PD8584a	Sub	21	36252877	C	T	35.5	138	RUNX1_p.R162K	ONCOGENIC
PD7852a	Sub	21	36252877	C	T	46.9	128	RUNX1_p.R162K	ONCOGENIC
PD7715a	Sub	21	36252877	C	T	82.9	275	RUNX1_p.R162K	ONCOGENIC
PD11150a	Sub	21	36252877	C	T	45.9	242	RUNX1_p.R162K	ONCOGENIC
PD7652a	Sub	21	36252877	C	T	95.9	169	RUNX1_p.R162K	ONCOGENIC
PD9381a	I	21	36252882	-	TCATTGG	17.8	101	RUNX1_p.D160fs*5	ONCOGENIC
PD8032a	Sub	21	36252884	C	A	28	182	RUNX1_p.D160Y	ONCOGENIC

PD11094a	I	21	36252894	-	A	76.1	67	RUNX1_p.R157fs*3	ONCOGENIC
PD11099a	I	21	36252903	-	G	35.8	106	RUNX1_p.Q154fs*6	ONCOGENIC
PD8080a	I	21	36252928	-	ATCTACT	4.58	131	RUNX1_p.T148fs*10	ONCOGENIC
PD9381a	I	21	36252937	-	CCATCC	48.7	117	RUNX1_p.S141_A142	ONCOGENIC
PD11224a	I	21	36252938	-	CAAAT	32.1	352	RUNX1_p.A142fs*5	ONCOGENIC
PD8348a	Sub	21	36252940	G	T	39.7	174	RUNX1_p.S141*	ONCOGENIC
PD10817a	Sub	21	36252940	G	T	44.8	252	RUNX1_p.S141*	ONCOGENIC
PD8584a	I	21	36252949	-	T	36.4	129	RUNX1_p.N139fs*5	ONCOGENIC
PD8209a	I	21	36252955	-	TGGTCAC	27.1	140	RUNX1_p.N136fs*4	ONCOGENIC
PD10891a	Sub	21	36252982	C	T	13	139	RUNX1_p.G127D	POSSIBLE
PD8289a	I	21	36253004	-	CA	11.2	205	RUNX1_p.A120fs*3	ONCOGENIC
PD8080a	D	21	36259147	gcgat	-	35.7	14	RUNX1_p.I114fs*22	ONCOGENIC
PD10875a	D	21	36259164	gttgc	-	50	2	RUNX1_p.L102fs*28	ONCOGENIC
PD9345a	Sub	21	36259171	C	T	71.4	14	RUNX1_p.R107H	ONCOGENIC
PD11040a	Sub	21	36259172	G	A	40	20	RUNX1_p.R107C	ONCOGENIC
PD7854a	Sub	21	36259172	G	A	47.1	17	RUNX1_p.R107C	ONCOGENIC
PD7757a	Sub	21	36259172	G	A	32.4	34	RUNX1_p.R107C	ONCOGENIC
PD10857a	Sub	21	36259175	A	G	18.2	22	RUNX1_p.W106R	ONCOGENIC
PD8214a	I	21	36259178	-	C	41.7	24	RUNX1_p.H105fs*33	ONCOGENIC
PD10889a	D	21	36259187	gca	-	31	29	RUNX1_p.L102delL	ONCOGENIC
PD10819a	Sub	21	36259192	G	A	88.9	18	RUNX1_p.S100F	ONCOGENIC
PD8270a	D	21	36259199	g	-	44.4	27	RUNX1_p.L98fs*24	ONCOGENIC
PD11249a	D	21	36259199	g	-	73.3	30	RUNX1_p.L98fs*24	ONCOGENIC
PD8357a	I	21	36259200	-	T	100	6	RUNX1_p.F97fs*41	ONCOGENIC
PD9224a	I	21	36259207	-	TTGG	45	20	RUNX1_p.F97fs*42	ONCOGENIC
PD10906a	Sub	21	36259210	C	A	61.5	26	RUNX1_p.S94I	ONCOGENIC
PD9337a	D	21	36259221	cacc	-	30	10	RUNX1_p.V90fs*31	ONCOGENIC
PD8199a	I	21	36259223	-	AGGTGCC	21.1	19	RUNX1_p.D93fs*48	ONCOGENIC
PD7681a	I	21	36259226	-	G	38.9	18	RUNX1_p.L89fs*49	ONCOGENIC
PD8185a	D	21	36259298	cgccg	-	83.3	6	RUNX1_p.A63fs*7	ONCOGENIC
PD9298a	Sub	21	44514593	C	T	23.5	34	U2AF1_p.R188H	POSSIBLE
PD7986a	Sub	21	44514777	T	G	37.9	87	U2AF1_p.Q157P	ONCOGENIC
PD11241a	Sub	21	44514777	T	G	39.4	155	U2AF1_p.Q157P	ONCOGENIC
PD8325a	Sub	21	44514777	T	G	42.9	105	U2AF1_p.Q157P	ONCOGENIC
PD11027a	Sub	21	44514777	T	G	48.5	99	U2AF1_p.Q157P	ONCOGENIC
PD8084a	Sub	21	44514777	T	C	41.6	101	U2AF1_p.Q157R	ONCOGENIC
PD7992a	Sub	21	44514777	T	C	41.2	119	U2AF1_p.Q157R	ONCOGENIC
PD8258a	Sub	21	44514777	T	C	40.5	111	U2AF1_p.Q157R	ONCOGENIC
PD8415a	Sub	21	44514777	T	G	7.23	83	U2AF1_p.Q157P	ONCOGENIC
PD7831a	Sub	21	44514780	C	T	24.3	107	U2AF1_p.R156H	ONCOGENIC
PD8358a	Sub	21	44514780	C	T	32.8	67	U2AF1_p.R156H	ONCOGENIC
PD8228a	Sub	21	44514780	C	T	46.8	109	U2AF1_p.R156H	ONCOGENIC
PD8586a	Sub	21	44514780	C	T	17	100	U2AF1_p.R156H	ONCOGENIC
PD7942a	Sub	21	44514780	C	T	43.9	66	U2AF1_p.R156H	ONCOGENIC
PD8061a	Sub	21	44524453	C	A	50.7	144	U2AF1_p.R35L	ONCOGENIC
PD10846a	Sub	21	44524453	C	A	20.1	149	U2AF1_p.R35L	ONCOGENIC
PD11088a	Sub	21	44524456	G	A	27.6	250	U2AF1_p.S34F	ONCOGENIC
PD11283a	Sub	21	44524456	G	A	48.6	175	U2AF1_p.S34F	ONCOGENIC
PD10956a	Sub	21	44524456	G	A	34.3	181	U2AF1_p.S34F	ONCOGENIC
PD8567a	Sub	21	44524456	G	A	27.4	266	U2AF1_p.S34F	ONCOGENIC
PD8273a	Sub	21	44524456	G	A	12.3	252	U2AF1_p.S34F	ONCOGENIC
PD10842a	Sub	21	44524456	G	A	44.1	227	U2AF1_p.S34F	ONCOGENIC
PD11026a	Sub	21	44524456	G	A	39.9	138	U2AF1_p.S34F	ONCOGENIC
PD9206a	Sub	21	44524456	G	A	39.2	125	U2AF1_p.S34F	ONCOGENIC
PD7950a	Sub	21	44524456	G	A	44.7	217	U2AF1_p.S34F	ONCOGENIC

PD11146a	Sub	21	44524456	G	A	40.3	241	U2AF1_p.S34F	ONCOGENIC
PD11275a	Sub	21	44524456	G	T	45.5	167	U2AF1_p.S34Y	ONCOGENIC
PD8508a	Sub	21	44524456	G	A	43.1	283	U2AF1_p.S34F	ONCOGENIC
PD7722a	Sub	21	44524456	G	T	39.6	197	U2AF1_p.S34Y	ONCOGENIC
PD8084a	Sub	21	44524456	G	A	44.7	150	U2AF1_p.S34F	ONCOGENIC
PD8290a	Sub	21	44524456	G	A	36.8	231	U2AF1_p.S34F	ONCOGENIC
PD9247a	Sub	21	44524456	G	A	29.8	104	U2AF1_p.S34F	ONCOGENIC
PD10996a	Sub	21	44524456	G	A	42.8	215	U2AF1_p.S34F	ONCOGENIC
PD7711a	Sub	21	44524456	G	A	48.8	203	U2AF1_p.S34F	ONCOGENIC
PD7885a	Sub	21	44524456	G	A	37	165	U2AF1_p.S34F	ONCOGENIC
PD10804a	Sub	21	44524456	G	A	44.1	136	U2AF1_p.S34F	ONCOGENIC
PD8129a	Sub	21	44524456	G	A	47.1	121	U2AF1_p.S34F	ONCOGENIC
PD9205a	Sub	21	44524474	C	T	8.63	139	U2AF1_p.R28H	POSSIBLE
PD7872a	Sub	22	30734989	C	T	51.5	99	SF3A1_p.R511Q	ONCOGENIC
PD8145a	Sub	22	41513769	C	T	5.88	136	EP300_p.Q225*	ONCOGENIC
PD11166a	Sub	22	41527445	G	T	8	125	EP300_p.G446C	POSSIBLE
PD8028a	Sub	22	41543955	G	A	23.4	252	EP300_NA	POSSIBLE
PD11285a	Sub	22	41548021	G	A	49.4	79	EP300_NA	POSSIBLE
PD7623a	Sub	22	41553336	G	T	21.1	109	EP300_p.C1142F	POSSIBLE
PD11110a	Sub	22	41553399	G	A	13.5	52	EP300_p.C1163Y	POSSIBLE
PD10815a	Sub	22	41553402	G	A	31	71	EP300_p.C1164Y	POSSIBLE
PD10793a	Sub	22	41554415	G	T	47.9	209	EP300_NA	POSSIBLE
PD8405a	Sub	22	41556656	T	C	38.3	120	EP300_p.C1201R	ONCOGENIC
PD7728a	Sub	22	41556657	G	A	51.9	160	EP300_p.C1201Y	ONCOGENIC
PD9316a	Sub	22	41556657	G	A	10.2	177	EP300_p.C1201Y	ONCOGENIC
PD9342a	Sub	22	41558737	A	T	24.5	53	EP300_p.K1228*	ONCOGENIC
PD9221a	Sub	22	41566521	G	A	7.03	128	EP300_p.W1466*	ONCOGENIC
PD11085a	Sub	22	41568501	A	T	34.6	136	EP300_NA	POSSIBLE
PD7847a	Sub	22	41572387	T	C	40.8	233	EP300_p.L1639P	POSSIBLE
PD7715a	I	22	41572480	-	G	20.3	123	EP300_p.C1670fs*3	ONCOGENIC
PD8141a	Sub	22	41572514	G	A	13.9	36	EP300_p.W1681*	ONCOGENIC
PD10895a	Sub	22	41572870	C	T	18.9	439	EP300_p.Q1719*	ONCOGENIC
PD8571a	Sub	22	41573170	C	T	10.7	168	EP300_p.Q1819*	ONCOGENIC
PD8046a	D	22	41573333	ctcag	-	35.5	172	EP300_p.Q1876_P187	ONCOGENIC
PD8361a	D	22	41574282	gcaa	-	41.7	103	EP300_p.Q2192_Q21	ONCOGENIC
PD8095a	D	22	41574282	gcaa	-	47.1	34	EP300_p.Q2192_Q21	ONCOGENIC
PD8470a	Sub	22	41574604	C	T	13.5	170	EP300_p.Q2297*	ONCOGENIC
PD8108a	Sub	X	15809121	C	T	74.3	101	ZRSR2_p.R36*	ONCOGENIC
PD8559a	D	X	15822272	ag	-	30.3	89	ZRSR2_p.E120fs*24	ONCOGENIC
PD7666a	D	X	15822317	ag	-	56.1	41	ZRSR2_p.E133fs*11	ONCOGENIC
PD9381a	Sub	X	15827344	C	T	19.9	221	ZRSR2_p.Q154*	ONCOGENIC
PD8325a	I	X	15827428	-	CAGGAG	64.6	65	ZRSR2_p.C181_R182i	ONCOGENIC
PD9285a	Sub	X	15833802	G	A	96.2	52	ZRSR2_p.C187Y	ONCOGENIC
PD10963a	Sub	X	15833879	C	T	9.82	285	ZRSR2_p.Q213*	ONCOGENIC
PD10819a	Sub	X	15838385	C	T	6.86	102	ZRSR2_p.R295*	ONCOGENIC
PD11164a	D	X	15840962	c	-	54.5	66	ZRSR2_p.S349fs*>14(	ONCOGENIC
PD7845a	D	X	15841152	a	-	84.8	66	ZRSR2_p.K413fs*>76	ONCOGENIC
PD9268a	Sub	X	15841270	C	T	79	19	ZRSR2_p.R452C	ONCOGENIC
PD8239a	Sub	X	15841270	C	T	51	49	ZRSR2_p.R452C	ONCOGENIC
PD7705a	Sub	X	15841270	C	T	69.2	13	ZRSR2_p.R452C	ONCOGENIC
PD11169a	Sub	X	39911536	A	C	89.3	122	BCOR_p.Y1698*	ONCOGENIC
PD10992a	D	X	39911541	a	-	49.5	107	BCOR_p.Y1698fs*27	ONCOGENIC
PD8216a	D	X	39911578	a	-	41.6	125	BCOR_p.P1685fs*40	ONCOGENIC
PD8241a	Sub	X	39913265	A	T	51.8	85	BCOR_p.L1617*	ONCOGENIC
PD7757a	D	X	39913286	t	-	36.6	161	BCOR_p.D1610fs*8	ONCOGENIC

