Supplemental Material

1. **Supplementary Methods**
2. **Supplementary Figures**
3. **Supplementary Tables**

1. Supplementary Methods

Hematoxylin-eosin and immunohistochemical (IHC) staining.

The human stomach tissue samples were fixed with 10% buffered paraformaldehyde and then embedded in paraffin. The tissues were sectioned at a thickness of 5 μm, deparaffinized with xylene three times for 20 min each, 100% EtOH three times for 10 min each, 90% EtOH twice for 10 min each, and 75% EtOH for 10 min, and stained with hematoxylin and eosin. Stained tissue slides were dehydrated and mounted with Shandon Synthetic Mount (Thermo, Cat# 6769007). For immunohistochemistry, paraffin-embedded samples were sectioned at 3 μm, deparaffinized, and rehydrated in PBS. Antigens were then retrieved for 15 min at high pressure in Target Retrieval Solution (Dako, Cat# S1699). Subsequently, the specimens were chilled on ice for 1 h, washed with PBS three times for 5 min each, and blocked with 3% H_2O_2 in PBS for 30 min to quench the endogenous peroxidase. The slides were washed again with PBS, blocked for 2 h at room temperature with Serum-Free Protein Block (Dako, Cat# X0909), probed at 4°C overnight with the primary antibodies at 1/1000 dilution (anti-SRF, Cell signaling Tech, Cat# D71A9; anti-IGFBP5, R&D systems, Cat# AF875; anti-MRTFA, Abcam, Cat# ab49311), stained for 30 min with horseradish peroxidase (HRP)-conjugated anti-rabbit IgG (Dako, Cat# K4003) or Goat-IgG VECTASTAIN ABC-HRP Kit (Vector Cat# PK-4005), and developed with Liquid DAB+ Substrate Chromogen System (Dako, Cat# K3468). Finally, the specimens were counterstained with Mayer's hematoxylin (Dako, Cat# S3309) and mounted with Shandon Synthetic Mount (Thermo Cat# 6769007).

Microsatellite instability in gastric cancer tissues was assessed immunohistochemically [1]. IHC was performed using a Ventana XT automated stainer (Ventana Corporation) with antibodies to MLH1

(ready to use, clone M1, Roche, Indianapolis, IN, USA), MSH2 (ready to use, clone G219-1129, Roche), MSH6 (1:100, clone 44, Cell Marque, Rocklin, CA, USA), and PMS2 (1:40, clone MRQ28, Cell Marque). Sections were deparaffinized using EZ Prep solution (Ventana Corporation). CC1 standard (pH 8.4 buffer containing Tris/borate/EDTA) was used for antigen retrieval and blocked with inhibitor D (3% H2O2) for 4 min at 37°C. Slides were incubated with primary antibody for 40 min at 37°C followed by a universal secondary antibody for 20 min at 37°C. Slides were incubated in streptavidin-horseradish peroxidase (SA-HRP) D for 16 min at 37°C and then the substrate, 3,3'-diaminobenzidine tetrahydrochloride (DAB) H2O2, was added for 8 min followed by hematoxylin and bluing reagent counterstaining at 37°C. A loss of MMR protein expression (MMR-deficiency) was designated when none of the neoplastic epithelial cells showed nuclear staining, whereas normal expression was defined as the presence of nuclear staining of tumor cells, irrespective of the proportion or intensity. Infiltrating lymphocytes, stromal cells and adjacent non-neoplastic epithelium served as internal positive controls.

EBV-encoded RNA in situ hybridization (EBER ISH) was performed with a Ventana BenchMark in situ hybridization system (ISH iView kit, Ventana, Tucson, AZ, USA)[1]. Paraffin-embedded tissue sections were deparaffinzed with EZ Prep buffer (Ventana), and then digested with protease I for 4 min. Probes were applied and then denaturation was performed at 85 °C (10 min), followed by hybridization at 37 °C (1 h). The probes labeled with fluorescein contained a cocktail of oligonucleotides dissolved in a formamide-based diluent. After hybridization, tissues were washed 3 times with 2× saline sodium citrate buffer at 57 °C. Incubation with antifluorescein monoclonal antibody was performed for 20 min and then an Alkaline Blue detection kit (Ventana) was used according to the manufacturer's protocol. The slides were counterstained with Nuclear Fast Red for 10 min.[2]

Estimation of copy number variations

To infer copy number variation (CNV) with each cell using single-cell RNA sequencing data, we applied the R package inferCNV [3]. The monocyte cells from immune cell type were used as reference cells. CNV scores were re-standardized and performed min-max normalization ranged as -1 to 1. To estimate CNV signals with both amplifications and deletions, the scores of each cell was calculated as

quadratic sum [4].