PD7830a	Sub	X	39913534	C	T	45.1	51	BCOR_p.W1598*	ONCOGENIC
PD8040a	I	X	39914638	-	GGAGT	38.5	52	BCOR_p.M1575fs*7	ONCOGENIC
PD7661a	D	X	39914713	aga	-	37	92	BCOR_p.L1550delL	ONCOGENIC
PD7743a	Sub	X	39916463	G	A	57.1	35	BCOR_p.R1514*	ONCOGENIC
PD11206a	D	X	39916541	a	-	60	30	BCOR_p.C1488fs*3	ONCOGENIC
PD11183a	Sub	X	39921487	G	A	80	15	BCOR_p.Q1445*	ONCOGENIC
PD8357a	Sub	X	39921553	G	A	46.2	13	BCOR_p.Q1423*	ONCOGENIC
PD8113a	Sub	X	39921606	G	T	79.2	24	BCOR_p.S1405*	ONCOGENIC
PD11088a	D	X	39922102	g	-	74.5	51	BCOR_p.P1357fs*12	ONCOGENIC
PD8080a	D	X	39922975	cctca	-	25.5	106	BCOR_p.A1240fs*49	ONCOGENIC
PD7767a	I	X	39923039	-	CC	35.7	98	BCOR_p.A1224fs*15	ONCOGENIC
PD11151a	Sub	X	39923059	G	A	83.3	6	BCOR_p.R1217*	ONCOGENIC
PD7775a	Sub	X	39923086	G	A	98.8	85	BCOR_p.Q1208*	ONCOGENIC
PD8183a	Sub	X	39923699	C	A	100	26	BCOR_p.R1131L	ONCOGENIC
PD9210a	D	X	39923770	ca	-	48.6	37	BCOR_p.V1107fs*34	ONCOGENIC
PD8343a	Sub	X	39930244	G	A	29.4	34	BCOR_p.Q1074*	ONCOGENIC
PD9253a	Sub	X	39930311	C	T	11.8	51	BCOR_p.W1051*	ONCOGENIC
PD8052a	Sub	X	39931673	G	A	63.6	11	BCOR_p.R976*	ONCOGENIC
PD8547a	I	X	39931916	-	C	33.3	27	BCOR_p.P895fs*22	ONCOGENIC
PD11260a	D	X	39932110	ct	-	28.1	32	BCOR_p.S830fs*6	ONCOGENIC
PD10879a	I	X	39932112	-	T	82.8	29	BCOR_p.S830fs*7	ONCOGENIC
PD11012a	Sub	X	39932333	C	A	11.8	34	BCOR_p.E756*	ONCOGENIC
PD8173a	D	X	39932496	c	-	90	10	BCOR_p.L702fs*13	ONCOGENIC
PD11146a	D	X	39932579	g	-	77.8	27	BCOR_p.H674fs*41	ONCOGENIC
PD8289a	Sub	X	39932813	G	A	39.3	28	BCOR_p.Q596*	ONCOGENIC
PD8232a	D	X	39932977	ct	-	38.5	117	BCOR_p.S541fs*15	ONCOGENIC
PD9334a	D	X	39933460	ctaa	-	36	25	BCOR_p.V379fs*62	ONCOGENIC
PD8237a	D	X	39933460	ctaa	-	49.3	69	BCOR_p.V379fs*62	ONCOGENIC
PD11107a	Sub	X	39933580	G	T	26.5	34	BCOR_p.S340*	ONCOGENIC
PD7818a	Sub	X	39933885	G	T	69.8	53	BCOR_p.C238*	ONCOGENIC
PD8068a	I	X	39934126	-	T	1.37	73	BCOR_p.S158fs*28	ONCOGENIC
PD8420a	Sub	X	44733189	A	T	52.2	67	KDM6A_p.R61*	ONCOGENIC
PD11231a	Sub	X	44879904	C	T	4.58	415	KDM6A_p.R165*	ONCOGENIC
PD8119a	Sub	X	44879925	C	T	38.8	286	KDM6A_p.R172*	ONCOGENIC
PD9333a	Sub	X	44920653	C	T	14.7	34	KDM6A_p.Q472*	ONCOGENIC
PD11152a	Sub	X	44921982	C	T	24.7	77	KDM6A_p.Q506*	ONCOGENIC
PD8141a	Sub	X	44929157	C	T	5.07	217	KDM6A_p.Q753*	ONCOGENIC
PD8538a	Sub	X	44929403	C	T	9.11	439	KDM6A_p.Q835*	ONCOGENIC
PD8223a	I	X	44942757	-	T	91	100	KDM6A_p.S1114fs*37	ONCOGENIC
PD9333a	Sub	X	44950063	G	A	20.6	320	KDM6A_p.A1278T	POSSIBLE
PD7669a	Sub	X	44966686	C	T	32.8	67	KDM6A_p.Q1304*	ONCOGENIC
PD9251a	Sub	X	44966749	G	T	15.1	73	KDM6A_p.E1325*	ONCOGENIC
PD8109a	Sub	X	44969393	C	T	43.1	151	KDM6A_p.Q1359*	ONCOGENIC
PD7627a	Sub	X	76764089	G	A	85.4	48	ATRX_p.R2407*	ONCOGENIC
PD7990a	Sub	X	76764089	G	A	17.8	73	ATRX_p.R2407*	ONCOGENIC
PD9384a	Sub	X	76777845	T	C	30.6	111	ATRX_p.I2291V	POSSIBLE
PD7939a	Sub	X	76777845	T	C	52.6	500	ATRX_p.I2291V	POSSIBLE
PD9241a	Sub	X	76889088	C	T	7.01	157	ATRX_p.W1641*	ONCOGENIC
PD8544a	Sub	X	76937930	C	T	44.3	271	ATRX_p.A940T	ONCOGENIC
PD10983a	I	X	123164969	-	TGCT	85.5	69	STAG2_p.M95fs*8	ONCOGENIC
PD8583a	Sub	X	123171416	C	T	79.2	72	STAG2_p.R110*	ONCOGENIC
PD8150a	Sub	X	123171416	C	T	91.1	79	STAG2_p.R110*	ONCOGENIC
PD11258a	D	X	123176481	g	-	37.8	74	STAG2_p.E150fs*33	ONCOGENIC
PD11221a	D	X	123179027	atcca	-	67.9	84	STAG2_p.Y159fs*17	ONCOGENIC
PD11047a	Sub	X	123179054	G	A	76.6	64	STAG2_p.W168*	ONCOGENIC

PD11116a	Sub	X	123179096	T	G	82.1	56	STAG2_p.L182*	ONCOGENIC
PD8153a	I	X	123179157	-	TTTCA	34.6	78	STAG2_p.L203fs*24	ONCOGENIC
PD8118a	I	X	123179179	-	T	37.1	151	STAG2_p.S210fs*29	ONCOGENIC
PD10859a	Sub	X	123179182	C	T	34.7	219	STAG2_p.Q211*	ONCOGENIC
PD7982a	Sub	X	123179197	C	T	46	63	STAG2_p.R216*	ONCOGENIC
PD10971a	Sub	X	123179197	C	T	31.2	237	STAG2_p.R216*	ONCOGENIC
PD9320a	Sub	X	123179197	C	T	14.1	135	STAG2_p.R216*	ONCOGENIC
PD11119a	Sub	X	123179197	C	T	80.7	62	STAG2_p.R216*	ONCOGENIC
PD9249a	D	X	123181213	tga	-	31.1	122	STAG2_p.M227delM	ONCOGENIC
PD10928a	Sub	X	123181269	C	T	75.7	140	STAG2_p.Q245*	ONCOGENIC
PD11260a	Sub	X	123181311	C	T	36.9	450	STAG2_p.R259*	ONCOGENIC
PD7907a	Sub	X	123181311	C	T	38.8	201	STAG2_p.R259*	ONCOGENIC
PD11241a	Sub	X	123181311	C	T	87	177	STAG2_p.R259*	ONCOGENIC
PD7824a	Sub	X	123181311	C	T	97.4	151	STAG2_p.R259*	ONCOGENIC
PD9308a	Sub	X	123181311	C	T	35.4	113	STAG2_p.R259*	ONCOGENIC
PD8216a	D	X	123181348	g	-	36.4	165	STAG2_p.E273fs*9	ONCOGENIC
PD11136a	Sub	X	123182854	G	A	35.8	215	STAG2_NA	ONCOGENIC
PD8539a	Sub	X	123184034	A	G	53.2	143	STAG2_NA	POSSIBLE
PD9301a	I	X	123184161	-	T	45.3	386	STAG2_p.?	ONCOGENIC
PD7775a	I	X	123185044	-	T	95.6	68	STAG2_p.E365fs*10	ONCOGENIC
PD7990a	Sub	X	123185163	A	G	95.8	24	STAG2_NA	POSSIBLE
PD9282a	Sub	X	123185213	C	T	50.9	57	STAG2_p.Q389*	ONCOGENIC
PD8342a	I	X	123185246	-	T	45.4	97	STAG2_p.?	ONCOGENIC
PD10795a	Sub	X	123189977	G	A	100	73	STAG2_NA	POSSIBLE
PD11133a	I	X	123195664	-	G	50.7	71	STAG2_p.C527fs*4	ONCOGENIC
PD8472a	Sub	X	123195667	T	A	49.5	95	STAG2_p.C527*	ONCOGENIC
PD8068a	D	X	123197014	t	-	93.2	73	STAG2_p.Y594fs*12	ONCOGENIC
PD10859a	Sub	X	123197044	C	T	17.2	128	STAG2_p.R604*	ONCOGENIC
PD7988a	Sub	X	123197044	C	T	6.11	131	STAG2_p.R604*	ONCOGENIC
PD8078a	Sub	X	123197048	T	G	86.8	38	STAG2_p.L605*	ONCOGENIC
PD8477a	Sub	X	123197716	C	T	82.6	149	STAG2_p.R614*	ONCOGENIC
PD11287a	D	X	123197783	ac	-	28.6	21	STAG2_p.Y636fs*5	ONCOGENIC
PD11266a	I	X	123197783	-	A	40.8	71	STAG2_p.Y636fs*1	ONCOGENIC
PD9253a	Sub	X	123197896	C	T	10	80	STAG2_p.Q674*	ONCOGENIC
PD11284a	D	X	123199796	agt	-	92.9	42	STAG2_p.?	ONCOGENIC
PD8439a	Sub	X	123200089	G	T	57.5	47	STAG2_p.E721*	ONCOGENIC
PD8015a	I	X	123200206	-	T	96.4	84	STAG2_p.V730fs*18	ONCOGENIC
PD8075a	Sub	X	123210245	C	T	8.7	69	STAG2_p.A866V	ONCOGENIC
PD7980a	D	X	123210253	tg	-	90.8	76	STAG2_p.C869fs*1	ONCOGENIC
PD8383a	I	X	123210271	-	TA	78.2	142	STAG2_p.T875fs*6	ONCOGENIC
PD7864a	Sub	X	123211873	C	T	90.7	43	STAG2_p.Q914*	ONCOGENIC
PD11266a	Sub	X	123215311	C	T	39.7	73	STAG2_p.R953*	ONCOGENIC
PD8019a	Sub	X	123215311	C	T	39.4	203	STAG2_p.R953*	ONCOGENIC
PD11152a	Sub	X	123215332	G	T	14.6	48	STAG2_p.G960*	ONCOGENIC
PD7992a	Sub	X	123215380	T	C	44.4	162	STAG2_NA	POSSIBLE
PD11230a	Sub	X	123217380	C	T	6.2	129	STAG2_p.R1012*	ONCOGENIC
PD10953a	Sub	X	123217380	C	T	38	171	STAG2_p.R1012*	ONCOGENIC
PD8141a	Sub	X	123220440	C	T	98.9	363	STAG2_p.R1033*	ONCOGENIC
PD11183a	Sub	X	123220440	C	T	92.6	121	STAG2_p.R1033*	ONCOGENIC
PD8382a	Sub	X	123220440	C	T	35.5	152	STAG2_p.R1033*	ONCOGENIC
PD11283a	Sub	X	123220456	G	A	93.8	96	STAG2_p.W1038*	ONCOGENIC
PD7664a	Sub	X	123220476	C	T	75.4	183	STAG2_p.R1045*	ONCOGENIC
PD10819a	Sub	X	123220476	C	T	88.6	167	STAG2_p.R1045*	ONCOGENIC
PD10872a	Sub	X	123220476	C	T	77.6	165	STAG2_p.R1045*	ONCOGENIC
PD11259a	I	X	123220517	-	A	53.1	196	STAG2_p.V1059fs*3	ONCOGENIC