Trajectory analysis and cell classification

Trajectory analysis was performed to track the cell transition status. Cell data were reprocessed to remove low-UMI count genes or low-quality cells and re-normalized for library size using the R package Monocle [5]. After quality control, dimensionality reduction and trajectory construction were then performed. Cells were placed onto a pseudotime trajectory using the orderCells function. The pseudotime trajectory was inferred from the root cells comprising the annotated non-malignant cells (e.g., PMC and GMC). A secondary cluster analysis of selected cell population were repeated same process (detection of variable genes, scaling with UMI regression, PCA, clustering, and tSNE).

To analyze cells ordered along the DGC trajectory, DGC cells were classified using IGC DEGs to verify whether the biological function of DGC cells is the same as that of IGC cells. The data were trained on state-annotated IGC cells (I1–I3) based on the DEGs of the intestinal cell lineage and DGC data were tested using the RandomForest algorithm. DGC cells at the specific states were then predicted. Similar analyses were applied to tumor cell classification. For tumor cell analysis, tumor cells were classified into ACRG subtypes and known marker genes were used to predict tumor cell subtypes. All classification analyses were performed using the R package e1071.

DEG and pathway analysis

To identify DEGs in the intestinal cell lineage, linear and non-linear regression with second- and third-degree polynomial model analysis was performed for the non-malignant to tumor cells, based on the trajectory states. All regression models were fitted using the R function lm. The applied FDR correction was calculated using the R function p.adjust. In addition, the *t*-test was used to analyze differences between the states, excluding annotated cell states from trajectory analysis, such as fibroblasts, ECs, and enteroendocrine cells. Finally, DEG lists identified by the two statistical methods were merged. Pathway analysis of DEGs of each state (non-malignant, premalignant, and malignant) was performed using the Cytoscape plug-in ReactomeFI [6]. Pre-defined gene expression signatures related to cancer

biology, such as EMT, MSI, cytokine, TP53 [7], and EmyoT signatures, were obtained from the literature [8]. The gene signature lists are provided in Supplementary Table 4.