PD9383a	Sub	X	123220537	G	A	28.4	380	STAG2_p.S1065N	POSSIBLE
PD7710a	I	X	123220538	-	GC	3.86	233	STAG2_p.R1066fs*40	ONCOGENIC
PD7718a	I	X	123220538	-	GC	12.2	148	STAG2_p.R1066fs*40	ONCOGENIC
PD7702a	I	X	123220538	-	GC	91.9	86	STAG2_p.R1066fs*40	ONCOGENIC
PD7834a	Sub	X	123220621	G	A	93.9	99	STAG2_NA	POSSIBLE
PD11146a	I	X	123224475	-	TG	77.6	116	STAG2_p.H1111fs*6	ONCOGENIC
PD8090a	I	X	123227946	-	T	44.3	210	STAG2_p.E1220fs*1	ONCOGENIC
PD8491a	D	X	123227984	a	-	40	290	STAG2_p.D1232fs*2	ONCOGENIC
PD11060a	Sub	X	133511652	C	G	6.72	119	PHF6_p.S2*	ONCOGENIC
PD8316a	I	X	133511705	-	T	78.9	180	PHF6_p.C20fs*2	ONCOGENIC
PD7879a	Sub	X	133511715	A	G	54	187	PHF6_p.N23S	ONCOGENIC
PD9327a	D	X	133511717	ag	-	94.1	119	PHF6_p.D25fs*10	ONCOGENIC
PD8234a	I	X	133511722	-	AAGG	18.6	280	PHF6_p.C28fs*9	ONCOGENIC
PD8112a	I	X	133511774	-	G	39.6	106	PHF6_p.H43fs*2	ONCOGENIC
PD10962a	I	X	133512083	-	AAGC	42.9	84	PHF6_p.G63fs*7	ONCOGENIC
PD11236a	Sub	X	133527530	G	A	12.6	230	PHF6_NA	POSSIBLE
PD7945a	Sub	X	133527530	G	A	28.9	249	PHF6_NA	POSSIBLE
PD9209a	Sub	X	133527612	G	A	8.59	128	PHF6_p.A108T	ONCOGENIC
PD11023a	Sub	X	133527613	C	A	39.8	128	PHF6_p.A108E	ONCOGENIC
PD11084a	Sub	X	133527636	C	T	16.2	74	PHF6_p.R116*	ONCOGENIC
PD8234a	Sub	X	133527636	C	T	6.13	212	PHF6_p.R116*	ONCOGENIC
PD8339a	Sub	X	133527636	C	T	31.2	93	PHF6_p.R116*	ONCOGENIC
PD10831a	D	X	133527637	ga	-	43.8	178	PHF6_p.K118fs*19	ONCOGENIC
PD8499a	Sub	X	133527937	A	T	98.9	93	PHF6_NA	POSSIBLE
PD10810a	I	X	133527959	-	GAAAACT	36.4	44	PHF6_p.A135fs*11	ONCOGENIC
PD8332a	Sub	X	133547589	C	T	30.5	154	PHF6_p.R163C	POSSIBLE
PD10868a	I	X	133547691	-	AGTAA	50	22	PHF6_p.?	ONCOGENIC
PD8061a	Sub	X	133547692	G	A	97.7	44	PHF6_NA	POSSIBLE
PD10819a	Sub	X	133547851	A	G	80	75	PHF6_NA	POSSIBLE
PD8198a	I	X	133547858	-	AGGTCTC	31.3	115	PHF6_p.P210fs*22	ONCOGENIC
PD8313a	Sub	X	133547904	G	A	10.4	288	PHF6_p.G213R	POSSIBLE
PD7661a	Sub	X	133547940	C	T	17.1	181	PHF6_p.R225*	ONCOGENIC
PD11153a	Sub	X	133547976	G	A	14.4	194	PHF6_p.A237T	POSSIBLE
PD10956a	Sub	X	133547983	A	G	78.3	138	PHF6_p.H239R	POSSIBLE
PD11073a	Sub	X	133547992	G	C	95.8	48	PHF6_p.C242S	ONCOGENIC
PD11089a	Sub	X	133547992	G	T	46.3	231	PHF6_p.C242F	ONCOGENIC
PD8179a	Sub	X	133547996	G	A	83.8	68	PHF6_p.M243I	ONCOGENIC
PD11227a	Sub	X	133549044	A	G	52.9	87	PHF6_NA	POSSIBLE
PD7920a	I	X	133549104	-	CCGTC	84.2	19	PHF6_p.D264fs*17	ONCOGENIC
PD10810a	Sub	X	133549136	C	T	8.7	69	PHF6_p.R274*	ONCOGENIC
PD7830a	Sub	X	133549137	G	A	5.93	135	PHF6_p.R274Q	ONCOGENIC
PD7818a	Sub	X	133549137	G	A	74.1	112	PHF6_p.R274Q	ONCOGENIC
PD11246a	Sub	X	133549137	G	A	89.5	209	PHF6_p.R274Q	ONCOGENIC
PD7952a	Sub	X	133549137	G	A	87.8	41	PHF6_p.R274Q	ONCOGENIC
PD8382a	Sub	X	133549137	G	A	31.8	88	PHF6_p.R274Q	ONCOGENIC
PD8487a	Sub	X	133549139	G	A	89.3	121	PHF6_p.G275R	ONCOGENIC
PD8136a	Sub	X	133549140	G	T	30.8	52	PHF6_p.G275V	ONCOGENIC
PD8146a	Sub	X	133549152	T	A	29.5	112	PHF6_NA	POSSIBLE
PD7841a	Sub	X	133551217	C	T	98.4	64	PHF6_p.Q285*	ONCOGENIC
PD10879a	Sub	X	133551224	G	T	89.2	74	PHF6_p.G287V	ONCOGENIC
PD11177a	Sub	X	133551241	G	A	77.6	76	PHF6_p.E293K	ONCOGENIC
PD11028a	Sub	X	133551267	C	G	97.7	86	PHF6_p.Y301*	ONCOGENIC
PD9333a	Sub	X	133551278	G	A	84.4	90	PHF6_p.C305Y	POSSIBLE
PD11191a	Sub	X	133551305	T	C	17.8	90	PHF6_p.I314T	ONCOGENIC
PD8138a	Sub	X	133559229	A	G	40.4	161	PHF6_NA	POSSIBLE

Table S6: Annotation of recurrent chromosomal abnormalities and genomic rearrangments in study

PDID	t(x;11q23)	inv(3)/t(3;3)	t (8; 21)(q22;	minus5/5q	minus7/7q	plus8/8q	minus9q	o12/12p/abr	plus13	o17/17p/abr	minus18/18q	minus20/20q	plus21	plus22	minusY	t(15;17)	t(8;21)	inv(16)	t(6;9)	abn3q/other	plus11/11q	mono4/4q	complex
PD7840a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	1	na	na	na	na	na
PD8453a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	1	na	na	na	na	na
PD9233a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	1	na	na	na	na	na
PD10960a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD10995a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD10998a	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD11021a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11036a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11055a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11070a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11091a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11092a	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0
PD11109a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11141a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7611a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7636a	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0
PD7640a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7654a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7688a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7699a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
PD7708a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7733a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7778a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7780a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7783a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7807a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7812a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7827a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7861a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7883a	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	1	0
PD7890a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7933a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7954a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7985a	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD7987a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
PD8013a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8025a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8035a	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8037a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8059a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8072a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8075a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8097a	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8115a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8116a	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8137a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8144a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8149a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8181a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8195a	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8212a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8222a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8245a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8246a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
PD8247a	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8248a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8286a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8304a	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0
PD8306a	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8335a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8414a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8465a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8471a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8482a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

PD8492a	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8505a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8548a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8589a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD9198a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD9199a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD9207a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD9212a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD9279a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD10813a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD11033a	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
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PD8406a	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
PD8535a	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
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PD8028a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	1	na	na	na	na	na	na	na
PD7675a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
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PD11174a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD10891a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11101a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10971a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8040a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10939a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11005a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11122a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11240a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11243a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7739a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8057a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8371a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8407a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9307a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9340a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7802a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9323a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11233a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7990a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8079a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8472a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8124a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8229a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8284a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD8340a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD9356a	na	na	na	0	1	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8437a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10796a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10809a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10811a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10815a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10818a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10830a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10861a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10866a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
PD10876a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10890a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD11001a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11050a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PD11053a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11063a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11090a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD7916a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
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PD7996a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8000a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8014a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD8249a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7829a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8390a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD9260a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD9309a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD9357a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
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PD11169a	na	na	na	1	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD7682a	na	na	na	1	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD11138a	na	na	na	0	1	na	na	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD9369a	na	na	na	1	0	na	na	na	na	1	na	na	na	na	na	na	na	na	na	na	na	na	na
PD7949a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
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PD10963a	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PD7836a	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
PD7983a	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
PD8576a	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9267a	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11012a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1

PD11068a	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11085a	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
PD11143a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11152a	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
PD11154a	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1
PD11160a	na	na	na	1	0	na	na	1	na	na	na	na	na	1	na	na	na	na	na	na	na	na	1
PD11168a	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1
PD11200a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11277a	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
PD11288a	0	0	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	0	0	0	1	0	1
PD7869a	na	na	na	1	0	na	na	na	na	1	na	na	1	na	na	na	na	na	na	na	na	na	1
PD7931a	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	1
PD8026a	na	na	na	1	0	na	1	na	na	1	na	na	na	na	na	na	na	na	na	na	na	na	1
PD8145a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8485a	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
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PD9211a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9217a	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9230a	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9259a	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PD11044a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11102a	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7968a	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8537a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
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PD10840a	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1
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PD11020a	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11030a	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11056a	na	na	na	1	1	na	na	na	na	na	1	na	na	na	na	na	na	na	na	na	na	na	1
PD11066a	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11213a	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
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PD7924a	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
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PD8054a	0	0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1
PD8066a	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
PD8122a	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	1
PD8312a	0	0	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
PD8333a	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
PD8496a	0	0	0	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
PD9216a	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
PD9237a	0	0	0	1	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1	1	0	1
PD9291a	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1
PD9312a	0	0	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9368a	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
PD7853a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11069a	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
PD10817a	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7873a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD11031a	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7762a	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9345a	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
PD8319a	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10793a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PD10827a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
PD10831a	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1

PD10863a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
PD10908a	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
PD10933a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10937a	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PD11006a	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
PD11123a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
PD11127a	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
PD11271a	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
PD7674a	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PD7696a	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
PD7832a	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8089a	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PD8142a	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PD8147a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8156a	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8234a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8239a	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
PD8429a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8509a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PD8531a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
PD9203a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PD9269a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD10806a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10835a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
PD11075a	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	1	0	0	1
PD11139a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD7676a	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8205a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8220a	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
PD9286a	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9311a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9362a	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10808a	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1
PD10826a	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD11034a	na	na	na	0	1	na	na	na	na	na	na	1	1	na	na	na	na	na	na	na	na	na	1
PD7839a	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1
PD7998a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PD8096a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8198a	0	0	0	0	1	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
PD8575a	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1
PD9245a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9275a	0	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	1
PD10823a	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10856a	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD10912a	0	0	0	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
PD11137a	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PD11156a	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7718a	0	0	0	1	1	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1
PD8041a	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
PD8175a	na	na	na	1	1	0	1	1	na	1	na	0	0	0	na	na	na	na	na	na	na	na	1
PD8502a	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
PD9200a	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD11151a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
PD11178a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8189a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8310a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8418a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8457a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11226a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10790a	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8067a	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
PD7795a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7662a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8280a	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
PD8227a	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1
PD10990a	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10903a	na	na	na	1	1	na	1	1	na	na	na	na	na	na	na	na	na	na	na	1	na	na	1

PD11135a	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
PD11145a	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
PD11227a	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7852a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9296a	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8199a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10864a	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
PD7695a	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9265a	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD7625a	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7900a	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PD9283a	0	0	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
PD9310a	na	na	na	0	0	na	na	1	na	na	na	na	na	na	1	na	na	na	na	na	na	na	1
PD8133a	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1
PD10948a	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PD11253a	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7673a	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8164a	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PD9218a	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PD8260a	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8431a	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
PD11241a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD7710a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8567a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD10907a	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PD8362a	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PD8141a	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9355a	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11257a	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9270a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
PD7867a	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8099a	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
PD8083a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10919a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9317a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
PD7711a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11089a	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8121a	na	na	na	0	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD8542a	na	na	na	0	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD8532a	na	na	na	1	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD10982a	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10801a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD10821a	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
PD11210a	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7823a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD7844a	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7845a	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
PD7903a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD8143a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8278a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
PD8336a	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8356a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8450a	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8483a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD8569a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD7646a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8081a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10946a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11083a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD11163a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7781a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7875a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7908a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD7959a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7981a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD8093a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

PD8132a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PD8263a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8427a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD10906a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD11204a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8138a	na	na	na	0	0	na	na	na	na	na	na	1	na	na	na	na	na	na	na	na	na	na	na
PD8350a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD7982a	na	na	na	0	0	na	na	na	na	1	na	na	na	na	na	na	na	na	na	na	na	na	na
PD10836a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
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PD11199a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7871a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
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PD9378a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD7731a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7947a	na	na	na	0	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD11026a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD11275a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
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PD8068a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD8241a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD8541a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD10820a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD8173a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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PD10810a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD10869a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD11079a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
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PD8012a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
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PD8440a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD8587a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD9202a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD9300a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
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PD9306a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9325a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9328a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PD9333a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9343a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9364a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9386a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8085a	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10986a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD11182a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD11267a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD7647a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7671a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7700a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7887a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD7963a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8051a	na	na	na	0	0	0	na	na	na	na	na	0	0	0	na	na	na	na	na	na	na	na	na
PD8302a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD8402a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD9322a	na	na	na	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PD10792a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10837a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PD10873a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10878a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10888a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD10893a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
PD10985a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11039a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11041a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11105a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11130a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11149a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11161a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11207a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11225a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11228a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11235a	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
PD11252a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD11270a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7713a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7714a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7758a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7763a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7773a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7785a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7817a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7825a	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7876a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7892a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7930a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7948a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7960a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD7970a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8049a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8197a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8217a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8230a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
PD8272a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8308a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8377a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8378a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8408a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8428a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8476a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8511a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8556a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD8560a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9225a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9231a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9288a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PD9338a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PD9353a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	55.00	23.00	1.00	107.00	153.00	150.00	53.00	49.00	21.00	74.00	24.00	33.00	39.00	26.00	45.00	65.00	63.00	82.00	15.00	47.00	20.00	29.00	159.00
	1333.00																						

Table S7: Recurrent pairs in study observed more

Pairs	Occurrence
NPM1:FLT3	242
NPM1:DNMT3A	230
FLT3:DNMT3A	168
Complex:minus5_5q	92
NRAS:NPM1	81
Complex:TP53	73
TET2:NPM1	70
IDH2:DNMT3A	68
NRAS:DNMT3A	67
PTPN11:NPM1	66
minus5_5q:TP53	65
Complex:mono17_17p_abn17p	64
NPM1:IDH2	62
NPM1:IDH1	59
TET2:FLT3	59
NRAS:FLT3	51
mono17_17p_abn17p:minus5_5q	50
Complex:plus8_8q	50
plus8_8q:FLT3	49
IDH1:DNMT3A	48
Complex:minus7	46
mono17_17p_abn17p:TP53	44
inv16_t16_16:NRAS	44
TET2:DNMT3A	43
PTPN11:DNMT3A	42
RUNX1:FLT3	40
WT1:FLT3	37
Complex:mono12_12p_abn12p	37
FLT3:CEBPA	36
Complex:abn3q_other	36
MLL:FLT3	35
SFRS2:RUNX1	35
IDH1:FLT3	34
IDH2:FLT3	33
RAD21:NPM1	33
t_15_17:FLT3	33
Complex:NRAS	33
minus7:minus5_5q	30
PTPN11:FLT3	29
PTPN11:NRAS	29
RAD21:FLT3	29
RUNX1:DNMT3A	28

NPM1:CEBPA	27
Complex:minus9q	27
MLL:DNMT3A	26
Complex:del7q	26
DNMT3A:CEBPA	25
plus8_8q:NRAS	25
Complex:minus20_20q	25
NRAS:IDH1	24
RUNX1:NRAS	24
Complex:plus21	24
NRAS:CEBPA	23
NRAS:KRAS	23
mono12_12p_abn12p:minus5_5q	23
mono17_17p_abn17p:minus7	23
t_8_21:KIT	23
Complex:minus18_18q	23
GATA2:CEBPA	22
TET2:NRAS	22
minus7:TP53	22
Complex:FLT3	22
Complex:mono4_4q_abn4q	22
SFRS2:IDH2	21
minus7:NRAS	21
t_8_21:minusY	21
TET2:CEBPA	20
TET2:SFRS2	20
WT1:CEBPA	20
minus7:inv3_t3_3	20
plus8_8q:DNMT3A	20
minus18_18q:minus5_5q	20
NPM1:KRAS	19
RAD21:DNMT3A	19
RUNX1:MLL	19
STAG2:FLT3	19
minus7:PTPN11	19
minus18_18q:TP53	19
abn3q_other:minus5_5q	19
KRAS:DNMT3A	18
RUNX1:ASXL1	18
del7q:minus5_5q	18
mono12_12p_abn12p:TP53	18
inv16_t16_16:FLT3	18
abn3q_other:minus7	18
Complex:RUNX1	18
Complex:plus22	18
TET2:STAG2	17

plus8_8q:NPM1	17
plus8_8q:RUNX1	17
PTPN11:IDH1	16
RUNX1:IDH2	16
SFRS2:NPM1	16
STAG2:SFRS2	16
TET2:RUNX1	16
Complex:DNMT3A	16
Complex:KIT	16
SFRS2:ASXL1	15
SFRS2:FLT3	15
STAG2:NRAS	15
WT1:NPM1	15
plus8_8q:SFRS2	15
mono17_17p_abn17p:mono12_12p_abn12p	15
Complex:PTPN11	15
Complex:minusY	15
Complex:inv16_t16_16	15
MLL:IDH2	14
MYC:FLT3	14
NPM1:MYC	14
NRAS:ASXL1	14
NRAS:GATA2	14
NRAS:IDH2	14
PTPN11:IDH2	14
STAG2:NPM1	14
TP53:DNMT3A	14
minus5_5q:NRAS	14
minus7:RUNX1	14
minus20_20q:minus5_5q	14
inv16_t16_16:plus8_8q	14
abn3q_other:mono17_17p_abn17p	14
Complex:other7	14
RUNX1:IDH1	13
SFRS2:DNMT3A	13
STAG2:ASXL1	13
STAG2:IDH2	13
minus7:DNMT3A	13
del7q:TP53	13
plus8_8q:IDH2	13
minus9q:FLT3	13
mono17_17p_abn17p:minus9q	13
inv16_t16_16:plus22	13
abn3q_other:TP53	13
Complex:plus11_11q	13
FLT3:ASXL1	12

FLT3:CBL	12
FLT3:EZH2	12
KRAS:FLT3	12
NPM1:CBL	12
NRAS:KIT	12
RAD21:NRAS	12
STAG2:MLL	12
STAG2:RUNX1	12
WT1:NRAS	12
t_MLL:FLT3	12
t_MLL:NRAS	12
minus5_5q:DNMT3A	12
plus8_8q:TP53	12
plus8_8q:t_MLL	12
plus8_8q:minus5_5q	12
minus9q:TP53	12
minus9q:minus5_5q	12
mono12_12p_abn12p:minus7	12
minus20_20q:TP53	12
plus21:plus8_8q	12
inv16_t16_16:KIT	12
t_6_9:FLT3	12
DNMT3A:BCOR	11
PHF6:FLT3	11
RUNX1:BCOR	11
RUNX1:EZH2	11
SFRS2:IDH1	11
SFRS2:NRAS	11
TET2:ASXL1	11
TET2:MLL	11
minus5_5q:PTPN11	11
minus18_18q:mono17_17p_abn17p	11
minusY:KIT	11
t_15_17:WT1	11
t_8_21:FLT3	11
t_8_21:minus9q	11
abn3q_other:mono12_12p_abn12p	11
mono4_4q_abn4q:minus5_5q	11
Complex:t_MLL	11
Complex:plus13	11
Complex:t_8_21	11
IDH2:ASXL1	10
KIT:FLT3	10
NF1:DNMT3A	10
NPM1:KIT	10
NRAS:EZH2	10

STAG2:DNMT3A	10
TET2:KIT	10
TET2:PTPN11	10
other7:minus5_5q	10
plus8_8q:TET2	10
mono12_12p_abn12p:minus9q	10
mono17_17p_abn17p:plus8_8q	10
minus20_20q:mono17_17p_abn17p	10
mono4_4q_abn4q:TP53	10
GATA2:FLT3	9
MYC:DNMT3A	9
NPM1:NF1	9
NRAS:MLL	9
PTPN11:CEBPA	9
RAD21:PTPN11	9
RUNX1:PHF6	9
STAG2:EZH2	9
TP53:NRAS	9
minus5_5q:FLT3	9
minus7:KRAS	9
plus8_8q:ASXL1	9
plus8_8q:IDH1	9
plus8_8q:STAG2	9
minus9q:CEBPA	9
mono12_12p_abn12p:plus8_8q	9
plus13:RUNX1	9
mono17_17p_abn17p:del7q	9
minus18_18q:minus7	9
plus21:NRAS	9
t_15_17:plus8_8q	9
abn3q_other:NRAS	9
mono4_4q_abn4q:plus8_8q	9
EZH2:ASXL1	8
MLL:IDH1	8
NPM1:GATA2	8
NRAS:BCOR	8
PHF6:NPM1	8
PTPN11:KRAS	8
RUNX1:PTPN11	8
SF3B1:FLT3	8
SF3B1:NRAS	8
STAG2:CEBPA	8
U2AF1:NRAS	8
inv3_t3_3:NRAS	8
minus5_5q:RUNX1	8
del7q:DNMT3A	8

plus8_8q:KRAS	8
plus8_8q:WT1	8
mono12_12p_abn12p:NRAS	8
mono17_17p_abn17p:NRAS	8
plus21:TP53	8
plus22:FLT3	8
plus22:plus8_8q	8
inv16_t16_16:KRAS	8
abn3q_other:minus20_20q	8
plus11_11q:TP53	8
Complex:ASXL1	8
Complex:KRAS	8
Complex:SFRS2	8
Complex:TET2	8
DNMT3A:ASXL1	7
DNMT3A:CBL	7
EZH2:CEBPA	7
EZH2:DNMT3A	7
IDH2:BCOR	7
KIT:DNMT3A	7
MLL2:FLT3	7
RUNX1:KIT	7
RUNX1:KRAS	7
SF3B1:RUNX1	7
SFRS2:BCOR	7
SFRS2:MLL	7
STAG2:BCOR	7
STAG2:PTPN11	7
TET2:CBL	7
TET2:EZH2	7
TET2:RAD21	7
TP53:FLT3	7
TP53:PTPN11	7
U2AF1:FLT3	7
inv3_t3_3:PTPN11	7
minus7:ASXL1	7
del7q:FLT3	7
del7q:IDH2	7
del7q:NRAS	7
other7:NRAS	7
other7:TP53	7
plus13:plus8_8q	7
mono17_17p_abn17p:DNMT3A	7
mono17_17p_abn17p:other7	7
plus21:minus5_5q	7
plus21:mono17_17p_abn17p	7

plus22:NRAS	7
minusY:FLT3	7
t_8_21:NRAS	7
t_8_21:RAD21	7
abn3q_other:DNMT3A	7
abn3q_other:PTPN11	7
plus11_11q:plus8_8q	7
mono4_4q_abn4q:minus7	7
mono4_4q_abn4q:mono17_17p_abn17p	7
mono4_4q_abn4q:plus21	7
FLT3:EP300	6
IDH1:CEBPA	6
KRAS:ASXL1	6
KRAS:CEBPA	6
NF1:FLT3	6
NPM1:ASXL1	6
NPM1:BCOR	6
PHF6:DNMT3A	6
PHF6:IDH1	6
RAD21:CEBPA	6
RUNX1:NPM1	6
SF3B1:CBL	6
SF3B1:DNMT3A	6
TET2:KRAS	6
U2AF1:ASXL1	6
U2AF1:MLL	6
U2AF1:TET2	6
t_MLL:KRAS	6
inv3_t3_3:KRAS	6
minus5_5q:MLL	6
minus7:SF3B1	6
plus8_8q:EZH2	6
plus8_8q:MLL	6
plus8_8q:PTPN11	6
minus9q:NPM1	6
minus9q:plus8_8q	6
mono12_12p_abn12p:FLT3	6
mono17_17p_abn17p:ASXL1	6
mono17_17p_abn17p:SFRS2	6
minus20_20q:U2AF1	6
minus20_20q:minus7	6
plus21:plus13	6
plus22:minus5_5q	6
abn3q_other:FLT3	6
abn3q_other:minus9q	6
plus11_11q:minus5_5q	6

mono4_4q_abn4q:DNMT3A	6
mono4_4q_abn4q:abn3q_other	6
Complex:NF1	6
BCOR:ASXL1	5
DNMT3A:CREBBP	5
EP300:CEBPA	5
GATA2:DNMT3A	5
IDH2:CEBPA	5
IDH2:IDH1	5
KIT:CEBPA	5
KRAS:IDH1	5
NPM1:MLL2	5
NRAS:CBL	5
NRAS:EP300	5
NRAS:ETV6	5
PHF6:ASXL1	5
PHF6:KRAS	5
PTPN11:ASXL1	5
RAD21:KRAS	5
SFRS2:CEBPA	5
STAG2:IDH1	5
TET2:BCOR	5
TET2:NF1	5
TET2:PHF6	5
U2AF1:DNMT3A	5
WT1:DNMT3A	5
ZRSR2:FLT3	5
minus5_5q:NF1	5
minus7:EZH2	5
plus8_8q:KIT	5
plus8_8q:U2AF1	5
plus8_8q:del7q	5
minus9q:NRAS	5
minus9q:minus7	5
mono12_12p_abn12p:DNMT3A	5
mono12_12p_abn12p:KRAS	5
mono12_12p_abn12p:RUNX1	5
mono12_12p_abn12p:STAG2	5
mono12_12p_abn12p:del7q	5
plus13:FLT3	5
plus13:SFRS2	5
mono17_17p_abn17p:FLT3	5
mono17_17p_abn17p:PTPN11	5
mono17_17p_abn17p:RUNX1	5
minus18_18q:DNMT3A	5
minus20_20q:minus18_18q	5

plus21:CEBPA	5
plus22:plus13	5
plus22:plus21	5
minusY:DNMT3A	5
minusY:EZH2	5
minusY:NRAS	5
t_8_21:TET2	5
inv16_t16_16:del7q	5
inv16_t16_16:plus21	5
abn3q_other:plus8_8q	5
Complex:EZH2	5
Complex:IDH2	5
Complex:MLL	5
Complex:PHF6	5
Complex:SF3B1	5
Complex:STAG2	5
Complex:inv3_t3_3	5

Table S8: Recurrent triplets in study, restricted to over 4 observatio

Triplet	Occurrence in study
NPM1:FLT3:DNMT3A	130
Complex:minus5_5q:TP53	60
Complex:mono17_17p_abn17p:minus5_5q	49
NRAS:NPM1:DNMT3A	48
Complex:mono17_17p_abn17p:TP53	44
PTPN11:NPM1:DNMT3A	38
mono17_17p_abn17p:minus5_5q:TP53	38
TET2:NPM1:FLT3	35
NPM1:IDH2:DNMT3A	33
NPM1:IDH1:DNMT3A	32
TET2:NPM1:DNMT3A	30
Complex:minus7:minus5_5q	25
NPM1:IDH1:FLT3	24
NPM1:IDH2:FLT3	24
Complex:mono17_17p_abn17p:minus7	23
Complex:mono12_12p_abn12p:minus5_5q	22
NRAS:NPM1:FLT3	21
PTPN11:NPM1:FLT3	21
RAD21:NPM1:FLT3	20
Complex:minus7:TP53	20
Complex:minus18_18q:minus5_5q	20
TET2:FLT3:DNMT3A	19
Complex:minus18_18q:TP53	19
Complex:abn3q_other:minus5_5q	19
NRAS:IDH1:DNMT3A	18
PTPN11:NRAS:NPM1	18
Complex:del7q:minus5_5q	18
Complex:abn3q_other:minus7	18
NRAS:NPM1:IDH1	17
minus7:minus5_5q:TP53	17
mono17_17p_abn17p:minus7:minus5_5q	17
minus18_18q:minus5_5q:TP53	17
Complex:mono12_12p_abn12p:TP53	17
IDH1:FLT3:DNMT3A	16
IDH2:FLT3:DNMT3A	16
RAD21:NPM1:DNMT3A	16
MLL:FLT3:DNMT3A	15
NPM1:FLT3:CEBPA	15
NRAS:FLT3:DNMT3A	15
PTPN11:NPM1:IDH1	15
mono12_12p_abn12p:minus5_5q:TP53	15
mono17_17p_abn17p:minus7:TP53	15

Complex:mono17_17p_abn17p:mono12_12	15
PTPN11:FLT3:DNMT3A	14
PTPN11:NRAS:DNMT3A	14
Complex:minus20_20q:minus5_5q	14
NPM1:DNMT3A:CEBPA	13
NPM1:KRAS:DNMT3A	13
RUNX1:FLT3:DNMT3A	13
WT1:NPM1:FLT3	13
mono17_17p_abn17p:mono12_12p_abn12p	13
Complex:del7q:TP53	13
Complex:mono17_17p_abn17p:minus9q	13
Complex:abn3q_other:TP53	13
PTPN11:NPM1:IDH2	12
Complex:minus9q:TP53	12
Complex:minus9q:minus5_5q	12
Complex:minus20_20q:TP53	12
Complex:plus21:plus8_8q	12
Complex:abn3q_other:mono17_17p_abn17	12
FLT3:DNMT3A:CEBPA	11
RUNX1:MLL:FLT3	11
del7q:minus5_5q:TP53	11
minus18_18q:mono17_17p_abn17p:minus5	11
inv16_t16_16:plus8_8q:NRAS	11
Complex:plus8_8q:NRAS	11
Complex:mono12_12p_abn12p:minus7	11
Complex:minus18_18q:mono17_17p_abn17	11
Complex:mono4_4q_abn4q:minus5_5q	11
RAD21:NRAS:NPM1	10
TET2:NRAS:NPM1	10
plus8_8q:FLT3:DNMT3A	10
plus8_8q:minus5_5q:TP53	10
mono12_12p_abn12p:minus7:minus5_5q	10
mono17_17p_abn17p:mono12_12p_abn12p	10
minus20_20q:minus5_5q:TP53	10
abn3q_other:minus5_5q:TP53	10
abn3q_other:mono17_17p_abn17p:minus5_	10
mono4_4q_abn4q:minus5_5q:TP53	10
Complex:plus8_8q:minus5_5q	10
Complex:minus20_20q:mono17_17p_abn17	10
Complex:inv16_t16_16:plus8_8q	10
Complex:abn3q_other:mono12_12p_abn12	10
Complex:mono4_4q_abn4q:TP53	10
NRAS:GATA2:CEBPA	9
plus8_8q:NPM1:FLT3	9
minus9q:minus5_5q:TP53	9
mono17_17p_abn17p:minus9q:minus5_5q	9

minus18_18q:mono17_17p_abn17p:TP53	9
t_8_21:minusY:KIT	9
inv16_t16_16:NRAS:FLT3	9
abn3q_other:minus7:minus5_5q	9
abn3q_other:mono12_12p_abn12p:minus5_	9
Complex:TP53:DNMT3A	9
Complex:plus8_8q:TP53	9
Complex:mono12_12p_abn12p:minus9q	9
Complex:mono17_17p_abn17p:del7q	9
Complex:inv16_t16_16:NRAS	9
NPM1:MYC:FLT3	8
NPM1:NF1:DNMT3A	8
NRAS:KRAS:DNMT3A	8
NRAS:NPM1:KRAS	8
PTPN11:IDH1:DNMT3A	8
PTPN11:IDH2:DNMT3A	8
RAD21:PTPN11:NPM1	8
RUNX1:NRAS:DNMT3A	8
SFRS2:RUNX1:ASXL1	8
SFRS2:RUNX1:FLT3	8
STAG2:NPM1:FLT3	8
TET2:NRAS:DNMT3A	8
TET2:PTPN11:NPM1	8
mono17_17p_abn17p:del7q:minus5_5q	8
mono17_17p_abn17p:minus9q:TP53	8
minus20_20q:mono17_17p_abn17p:minus5	8
Complex:TP53:NRAS	8
Complex:minus5_5q:DNMT3A	8
Complex:minus5_5q:NRAS	8
Complex:minus5_5q:PTPN11	8
Complex:minus7:NRAS	8
Complex:minus7:RUNX1	8
Complex:other7:minus5_5q	8
Complex:mono12_12p_abn12p:plus8_8q	8
Complex:mono17_17p_abn17p:plus8_8q	8
Complex:minus18_18q:minus7	8
Complex:plus22:plus8_8q	8
Complex:t_8_21:KIT	8
Complex:inv16_t16_16:plus22	8
Complex:abn3q_other:minus20_20q	8
Complex:mono4_4q_abn4q:plus8_8q	8
NPM1:KRAS:FLT3	7
NPM1:MYC:DNMT3A	7
NRAS:IDH2:DNMT3A	7
NRAS:NPM1:IDH2	7
RAD21:FLT3:DNMT3A	7