Deconvolution of bulk gene expression data

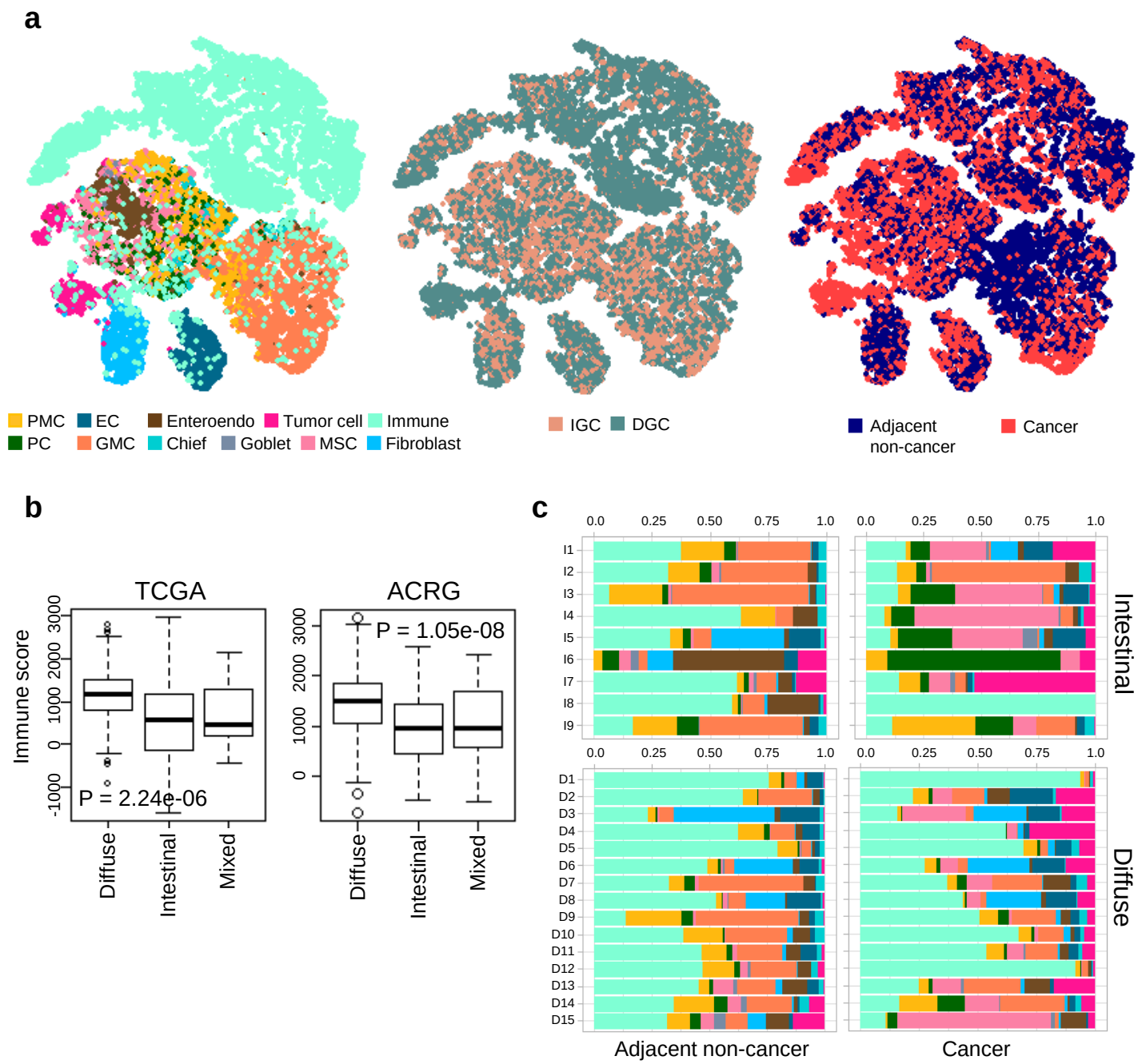
After identifying markers related to the different subtypes of tumor cells, such as EMT, EmyoT, and intestinal cells, their validity was checked by analyzing independent bulk-seq datasets. For the analysis, 1,378 bulk-seq datasets were obtained from the publicly available GEO database (GSE13861, GSE66229, GSE26899, GSE26901, GSE28541, GSE29272, and GSE84437; https://www.ncbi.nlm.nih.gov/geo/) and The Cancer Genome Atlas (TCGA) STAD dataset. Quantile normalization was first applied to each dataset, and voom transformation was used for RNA-seq data, such as that from TCGA [9]. To eliminate the dataset batch effect, combined gene expression profiling was performed using ComBat [10]. To determine the cell type proportions in bulk gene expression profiles, the MuSic deconvolution method was used [11] with the tumor subtype-specific gene signatures (Supplementary Table 3). The tumor subtypes were then assigned by hierarchical clustering using the subtype probabilities calculated from the bulk dataset. Survival analysis of the assigned cancer subtypes was performed by Cox regression using the R package survival.

Statistical analysis. All statistical analyses in this study were performed through R version 3.4.1 and inferCNV was conducted in R version 3.6.1; gene expression deconvolution analysis was conducted in R version 3.5.1.