SFRS2:NPM1:IDH2	7
TET2:RUNX1:FLT3	7
TET2:STAG2:RUNX1	7
minus5_5q:TP53:DNMT3A	7
minus7:inv3_t3_3:NRAS	7
minus7:inv3_t3_3:PTPN11	7
other7:minus5_5q:TP53	7
plus8_8q:NPM1:DNMT3A	7
mono12_12p_abn12p:minus7:TP53	7
mono17_17p_abn17p:del7q:TP53	7
minus18_18q:minus7:minus5_5q	7
plus21:minus5_5q:TP53	7
abn3q_other:mono12_12p_abn12p:minus7	7
abn3q_other:mono17_17p_abn17p:TP53	7
abn3q_other:mono17_17p_abn17p:minus7	7
mono4_4q_abn4q:mono17_17p_abn17p:TP	7
mono4_4q_abn4q:mono17_17p_abn17p:m	7
Complex:minus5_5q:RUNX1	7
Complex:other7:TP53	7
Complex:plus13:plus8_8q	7
Complex:mono17_17p_abn17p:other7	7
Complex:plus21:TP53	7
Complex:plus21:minus5_5q	7
Complex:plus21:mono17_17p_abn17p	7
Complex:plus11_11q:TP53	7
Complex:mono4_4q_abn4q:minus7	7
Complex:mono4_4q_abn4q:mono17_17p_a	7
Complex:mono4_4q_abn4q:plus21	7
KRAS:FLT3:DNMT3A	6
MYC:FLT3:DNMT3A	6
PHF6:NPM1:FLT3	6
PTPN11:NRAS:IDH1	6
RAD21:NRAS:DNMT3A	6
RUNX1:MLL:DNMT3A	6
RUNX1:NRAS:FLT3	6
SFRS2:RUNX1:DNMT3A	6
SFRS2:RUNX1:IDH2	6
STAG2:SFRS2:IDH2	6
TET2:MLL:FLT3	6
TET2:PTPN11:FLT3	6
minus5_5q:TP53:PTPN11	6
minus7:RUNX1:NRAS	6
minus7:inv3_t3_3:KRAS	6
plus8_8q:SFRS2:RUNX1	6
plus8_8q:WT1:FLT3	6
mono12_12p_abn12p:minus9q:minus5_5q	6

mono17_17p_abn17p:TP53:DNMT3A	6
mono17_17p_abn17p:other7:minus5_5q	6
mono17_17p_abn17p:mono12_12p_abn12p	6
minus18_18q:minus7:TP53	6
minus20_20q:mono17_17p_abn17p:TP53	6
plus21:mono17_17p_abn17p:TP53	6
plus21:mono17_17p_abn17p:minus5_5q	6
t_15_17:WT1:FLT3	6
inv16_t16_16:plus22:NRAS	6
abn3q_other:mono12_12p_abn12p:TP53	6
plus11_11q:minus5_5q:TP53	6
Complex:minus5_5q:FLT3	6
Complex:minus7:DNMT3A	6
Complex:minus7:PTPN11	6
Complex:plus8_8q:FLT3	6
Complex:plus8_8q:t_MLL	6
Complex:mono17_17p_abn17p:DNMT3A	6
Complex:mono17_17p_abn17p:NRAS	6
Complex:minus20_20q:minus7	6
Complex:plus22:minus5_5q	6
Complex:abn3q_other:NRAS	6
Complex:abn3q_other:PTPN11	6
Complex:abn3q_other:minus9q	6
Complex:plus11_11q:minus5_5q	6
Complex:mono4_4q_abn4q:abn3q_other	6
KRAS:IDH1:DNMT3A	5
NPM1:DNMT3A:CBL	5
NPM1:IDH2:IDH1	5
NPM1:KIT:DNMT3A	5
NPM1:NF1:FLT3	5
NRAS:KRAS:FLT3	5
PHF6:NPM1:DNMT3A	5
RUNX1:DNMT3A:BCOR	5
RUNX1:FLT3:EZH2	5
RUNX1:IDH2:DNMT3A	5
SFRS2:NRAS:ASXL1	5
SFRS2:RUNX1:IDH1	5
STAG2:MLL:FLT3	5
STAG2:MLL:IDH2	5
STAG2:PTPN11:NPM1	5
TET2:DNMT3A:CEBPA	5
TET2:NPM1:CEBPA	5
TET2:RAD21:FLT3	5
TET2:RUNX1:DNMT3A	5
TET2:SFRS2:NPM1	5
TET2:STAG2:ASXL1	5

TET2:STAG2:FLT3	5
WT1:FLT3:CEBPA	5
WT1:NRAS:CEBPA	5
minus5_5q:TP53:NRAS	5
minus7:RUNX1:PTPN11	5
minus7:TP53:DNMT3A	5
minus7:minus5_5q:NRAS	5
del7q:IDH2:DNMT3A	5
plus8_8q:IDH2:DNMT3A	5
plus8_8q:NRAS:FLT3	5
plus8_8q:RUNX1:FLT3	5
mono17_17p_abn17p:minus5_5q:DNMT3A	5
mono17_17p_abn17p:other7:TP53	5
mono17_17p_abn17p:plus8_8q:TP53	5
mono17_17p_abn17p:plus8_8q:minus5_5q	5
mono17_17p_abn17p:mono12_12p_abn12p	5
minus18_18q:mono17_17p_abn17p:minus7	5
minus20_20q:minus7:TP53	5
minus20_20q:minus7:minus5_5q	5
minus20_20q:mono17_17p_abn17p:minus7	5
minus20_20q:minus18_18q:TP53	5
plus21:plus13:plus8_8q	5
plus22:plus8_8q:NRAS	5
t_15_17:plus8_8q:FLT3	5
inv16_t16_16:plus22:plus8_8q	5
abn3q_other:minus7:TP53	5
abn3q_other:mono17_17p_abn17p:mono12	5
abn3q_other:minus20_20q:minus5_5q	5
mono4_4q_abn4q:TP53:DNMT3A	5
mono4_4q_abn4q:minus5_5q:DNMT3A	5
mono4_4q_abn4q:minus7:minus5_5q	5
mono4_4q_abn4q:abn3q_other:minus5_5q	5
Complex:SFRS2:RUNX1	5
Complex:TP53:PTPN11	5
Complex:minus9q:minus7	5
Complex:minus9q:plus8_8q	5
Complex:mono12_12p_abn12p:NRAS	5
Complex:mono12_12p_abn12p:del7q	5
Complex:mono17_17p_abn17p:PTPN11	5
Complex:minus20_20q:minus18_18q	5
Complex:plus21:NRAS	5
Complex:plus21:plus13	5
Complex:plus22:NRAS	5
Complex:plus22:plus13	5
Complex:plus22:plus21	5
Complex:t_8_21:minusY	5

Complex:abn3q_other:DNMT3A	5
Complex:abn3q_other:plus8_8q	5
Complex:plus11_11q:plus8_8q	5
Complex:mono4_4q_abn4q:DNMT3A	5

Table S9: Pairwise precedences in study. Value in each tile indicates number of occasions were the VAF estimates of the x axis gene and the cor

Mutations in Gene Clonal to partner gene in pairwise interaction

Mutations in Gene Subclonal to partner gene in pairwise interaction																																					
Gene	ASXL1	ATRX	BCOR	BRAF	CBL	CBLB	CDKN2A	CEBPA*	CREBBP	CUX1	DNMT3A	EP300	ETV6	EZH2	FBXW7	FLT3_TKD	GATA2	GNAS	IDH1	IDH2	IKZF1	JAK2	KDM5A	KDM6A	KIT	KRAS	MLL	MLL2	MLL3	MLL5	MPL	MYC	NF1	NPM1	NRAS	PHF6	PRPF40B
ASXL1	0	1	4	0	1	1	0	0	0	0	1	1	1	3	0	4	0	0	2	3	0	1	0	0	2	3	0	0	0	0	0	0	1	3	8	3	0
ATRX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
BCOR	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	2	2	3	1	0
BRAF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CBL	0	1	0	0	1	0	0	1	0	0	2	0	0	0	1	1	0	0	0	2	0	0	2	0	1	1	0	1	0	0	0	0	0	9	1	1	0
CBLB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CDKN2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
CEBPA*	0	0	0	0	0	0	0	5	0	0	2	0	4	4	1	1	4	0	1	0	0	0	0	0	0	1	0	0	2	0	1	1	0	4	10	0	0
CREBBP	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CUX1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
DNMT3A	4	2	4	0	5	0	0	6	1	0	7	2	0	2	0	34	3	0	22	20	0	0	1	1	4	11	1	1	1	0	0	5	6	177	52	3	1
EP300	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
ETV6	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0
EZH2	1	0	2	1	1	0	0	2	0	0	0	0	0	2	0	3	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	3	3	2	0
FBXW7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
FLT3_TKD	0	0	1	0	1	0	0	1	0	0	5	0	1	0	0	2	1	0	1	0	0	0	1	0	0	0	0	1	0	0	0	2	0	24	5	2	0
GATA2	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	4	5	0	0
GNAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IDH1	0	1	1	0	1	0	0	2	0	0	6	0	1	1	0	5	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	2	1	32	10	2	0
IDH2	4	0	2	0	0	0	0	1	1	0	11	1	0	2	0	6	0	0	0	1	0	1	0	0	1	3	0	0	0	0	0	0	2	37	11	3	0
IKZF1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JAK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
KDM5A	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KDM6A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KIT	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	1	0	0	0	0	5	1	0	0
KRAS	0	0	1	0	0	0	0	0	0	0	1	0	2	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3	1	1	0
MLL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MLL2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
MLL3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
MLL5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
MPL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MYC	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0
NF1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	1	0	0
NPM1	1	0	0	0	1	0	0	0	0	0	2	1	0	0	0	12	0	0	0	1	0	0	0	0	1	1	0	1	0	1	0	1	1	0	4	1	0
NRAS	1	0	3	0	0	0	0	0	0	0	4	1	2	3	0	2	1	0	2	0	0	0	0	0	0	1	1	1	0	0	0	0	0	27	2	0	0
PHF6	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	3	0	0	3	0	0	1	0	1	0	2	0	0	0	0	0	0	1	4	1	0	0
PRPF40B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PTEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
PTPN11	1	0	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	12	1	2	0
RAD21	3	0	0	0	0	0	0	1	0	0	2	0	0	1	1	8	0	0	1	1	0	0	0	0	2	2	0	0	0	1	0	0	1	18	3	0	0
RB1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
RUNX1	3	0	2	0	1	0	0	1	0	0	6	1	0	4	0	10	0	0	4	3	0	0	2	0	3	3	0	0	2	0	0	1	0	1	12	5	0
SF1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
SF3A1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
SF3B1	1	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4	0	0
SFRS2	1	0	2	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	1	2	0	0	0	0	0	3	0	0	0	0	0	1	0	3	5	1	0
SH2B3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STAG2	1	1	2	0	1	0	0	2	0	0	2	1	0	4	0	7	1	0	1	2	0	0	0	1	0	2	0	1	0	0	0	0	1	8	8	0	0
TET2	0	0	2	2	3	0	0	7	2	1	13	0	0	5	0	8	2	0	0	1	0	0	0	0	8	2	0	1	0	0	1	1	1	59	14	4	0
TP53	1	0	1	0	0	0	0	0	0	0	2	1	0	1	0	2	1	0	1	1	0	0	0	1	1	1	0	0	1	0	0	0	2	1	4	0	0
U2AF1	1	0	0	0	1	0	0	0	0	0	1	0	1	1	0	1	0	0	1	1	0	1	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0
U2AF2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
WT1	0	0	0	0	0	0	0	4	0	0	1	0	2	0	0	4	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	7	4	0	0
ZRSR2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	3	0	0

* CEBPA VAF estimates are limited to the proportion of cases detected by NGS.

PTEN	PTPN11	RAD21	RB1	RUNX1	SF1	SF3A1	SF3B1	SFRS2	SH2B3	STAG2	TET2	TP53	U2AF1	U2AF2	WT1	ZRSR2
0	2	0	1	8	0	0	0	2	0	7	4	1	2	0	1	1
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	2	0	0	0	0	0	0	3	1	2	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	1	1	0	0	4	0	0	0	2	2	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	1	0
0	36	6	1	13	0	0	3	5	0	4	25	3	1	0	2	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	1	1	4	0	0	0	0	0	4	1	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	2	2	0	2	0	0	2	0	0	0	1	1	1	0	3	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	1	0	0	0	2	0	1	0	0	0	0	0	0
0	7	0	0	3	0	0	0	5	0	2	0	0	1	0	0	0
0	7	0	1	2	0	0	1	4	0	6	1	0	1	0	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0
0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	11	3	0	0	0	0	0	0	0	2	5	0	0	0	1	0
0	0	1	0	7	0	0	2	3	0	2	5	2	3	0	2	0
0	0	0	0	3	0	0	0	0	0	0	1	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	3	0	0	0	0	0	1	0	0	0	0	0	0
0	3	0	0	3	0	0	0	1	0	2	2	0	0	0	0	0
1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
0	2	0	0	8	0	0	1	5	0	2	9	0	0	0	3	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	0	4	0	0	0	1	0	1	1	0	0	0	0	0
0	0	0	0	5	0	0	0	0	0	3	3	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	2	0	0	4	0	0	0	2	0	0	10	1	2	0	1	0
1	7	4	0	3	0	0	0	6	0	7	32	3	2	0	2	1
0	6	0	0	0	0	0	1	0	0	0	2	4	0	0	0	1
0	1	0	0	2	0	0	0	0	0	0	3	1	0	1	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	3	0
0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0

Table S10. RFX coefficients for overall survival

	group	beta (log-ha	hazard exp(	n	sd	sd (bootstra	sd (var)	P-value	Q (Benjamini-Y	Q (Benjamini-Hochberg)
AOD_10	Demograp	0.250876	1.28515		0.036336	0.041026	0.037845	5.04207E-12	6.97831E-09	1.15968E-09
inv16_t16_16	Fusions	-1.35812	0.257143	82	0.230488	0.218734	0.242967	3.8066E-09	2.6342E-06	4.37759E-07
t_15_17	Fusions	-1.30007	0.272512	65	0.238106	0.214252	0.247876	4.76005E-08	2.196E-05	3.64937E-06
wbc_100	Clinical	0.287192	1.33268		0.056701	0.074127	0.0684	4.08283E-07	0.000141268	2.34763E-05
TPL_os	Treatment	-0.46151	0.63033		0.093789	0.098154	0.096778	8.62285E-07	0.000238684	3.96651E-05
complex	CNA	0.360271	1.433718	159	0.0754	0.06754	0.112497	1.7694E-06	0.000408146	6.78269E-05
TP53	Genetics	0.556954	1.745348	98	0.123771	0.131025	0.152727	6.79978E-06	0.001344431	0.000223421
inv3_t3_3	Fusions	1.075396	2.931154	23	0.242152	0.277588	0.265088	8.95434E-06	0.001549121	0.000257437
CEBPA_bi	Genetics	-0.55144	0.576117	73	0.13406	0.169786	0.182138	3.89851E-05	0.005995116	0.000996286
NPM1:FLT3_ITD:DNMT3A	GeneGene	0.413543	1.512166	93	0.110179	0.108421	0.206511	0.000174463	0.024145934	0.004012641
AMLHD98B	Nuisance	0.63478	1.886606		0.171448	0.217672	0.20049	0.000213511	0.026863966	0.004464331
AMLHD98A	Nuisance	0.489512	1.63152		0.133878	0.159397	0.150147	0.000255791	0.029501598	0.00490266
NPM1	Genetics	-0.36004	0.697652	436	0.10112	0.122222	0.140391	0.000370173	0.039409737	0.006549223
MLL:FLT3_TKD	GeneGene	0.364783	1.440201	10	0.105021	0.086535	0.252739	0.00051383	0.05079641	0.008441493
minus5_5q	CNA	0.265779	1.304446	107	0.078431	0.068501	0.122991	0.000702215	0.064791873	0.0107673
FLT3_ITD	Genetics	0.335876	1.399166	341	0.099863	0.111937	0.126383	0.000769972	0.066603397	0.011068344
DNMT3A:RAD21	GeneGene	-0.38492	0.680504	19	0.115128	0.090535	0.24502	0.000827529	0.067371447	0.011195981
plus21	CNA	0.275869	1.317675	39	0.085617	0.079688	0.138348	0.00127245	0.097838513	0.016259085
BM_Blasts_100	Clinical	0.215513	1.240499		0.069365	0.089548	0.107774	0.001890414	0.137703471	0.022883958
Performance_ECOG	Clinical	0.146641	1.157939		0.048246	0.059428	0.052959	0.002370029	0.164008103	0.027255338
SFRS2	Genetics	0.335522	1.39867	89	0.110995	0.12044	0.164129	0.002503997	0.165027407	0.027424729
minus7	CNA	0.25245	1.287175	88	0.08398	0.074282	0.118234	0.002646462	0.166488635	0.02766756
mono17_17p_abn17p	CNA	0.246221	1.279182	74	0.082594	0.079886	0.124237	0.002872034	0.172823682	0.028720336
plus13	CNA	0.233422	1.262915	21	0.080127	0.075891	0.150936	0.003578186	0.206344661	0.034290948
VPA	Treatment	0.371581	1.450026		0.129618	0.163086	0.138964	0.00414734	0.223166581	0.037086463
HB_10	Clinical	0.203863	1.226131		0.07133	0.092509	0.115909	0.004263027	0.223166581	0.037086463
NRAS:FLT3_other	GeneGene	-0.34514	0.708123	16	0.121044	0.104032	0.237995	0.004353628	0.223166581	0.037086463
sAML	Clinical	0.206999	1.229982		0.073065	0.092977	0.112703	0.004610063	0.227871715	0.037868376
DNMT3A:IDH2_p140	GeneGene	0.343428	1.409773	47	0.127062	0.122313	0.196237	0.006874767	0.319256584	0.053054976
LDH_1000	Clinical	0.12556	1.133783		0.046492	0.051143	0.051993	0.006920214	0.319256584	0.053054976
plus22	CNA	0.208161	1.231411	26	0.077944	0.081921	0.15342	0.007570499	0.337990435	0.056168221
BRAF	Genetics	0.324925	1.383926	9	0.124656	0.147804	0.26027	0.00914523	0.3872442	0.064353353
NPM1:FLT3_TKD	GeneGene	-0.32121	0.72527	53	0.123386	0.114272	0.205852	0.009233307	0.3872442	0.064353353
minus9q	CNA	0.220366	1.246533	53	0.086947	0.072058	0.132227	0.011261322	0.458407846	0.076179532
STAG2:IDH2_p140	GeneGene	-0.27255	0.761437	11	0.110828	0.085872	0.243647	0.01392442	0.550618321	0.091503334
minus7q	CNA	0.2125069	1.2367747	45	0.0882716	0.0745452	0.1368701	0.016065623	0.617641767	0.102641483
SFRS2:STAG2	GeneGene	0.2843648	1.3289177	15	0.121762	0.1020018	0.230733	0.019521697	0.718920936	0.119472346
CBL:NPM1	GeneGene	-0.26716	0.7655503	12	0.1148161	0.0957221	0.2452799	0.019973031	0.718920936	0.119472346
BCOR:RUNX1	GeneGene	-0.261539	0.7698661	10	0.112658	0.0935473	0.2432376	0.020258354	0.718920936	0.119472346
NPM1:RAD21	GeneGene	-0.259389	0.7715226	33	0.1129473	0.109622	0.2325017	0.021644299	0.748902215	0.124454721
MissingCyto	Nuisance	0.245245	1.2779344		0.1072725	0.1118188	0.1152266	0.022243297	0.750856388	0.124779471
tAML	Clinical	0.1649407	1.1793231		0.0728631	0.0795022	0.1115541	0.02359226	0.776661494	0.129067838
TET2:FLT3_ITD	GeneGene	0.2906718	1.3373256	48	0.128898	0.1020818	0.1886702	0.024130074	0.776661494	0.129067838
PB_Blasts_100	Clinical	0.1521858	1.1643766		0.0680459	0.0845149	0.0974933	0.025317859	0.796295798	0.132330723
MLL:NRAS	GeneGene	0.2447128	1.2772544	9	0.1098428	0.1043315	0.2498731	0.025890794	0.796295798	0.132330723
abn7other	CNA	0.1648492	1.1792153	20	0.0774259	0.094329	0.1508259	0.033244276	0.951168969	0.158067991
BCOR:NRAS	GeneGene	0.2029309	1.2249878	8	0.0955396	0.0815087	0.2595163	0.033665971	0.951168969	0.158067991
KRAS:PTPN11	GeneGene	0.2331227	1.2625363	8	0.1098961	0.1044101	0.2521877	0.033896474	0.951168969	0.158067991
KRAS	Genetics	0.2602296	1.2972279	74	0.1228967	0.1189677	0.1570031	0.034220354	0.951168969	0.158067991
t_8_21	Fusions	-0.414673	0.6605563	63	0.1959896	0.2064716	0.2091139	0.034362607	0.951168969	0.158067991
ASXL1	Genetics	0.2397665	1.2709523	70	0.1164304	0.1184486	0.1622121	0.039464346	1	0.177976463
ZRSR2	Genetics	0.2800242	1.3231619	13	0.1373307	0.1295256	0.2349034	0.041444929	1	0.183314109
PHF6:RUNX1	GeneGene	0.2201154	1.2462205	9	0.1088408	0.1045337	0.2467281	0.043139093	1	0.187207386
DNMT3A:SFRS2	GeneGene	-0.251595	0.7775593	11	0.1265951	0.1128188	0.2259164	0.046877883	1	0.199665056
CEBPA_mono	Genetics	-0.245037	0.7826753	56	0.1270833	0.1403999	0.1829749	0.053834932	1	0.225127896
DNMT3A:TP53	GeneGene	0.2436739	1.2759282	14	0.1278984	0.1182056	0.2264113	0.056752157	1	0.230205192
FLT3_ITD:IDH2_p140	GeneGene	-0.241677	0.78531	18	0.1270031	0.1121157	0.2203249	0.057050852	1	0.230205192
ASXL1:EZH2	GeneGene	-0.21278	0.8083336	8	0.1127466	0.0996505	0.2424717	0.059127372	1	0.23355039
WT1:CEBPA_bi	GeneGene	-0.219359	0.8030336	14	0.1165902	0.0927854	0.2422988	0.059910752	1	0.23355039
t_v_11	Fusions	0.3566831	1.428583	37	0.1912517	0.199124	0.1988039	0.062182347	1	0.237859581
platelet_100	Clinical	-0.071064	0.9314019		0.0384648	0.048819	0.0412024	0.064672238	1	0.237859581
IDH1:NRAS	GeneGene	-0.233807	0.7915146	24	0.1269998	0.1006421	0.22096	0.065621083	1	0.237859581
ASXL1:NRAS	GeneGene	0.2244156	1.251591	14	0.1221883	0.1002419	0.2302692	0.066263405	1	0.237859581
IDH2_p172	Genetics	-0.253207	0.7763069	39	0.1383176	0.1409776	0.1949242	0.067156781	1	0.237859581
NRAS:SF3B1	GeneGene	-0.219122	0.803224	8	0.119726	0.0905097	0.2387095	0.067221186	1	0.237859581
NRAS:TET2	GeneGene	0.2392103	1.2702456	22	0.1327949	0.1178596	0.2176878	0.071647615	1	0.249681083
MLL:FLT3_ITD	GeneGene	-0.223589	0.7996441	20	0.1271448	0.1297949	0.2150146	0.078656579	1	0.27001512
KIT:TET2	GeneGene	0.2046767	1.2271283	10	0.1187608	0.1020807	0.2415547	0.084809634	1	0.286856115
IDH1:MLL	GeneGene	-0.201603	0.8174197	8	0.1192309	0.0980004	0.2368016	0.090863911	1	0.302879704
IKZF1	Genetics	0.0956109	1.1003308	1	0.0578796	0.063415	0.2915675	0.09855662	1	0.323828894
EZH2	Genetics	0.209233	1.2327322	46	0.127287	0.1294852	0.183181	0.100219851	1	0.324655856
ATRA	Treatment	-0.13938	0.8698974		0.0864146	0.0893999	0.0902307	0.106761445	1	0.336829282
FLT3_other	Genetics	-0.197379	0.8208796	83	0.1224242	0.1353069	0.1702426	0.106906685	1	0.336829282
NRAS:CEBPA_bi	GeneGene	-0.181374	0.8341238	20	0.1146593	0.1053408	0.2420521	0.113684435	1	0.353343513
PTPN11:IDH2_p140	GeneGene	-0.186207	0.8301015	13	0.119292	0.0908302	0.2375905	0.118538857	1	0.363519163
NRAS:WT1	GeneGene	-0.176173	0.8384726	11	0.1140264	0.098581	0.2470913	0.122340778	1	0.365523454
IDH1:NPM1	GeneGene	0.1882196	1.2070986	58	0.1222968	0.1114911	0.1974577	0.123794498	1	0.365523454
DNMT3A:FLT3_other	GeneGene	0.1872153	1.2058869	25	0.1216978	0.1009679	0.2303386	0.123960128	1	0.365523454
DNMT3A:CEBPA_mono	GeneGene	-0.181888	0.8336948	18	0.1193124	0.1299519	0.2368225	0.12739196	1	0.370887984
U2AF1	Genetics	0.2014427	1.2231717	37	0.1338814	0.1589355	0.173412	0.132409191	1	0.377894396
DNMT3A:RUNX1	GeneGene	-0.189098	0.8277051	27	0.1263854	0.1170339	0.2065733	0.13460053	1	0.377894396
GATA2:CEBPA_bi	GeneGene	-0.155771	0.8557548	15	0.104145	0.1012635	0.2497092	0.134727567	1	0.377894396
EZH2:STAG2	GeneGene	0.1529793	1.1653009	9	0.1092735	0.0906967	0.2494903	0.16152292	1	0.447593633

NPM1:NRAS	GeneGene	-0.174732	0.8396819	80	0.1255411	0.1224866	0.1923904	0.163973466	1	0.448974967
NRAS	Genetics	0.131433	1.1404615	263	0.0969421	0.0959874	0.1232311	0.175166333	1	0.461121902
CBLB	Genetics	0.0858257	1.0896164	1	0.0635028	0.078563	0.2903773	0.176526412	1	0.461121902
DNMT3A:PTPN11	GeneGene	0.1715434	1.1871357	42	0.1270087	0.1099294	0.2109834	0.176809893	1	0.461121902
RUNX1:FLT3_TKD	GeneGene	0.146709	1.1580169	8	0.1086222	0.0904471	0.248995	0.176812225	1	0.461121902
IDH1:SFRS2	GeneGene	0.155854	1.1686556	11	0.1158256	0.0944269	0.2411327	0.178434127	1	0.461121902
RUNX1:TET2	GeneGene	0.1625134	1.1764641	16	0.1225025	0.1230056	0.2294966	0.184636502	1	0.471848839
MLL	Genetics	0.1489538	1.1606193	79	0.1146616	0.1110431	0.1740291	0.193918723	1	0.48862912
TET2:FLT3_other	GeneGene	0.1296212	1.1383971	8	0.1005362	0.1041038	0.2553078	0.197294176	1	0.48862912
NPM1:TET2	GeneGene	-0.161973	0.850464	70	0.1257079	0.1150466	0.1872583	0.197576123	1	0.48862912
plus11_11q	CNA	0.102838	1.1083119	20	0.0805424	0.0898017	0.1461046	0.201666141	1	0.49343843
PRPF40B	Genetics	0.1116577	1.1181301	3	0.0881002	0.1085171	0.2821526	0.205014348	1	0.496350527
PHF6	Genetics	0.1674442	1.1822793	44	0.1332473	0.1262168	0.1803457	0.208883195	1	0.499850025
NRAS:RUNX1	GeneGene	0.1638978	1.1780939	24	0.1309766	0.1124924	0.2080278	0.210806315	1	0.499850025
NRAS:RAD21	GeneGene	-0.137304	0.8717055	12	0.1104951	0.0960224	0.2499834	0.214006948	1	0.502261204
GNAS	Genetics	0.1071025	1.1130483	2	0.0866103	0.0997191	0.2827688	0.216234877	1	0.502363855
DNMT3A:FLT3_ITD	GeneGene	0.1415298	1.1520348	121	0.1160373	0.094609	0.1815622	0.222581703	1	0.511937918
DNMT3A:IDH2_p172	GeneGene	-0.14165	0.8679249	19	0.1182889	0.099163	0.2350799	0.231114674	1	0.526300743
RB1	Genetics	-0.140242	0.8691477	5	0.118309	0.1226079	0.2598015	0.235863618	1	0.531849335
MYC:FLT3_ITD	GeneGene	-0.127069	0.8806726	8	0.1098335	0.0874944	0.245401	0.247301965	1	0.545271576
WT1	Genetics	0.1442045	1.1551203	75	0.1246851	0.1415835	0.1775158	0.24745651	1	0.545271576
t_9_22	Fusions	-0.47261	0.623373	1	0.4099117	0.5605885	0.9082925	0.248928328	1	0.545271576
IDH1	Genetics	0.1273162	1.1357761	105	0.1132102	0.1269476	0.174491	0.260758569	1	0.565796896
ATRX	Genetics	0.1181461	1.1254085	5	0.1067015	0.1121531	0.2729983	0.268182136	1	0.576116834
mono4_4q_abn4q	CNA	0.0923745	1.0967755	29	0.0840461	0.0778168	0.140361	0.271727307	1	0.576116834
EZH2:NRAS	GeneGene	-0.12227	0.8849098	10	0.1115483	0.0946635	0.2455394	0.273029282	1	0.576116834
ASXL1:STAG2	GeneGene	-0.128876	0.8790831	13	0.1193393	0.0961661	0.2339366	0.280181745	1	0.585834558
FLT3_TKD:IDH2_p140	GeneGene	0.1095657	1.1157934	8	0.1040854	0.0941758	0.255898	0.292500431	1	0.606081973
FLT3_ITD:FLT3_other	GeneGene	-0.129332	0.8786825	15	0.1253177	0.1105155	0.2322067	0.302057932	1	0.620297539
NPM1:PTPN11	GeneGene	-0.123321	0.8839796	66	0.1210464	0.1100643	0.2041031	0.308300943	1	0.627515193
NRAS:STAG2	GeneGene	0.1205201	1.1280834	15	0.1194716	0.0922619	0.2363951	0.313082232	1	0.631657135
DNMT3A:MLL	GeneGene	0.1278345	1.1363649	26	0.127961	0.1161307	0.2138128	0.317789263	1	0.635578527
SF1	Genetics	0.0712096	1.0738063	2	0.0720087	0.0869868	0.2884622	0.322710344	1	0.635674326
DNMT3A:NF1	GeneGene	-0.094893	0.9094702	10	0.0960877	0.1004056	0.2588041	0.323364766	1	0.635674326
CEBPA_bi:FLT3_ITD	GeneGene	-0.106548	0.8989315	9	0.1095886	0.1052056	0.2511795	0.330921934	1	0.642096749
NRAS:U2AF1	GeneGene	0.1107568	1.1171232	8	0.1147506	0.0923277	0.2454098	0.334446722	1	0.642096749
NPM1:CEBPA_mono	GeneGene	-0.116302	0.8902063	21	0.1209164	0.1047442	0.2319409	0.33613054	1	0.642096749
t_6_9	Fusions	0.2860294	1.3311316	15	0.2984062	0.3460998	0.3188736	0.337798724	1	0.642096749
SFRS2:TET2	GeneGene	-0.116903	0.8896713	20	0.1246274	0.1147545	0.2216273	0.348233301	1	0.656505404
plus8_8q	CNA	0.0720592	1.074719	150	0.0792338	0.0850576	0.0983215	0.363112272	1	0.677774552
mono12_12p_abn12p	CNA	0.0766604	1.0796754	49	0.0846977	0.1113445	0.1273478	0.365408889	1	0.677774552
MLL:STAG2	GeneGene	-0.103339	0.9018211	12	0.114898	0.1071912	0.2401293	0.36844059	1	0.677930686
STAG2	Genetics	-0.10295	0.9021717	66	0.1156775	0.1378265	0.1788386	0.373477775	1	0.678959757
DNMT3A:NRAS	GeneGene	-0.112665	0.8934497	66	0.127421	0.1072222	0.1911559	0.376589701	1	0.678959757
BCOR:DNMT3A	GeneGene	-0.099994	0.9048425	10	0.1133911	0.1055565	0.2430746	0.377855865	1	0.678959757
TET2:CEBPA_mono	GeneGene	-0.103315	0.901843	11	0.1196989	0.1071347	0.2412792	0.388070064	1	0.6876991
GATA2	Genetics	-0.11377	0.8924635	35	0.1319868	0.1189863	0.2086816	0.388699491	1	0.6876991
FBXW7	Genetics	-0.113245	0.8929322	9	0.1337835	0.1430664	0.2500343	0.397286856	1	0.697526541
RUNX1:FLT3_ITD	GeneGene	0.1089126	1.1150649	27	0.1303296	0.126625	0.2021427	0.403340495	1	0.700415376
KDM6A	Genetics	0.1156156	1.1225642	10	0.1388468	0.1600347	0.2386269	0.405022805	1	0.700415376
IDH1:FLT3_TKD	GeneGene	-0.092363	0.9117737	8	0.1128413	0.0959356	0.2482074	0.413057288	1	0.708978927
NPM1:SFRS2	GeneGene	-0.098675	0.9060367	16	0.1223	0.1044457	0.231174	0.419763533	1	0.715152685
PTEN	Genetics	-0.070345	0.9320722	3	0.0883163	0.0834177	0.2809788	0.425734944	1	0.719992919
CUX1	Genetics	0.1025493	1.107992	6	0.1317458	0.1638172	0.2496206	0.436340552	1	0.731404117
DNMT3A:IDH1	GeneGene	0.0992821	1.1043778	48	0.1282467	0.1145891	0.1957684	0.43884247	1	0.731404117
oAML	Clinical	0.052975	1.0544032		0.0698405	0.088498	0.1192189	0.448143347	1	0.735001238
MYC	Genetics	0.0993981	1.104506	28	0.1316458	0.1537608	0.21286	0.450223655	1	0.735001238
t_9_11	Fusions	-0.223308	0.7998685	18	0.2959933	0.3086754	0.3205941	0.450587716	1	0.735001238
SF3B1	Genetics	0.0992349	1.1043257	38	0.1364093	0.1320969	0.1808	0.466932305	1	0.756234471
PTPN11:FLT3_ITD	GeneGene	0.0906162	1.0948487	18	0.125475	0.1217292	0.2240835	0.470180562	1	0.756234471
SFRS2:IDH2_p140	GeneGene	0.0852837	1.089026	18	0.1216758	0.1248081	0.2254799	0.483359691	1	0.766997593
NPM1:PHF6	GeneGene	-0.076123	0.9267023	8	0.1086513	0.0869861	0.2522602	0.483541961	1	0.766997593
NF1:NPM1	GeneGene	-0.060855	0.9409594	9	0.0913316	0.0748656	0.2616574	0.505212065	1	0.795882021
MLL3	Genetics	-0.085241	0.9182911	10	0.1318818	0.1429395	0.2530391	0.5180574	1	0.810566001
TET2:FLT3_TKD	GeneGene	-0.077369	0.9255485	10	0.1220524	0.1138009	0.2405031	0.526147932	1	0.813167938
CBL	Genetics	-0.085756	0.9178179	37	0.1367474	0.1556356	0.1953	0.530583851	1	0.813167938
EP300	Genetics	0.0905886	1.0948185	21	0.1444882	0.1567545	0.2082952	0.530684477	1	0.813167938
NRAS:IDH2_p140	GeneGene	0.0734666	1.0762326	11	0.1180905	0.1081879	0.242671	0.533862429	1	0.813167938
RUNX1	Genetics	0.0642957	1.0664077	133	0.1063182	0.1215096	0.1414069	0.545346743	1	0.82519573
MLL2	Genetics	-0.085048	0.918468	14	0.1427363	0.1395951	0.2294504	0.551281052	1	0.826757596
STAG2:FLT3_ITD	GeneGene	-0.068374	0.933911	11	0.1162883	0.110289	0.2410423	0.556551711	1	0.826757596
MYC:NPM1	GeneGene	0.0622145	1.0641906	14	0.1076496	0.0889985	0.244058	0.563307632	1	0.826757596
RAD21:FLT3_ITD	GeneGene	0.0673632	1.0696839	19	0.1171721	0.0946443	0.2316304	0.565353373	1	0.826757596
DNMT3A:KRAS	GeneGene	-0.069015	0.9333128	17	0.1207984	0.0943326	0.2341956	0.567780817	1	0.826757596
KIT	Genetics	0.0732292	1.0759771	66	0.1298732	0.1362115	0.1697555	0.572855033	1	0.826757596
KRAS:NRAS	GeneGene	0.0708535	1.073424	20	0.1272085	0.1000203	0.2302258	0.577536119	1	0.826757596
GATA2:NRAS	GeneGene	-0.056188	0.9453616	13	0.1019036	0.0939353	0.2534764	0.581372019	1	0.826757596
DNMT3A	Genetics	0.0526467	1.0540572	357	0.0979279	0.0901485	0.135781	0.59084822	1	0.826757596
DNMT3A:STAG2	GeneGene	0.0566161	1.0582494	10	0.1057315	0.1075373	0.2527621	0.592324733	1	0.826757596
RUNX1:STAG2	GeneGene	-0.061515	0.9403388	12	0.1150582	0.0901994	0.237707	0.592896525	1	0.826757596
FLT3_TKD	Genetics	0.0622345	1.0642119	122	0.1172694	0.1141093	0.1554511	0.595628492	1	0.826757596
GATA2:NPM1	GeneGene	0.0534223	1.054875	8	0.1009835	0.082262	0.2570526	0.59679179	1	0.826757596
Date_1000	Nuisance	0.0311302	1.0316198		0.0591351	0.0622784	0.0651376	0.598592469	1	0.826757596
KDM5A	Genetics	-0.072706	0.9298739	12	0.1392053	0.1539384	0.2416449	0.601464838	1	0.826757596
abn3q_other	CNA	0.0435441	1.0445061	47	0.0839306	0.0902072	0.1273903	0.603892505	1	0.826757596
KIT:NRAS	GeneGene	-0.062437	0.9394723	12	0.1226994	0.104196	0.2382751	0.610849528	1	0.831333677
CEBPA_mono:FLT3_ITD	GeneGene	0.0602552	1.0621076	16	0.1230487	0.0998872	0.2305122	0.624356163	1	0.833555095

RUNX1:IDH2_p140	GeneGene	-0.05608	0.9454637	9	0.1156767	0.1089224	0.2421761	0.627819812	1	0.833555095
PTPN11:TET2	GeneGene	-0.05552	0.9459932	10	0.1152943	0.0870439	0.243237	0.630125873	1	0.833555095
gender	Demograph	-0.032428	0.9680924		0.068336	0.0759456	0.0724748	0.635118656	1	0.833555095
NPM1:FLT3_ITD	GeneGene	0.0544118	1.0559193	170	0.1151138	0.1080173	0.1708864	0.636442776	1	0.833555095
IDH1:FLT3_ITD	GeneGene	0.0627714	1.0647834	23	0.1328598	0.1258523	0.207057	0.63659612	1	0.833555095
RUNX1:SFRS2	GeneGene	0.0598896	1.0617193	34	0.1274864	0.1152079	0.2008553	0.638517749	1	0.833555095
NPM1:WT1	GeneGene	0.0549133	1.056449	15	0.1182274	0.1012513	0.2397833	0.642309791	1	0.833555095
Splenomegaly	Clinical	0.0278724	1.0282644		0.0620975	0.0624419	0.0733296	0.653541027	1	0.833555095
SF3A1	Genetics	-0.036714	0.9639521	1	0.0818969	0.0752543	0.285261	0.653943159	1	0.833555095
DNMT3A:FLT3_TKD	GeneGene	-0.057269	0.9443398	31	0.1281308	0.1125622	0.2186238	0.654904746	1	0.833555095
NRAS:SFRS2	GeneGene	0.0533543	1.0548033	11	0.1208562	0.0950216	0.2327371	0.658872965	1	0.833555095
RAD21:FLT3_TKD	GeneGene	0.0458296	1.046896	9	0.1043249	0.085949	0.2558664	0.660446566	1	0.833555095
DNMT3A:NPM1	GeneGene	-0.049357	0.9518416	228	0.1145196	0.1101524	0.1707946	0.666476708	1	0.833555095
IDH1:RUNX1	GeneGene	0.0497835	1.0510435	13	0.1156455	0.1123511	0.2362855	0.666844076	1	0.833555095
minusY	CNA	0.0365745	1.0372516	45	0.0867812	0.0934902	0.1365468	0.67342207	1	0.837227438
ASXL1:IDH2_p140	GeneGene	-0.044095	0.9568628	8	0.1084628	0.1090189	0.2485551	0.684340683	1	0.846227727
PTPN11:FLT3_other	GeneGene	0.0363485	1.0370172	8	0.0932466	0.0790349	0.2625186	0.696676946	1	0.851515813
KIT:NPM1	GeneGene	0.044997	1.0460248	10	0.115792	0.1097103	0.2453707	0.697570372	1	0.851515813
SH2B3	Genetics	-0.029277	0.9711469	1	0.0759087	0.0769341	0.2864691	0.699723864	1	0.851515813
KRAS:NPM1	GeneGene	-0.046188	0.9548626	18	0.1232196	0.1066827	0.2282608	0.70777856	1	0.856784572
RUNX1:FLT3_other	GeneGene	0.0410099	1.0418624	10	0.1159864	0.0835189	0.2407485	0.723657295	1	0.869992354
PTPN11	Genetics	-0.040851	0.959972	119	0.1166803	0.1226021	0.1507001	0.726254487	1	0.869992354
NRAS:FLT3_TKD	GeneGene	0.0427678	1.0436955	18	0.1244858	0.0877316	0.2376759	0.731180766	1	0.871355316
NPM1:FLT3_other	GeneGene	-0.04044	0.9603665	33	0.1234161	0.1219249	0.222035	0.743157943	1	0.881063541
CREBBP	Genetics	0.0428133	1.043743	10	0.139627	0.1364905	0.2440193	0.759128026	1	0.883493919
PTPN11:RAD21	GeneGene	-0.03081	0.9696597	9	0.1005332	0.0838541	0.2575653	0.759249371	1	0.883493919
CDKN2A	Genetics	0.0268784	1.0272429	2	0.0877875	0.0950695	0.2830356	0.75947083	1	0.883493919
MLL:RUNX1	GeneGene	0.0387359	1.0394959	19	0.127116	0.1133184	0.2204852	0.760573026	1	0.883493919
minus20_20q	CNA	0.0253187	1.0256419	33	0.0850095	0.0820904	0.1322981	0.765830118	1	0.885130287
RAD21	Genetics	-0.034186	0.9663914	53	0.119938	0.1294124	0.2105048	0.775618598	1	0.891961388
ASXL1:TET2	GeneGene	0.0334844	1.0340513	11	0.1202183	0.1019951	0.2326212	0.780605442	1	0.893230108
PHF6:FLT3_ITD	GeneGene	0.0300221	1.0304773	8	0.1114074	0.0980611	0.2494127	0.787560012	1	0.896726746
NRAS:PTPN11	GeneGene	0.0318807	1.0323943	29	0.1329509	0.1192748	0.2143401	0.810490601	1	0.918289844
NRAS:FLT3_ITD	GeneGene	-0.030151	0.970299	21	0.1335859	0.1320302	0.2151961	0.821430987	1	0.926123172
IDH2_p140	Genetics	0.0236743	1.0239568	107	0.1136748	0.122973	0.1713922	0.83502321	1	0.936855308
EZH2:FLT3_ITD	GeneGene	-0.022713	0.9775431	9	0.1120817	0.1095262	0.2432587	0.839411942	1	0.937207509
EZH2:RUNX1	GeneGene	0.0208861	1.0211057	11	0.1113865	0.1071991	0.2430307	0.85126076	1	0.944222901
minus18_18q	CNA	0.0153378	1.015456	24	0.0832954	0.0994112	0.1399748	0.853905928	1	0.944222901
TET2	Genetics	-0.016962	0.9831808	155	0.1078628	0.1070444	0.1495654	0.875042135	1	0.950089816
U2AF2	Genetics	-0.014002	0.9860956	2	0.0934736	0.0851082	0.2787889	0.880925757	1	0.950089816
ASXL1:RUNX1	GeneGene	0.0184201	1.0185908	18	0.1256219	0.113902	0.2176547	0.883423201	1	0.950089816
DNMT3A:TET2	GeneGene	0.0187511	1.018928	43	0.1332651	0.1025881	0.1970694	0.888102739	1	0.950089816
STAG2:TET2	GeneGene	-0.016596	0.9835409	17	0.1192278	0.1028358	0.2292757	0.889294837	1	0.950089816
WT1:FLT3_TKD	GeneGene	0.0142736	1.014376	8	0.1041925	0.090065	0.2548608	0.891036542	1	0.950089816
MLL:IDH2_p140	GeneGene	0.0143219	1.014425	10	0.1050209	0.0812994	0.2494376	0.891527203	1	0.950089816
ASXL1:SFRS2	GeneGene	-0.016402	0.9837317	15	0.1210959	0.1076123	0.2247796	0.892258262	1	0.950089816
NF1	Genetics	0.0187003	1.0188763	35	0.1439619	0.14373	0.2020367	0.896647324	1	0.950363523
NPM1:IDH2_p140	GeneGene	-0.013837	0.9862579	60	0.1204774	0.0997586	0.1982403	0.908560114	1	0.958572598
FLT3_ITD:FLT3_TKD	GeneGene	0.0140529	1.0141521	18	0.1309765	0.101545	0.2255084	0.914556378	1	0.960492999
NPM1:STAG2	GeneGene	-0.006798	0.9932246	14	0.1131945	0.0938397	0.244607	0.952108205	1	0.98864697
MLL:TET2	GeneGene	-0.007065	0.9929601	11	0.1205478	0.0869298	0.2350619	0.953266309	1	0.98864697
MPL	Genetics	-0.005179	0.9948347	3	0.0974866	0.1112285	0.2787189	0.957634339	1	0.98864697
JAK2	Genetics	-0.006303	0.993717	11	0.1399484	0.1450176	0.232001	0.964078035	1	0.98864697
DNMT3A:MYC	GeneGene	0.0042299	1.0042388	9	0.1026381	0.0919745	0.2523898	0.967127388	1	0.98864697
BCOR	Genetics	-0.005383	0.9946318	35	0.134569	0.1439343	0.1948929	0.968093821	1	0.98864697
MLL5	Genetics	-0.003184	0.9968212	2	0.0907589	0.1006672	0.280387	0.972015203	1	0.98864697
WT1:FLT3_ITD	GeneGene	-0.003751	0.9962565	28	0.1233904	0.1046455	0.2181673	0.975751575	1	0.98864697
ETV6	Genetics	-0.0029	0.9971041	21	0.1450873	0.1632026	0.2082409	0.984052269	1	0.989986146
NRAS:TP53	GeneGene	-0.001734	0.9982679	8	0.1261052	0.1034771	0.2330095	0.98903165	1	0.989986146
IDH1:PTPN11	GeneGene	-0.001539	0.9984622	16	0.1226222	0.0956667	0.2370378	0.989986146	1	0.989986146

Table S11: Distribution of cytogenetic risk scores for samples selected for MYC GEP.

Study	PDID	MYC	C_Risk
_07-04	PD10800a	Yes	inter-1
_07-04	PD8323a	Yes	inter-1
_07-04	PD10850a	Yes	Favorable
_07-04	PD10940a	Yes	Favorable
_07-04	PD10964a	Yes	Favorable
98A	PD7771a	Yes	inter-2
98A	PD7926a	Yes	inter-2
98A	PD7927a	Yes	Favorable
98A	PD7661a	Yes	Favorable
98A	PD7909a	Yes	inter-1
98A	PD8082a	Yes	Favorable
98A	PD8190a	Yes	inter-1
_07-04	PD8336a	Yes	inter-2
_07-04	PD10978a	Yes	Favorable
_07-04	PD11017a	Yes	Adverse
98A	PD7782a	Yes	inter-1
98A	PD8180a	Yes	Favorable
_07-04	PD10851a	Yes	inter-2
_07-04	PD8205a	No	Adverse
_07-04	PD8211a	No	Favorable
_07-04	PD8259a	No	inter-1
_07-04	PD8235a	No	inter-1
_07-04	PD8337a	No	Adverse
_07-04	PD8344a	No	inter-2
_07-04	PD8370a	No	Adverse
_07-04	PD8348a	No	inter-2
_07-04	PD8422a	No	inter-1
_07-04	PD8392a	No	inter-1
_07-04	PD8424a	No	inter-1
_07-04	PD8412a	No	inter-1
_07-04	PD8413a	No	inter-1
_07-04	PD8417a	No	inter-1
_07-04	PD8398a	No	inter-1
_07-04	PD8433a	No	inter-1
_07-04	PD8410a	No	inter-2
_07-04	PD10804a	No	inter-2
_07-04	PD10829a	No	inter-1
_07-04	PD10807a	No	inter-1
_07-04	PD10918a	No	inter-2
98A	PD7732a	No	inter-2
98A	PD7764a	No	Favorable
98A	PD8014a	No	inter-2

98A	PD8043a	No	inter-2
_07-04	PD8262a	No	inter-2
_07-04	PD10789a	No	Favorable
98A	PD8472a	No	inter-2

Table S12: Correlation of bulk NGS VAF counts and raw single cell counts of a control set of variants in a cohort of local samples with available viable cells used to control for our bioinformatics output

SAMPLEID	ID	Cells with mutant alleles	Total Cells	Single Cell Low CI	Single Cell Uppler CI	SCpvalue	VAF	MUTANT DEPTH	DEPTH	Type	Length	SCt	lconf	hconf	pvalue
1	p.W288fs*12	42	160	34.34022754	49.6763677	0.04097153	40	8	20	I	4	168	19.97708557	63.58832624	0.502334954
2	p.L349fs*26	41	160	33.8183927	49.12703308	0.02881823	46.15384615	12	26	D	1	168	27.13837954	66.25232073	0.844519267
2	p.W288fs*12	9	160	5.381192432	14.75076462	6.44E-26	6.896551724	2	29	I	4	168	1.203599937	24.21117395	8.32E-06
3	p.S1369*	100	160	97.21368077	100	5.52E-38	100	190	190	Sub	1	168	97.52984143	100	8.66E-43
3	p.G413D	100	160	97.21368077	100	5.52E-38	97.4	75	77	Sub	1	168	90.07112486	99.5478544	2.31E-16
3	p.M682fs*23	52	160	44.1928234	59.71427485	0.658990339	50	9	18	D	1	168	29.03102151	70.96897849	1
3	p.W288fs*12	36	160	28.85129221	43.79999208	0.000382223	31.81818182	7	22	I	4	168	14.73430549	54.88426998	0.135593001
4	p.W288fs*12	44	160	36.07705986	51.49134398	0.11583663	54.16666667	13	24	I	4	168	33.2372115	73.83472074	0.838256486
5	p.R544*	50	160	42.52426118	57.47573882	1	51.12	114	223	Sub	1	168	44.37500015	57.82578109	0.789054668
5	p.W288fs*12	33	160	25.91265932	40.55813554	1.23E-05	42.85714286	12	28	I	4	168	25.02694938	62.56815446	0.570750388
6	p.D835E	44	160	36.42562185	51.85314953	0.139347272	46.15	60	130	Sub	1	168	37.44571627	55.08506081	0.429393882
6	p.Q1624*	50	160	42.52426118	57.47573882	1	55.98	103	184	Sub	1	168	48.48704596	63.21919575	0.121474934
6	p.R882H	50	160	42.52426118	57.47573882	1	62.86	22	35	Sub	1	168	44.95136847	78.01006436	0.176188289
6	p.L1469fs*9	55	160	47.15391436	62.61379522	0.222845534	61.11111111	44	72	I	1	168	48.87041577	72.15867165	0.077099872
6	p.W288fs*12	39	160	31.5633108	46.73105709	0.005060181	44.44444444	8	18	I	4	168	22.40475142	68.65306897	0.813663716
7	p.A382fs*4	30	160	23.48134681	37.81923349	4.23E-07	34.48275862	10	29	I	4	168	18.59755991	54.33614456	0.137394826
7	p.W288fs*12	14	160	9.544897687	20.71108431	4.27E-20	15.78947368	3	19	I	4	168	4.169673036	40.49325851	0.005905392
8	p.A382fs*4	31	160	24.01235807	38.4220822	9.20E-07	37.5	12	32	I	4	168	21.66419529	56.2504051	0.215924939
8	p.W288fs*12	22	160	16.48033728	29.58764932	1.43E-12	25	7	28	I	4	168	11.42939608	45.22083862	0.014019277
9	p.G13D	50	160	42.52426118	57.47573882	1	49.69	79	159	Sub	1	168	41.7156554	57.67954701	1
9	p.R140Q	50	160	42.52426118	57.47573882	1	76	19	25	Sub	1	168	54.47916373	89.8419432	0.016395072
9	p.Y402*	95	160	90.2082368	97.60811988	4.73E-31	100	21	21	Sub	1	168	80.75964485	100	1.27E-05
9	p.W288fs*12	44	160	36.0324011	51.4449301	0.11306254	41.17647059	7	17	I	4	168	19.42789126	66.5464981	0.627625805
10	p.R882H	45	160	37.38620478	52.84608564	0.222845534	66.67	22	33	Sub	1	168	48.1077723	81.44775811	0.081655619
10	p.S556N	45	160	37.38620478	52.84608564	0.222845534	41.03	16	39	Sub	1	168	25.98430963	57.81162571	0.336942245
10	p.W288fs*12	26	160	20.11175194	33.92766735	1.72E-09	30.76923077	4	13	I	4	168	10.35852101	61.11509793	0.267257493
10	p.R882H	50	160	42.52426118	57.47573882	1	57.14	16	28	Sub	1	168	37.42923914	74.97069621	0.570955845
10	p.S556N	50	160	42.52426118	57.47573882	1	42.22	19	45	Sub	1	168	27.99151564	57.76268419	0.370933933
10	p.W288fs*12	37	160	30.02604619	45.07650127	0.001252025	35	7	20	I	4	168	16.30866797	59.05104338	0.263552477
11	p.V1417F	100	160	97.21368077	100	5.52E-38	99.34	150	151	Sub	1	168	95.81492707	99.96584554	2.07E-33
11	p.Y274*	100	160	97.21368077	100	5.52E-38	100	81	81	Sub	1	168	94.35800077	100	6.17E-19
11	p.S2243fs*14	55	160	46.8330957	62.3021773	0.256344648	59.67741935	37	62	D	1	168	46.45647855	71.69681912	0.162413151
11	p.W288fs*12	13	160	8.197778433	18.85620925	7.49E-22	8.823529412	3	34	I	4	168	2.306876556	24.8124371	3.65E-06
12	p.R882H	50	160	42.52426118	57.47573882	1	41.67	30	72	Sub	1	168	30.35511802	53.87883811	0.195045519
12	p.W288fs*12	29	160	22.50168659	36.69987298	9.44E-08	32.89473684	25	76	I	4	168	22.80396882	44.73121049	0.004134717
13	p.R248Q	6	160	3.086923865	11.03568387	9.43E-30	12.2	35	287	Sub	1	168	8.755722252	16.6880518	3.18E-37
13	p.R882H	50	160	42.52426118	57.47573882	1	40.48	17	42	Sub	1	168	26.02055278	56.65729212	0.28030712
14	p.C1374Y	50	160	42.52426118	57.47573882	1	52.19	179	343	Sub	1	168	46.76391622	57.56624262	0.448934586
14	p.W288fs*12	21	160	15.50564006	28.39248915	1.72E-13	24.3902439	10	41	I	4	168	12.90779174	40.64418768	0.001787289

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