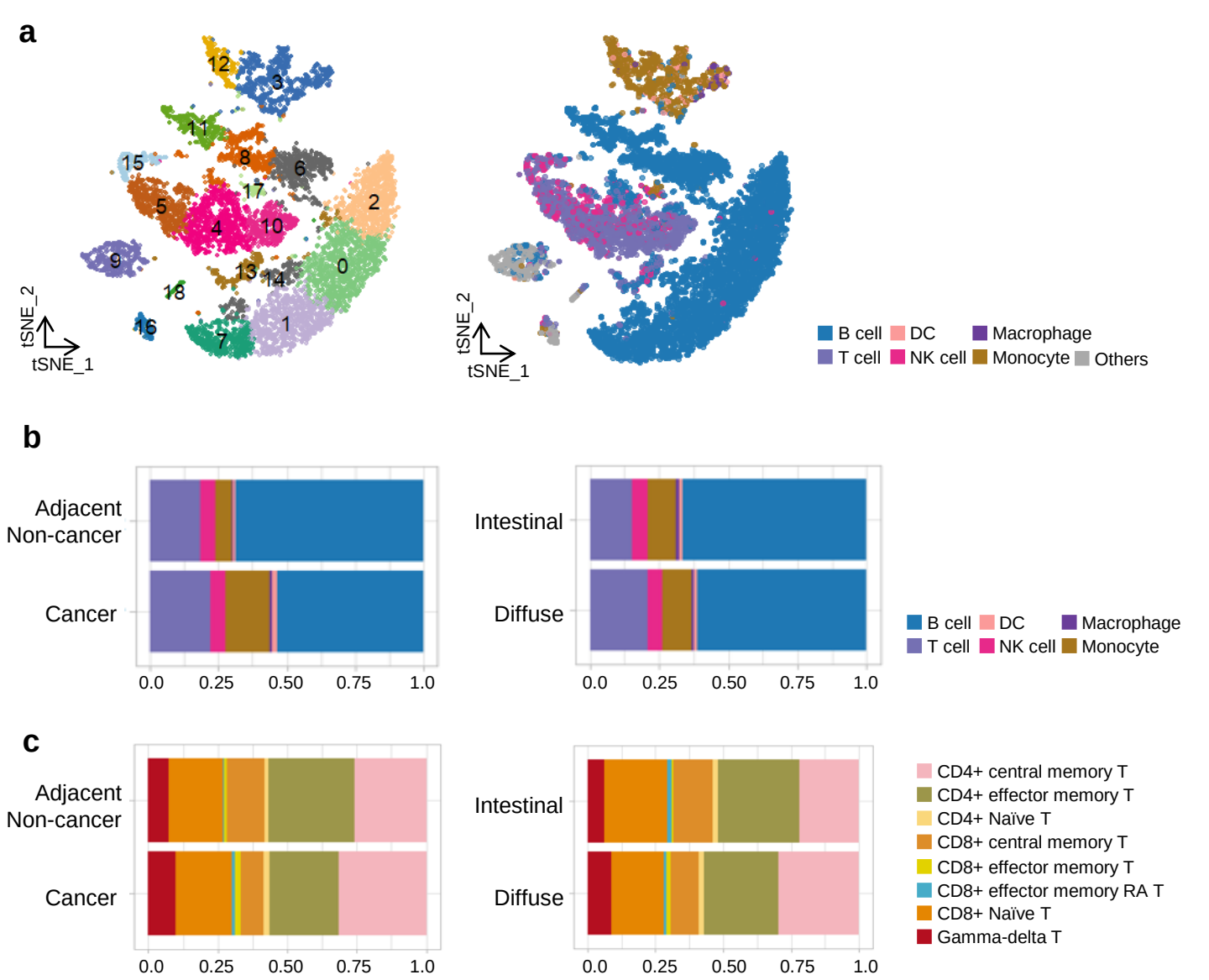
References

1. Park, J.H.*, et al.* Epstein-Barr virus positivity, not mismatch repair-deficiency, is a favorable risk factor for lymph node metastasis in submucosa-invasive early gastric cancer. *Gastric Cancer* **19**, 1041-1051 (2016).
2. Bailey, M.H.*, et al.* Comprehensive Characterization of Cancer Driver Genes and Mutations. *Cell* **174**, 1034-1035 (2018).
3. Patel, A.P.*, et al.* Single-cell RNA-seq highlights intratumoral heterogeneity in primary glioblastoma. *Science* **344**, 1396-1401 (2014).
4. Peng, J.*, et al.* Author Correction: Single-cell RNA-seq highlights intra-tumoral heterogeneity and malignant progression in pancreatic ductal adenocarcinoma. *Cell Res* **29**, 777 (2019).
5. Qiu, X.*, et al.* Single-cell mRNA quantification and differential analysis with Census. *Nat Methods* **14**, 309-315 (2017).
6. Wu, G., Dawson, E., Duong, A., Haw, R. & Stein, L. ReactomeFIViz: a Cytoscape app for pathway and network-based data analysis. *F1000Res* **3**, 146 (2014).
7. Cristescu, R.*, et al.* Molecular analysis of gastric cancer identifies subtypes associated with distinct clinical outcomes. *Nat Med* **21**, 449-456 (2015).
8. Lamouille, S., Xu, J. & Derynck, R. Molecular mechanisms of epithelial-mesenchymal transition. *Nat Rev Mol Cell Biol* **15**, 178-196 (2014).
9. Law, C.W., Chen, Y., Shi, W. & Smyth, G.K. voom: Precision weights unlock linear model analysis tools for RNA-seq read counts. *Genome Biol* **15**, R29 (2014).
10. Chen, C.*, et al.* Removing batch effects in analysis of expression microarray data: an evaluation of six batch adjustment methods. *PLoS One* **6**, e17238 (2011).
11. Wang, X., Park, J., Susztak, K., Zhang, N.R. & Li, M. Bulk tissue cell type deconvolution with multi-subject single-cell expression reference. *Nat Commun* **10**, 380 (2019).

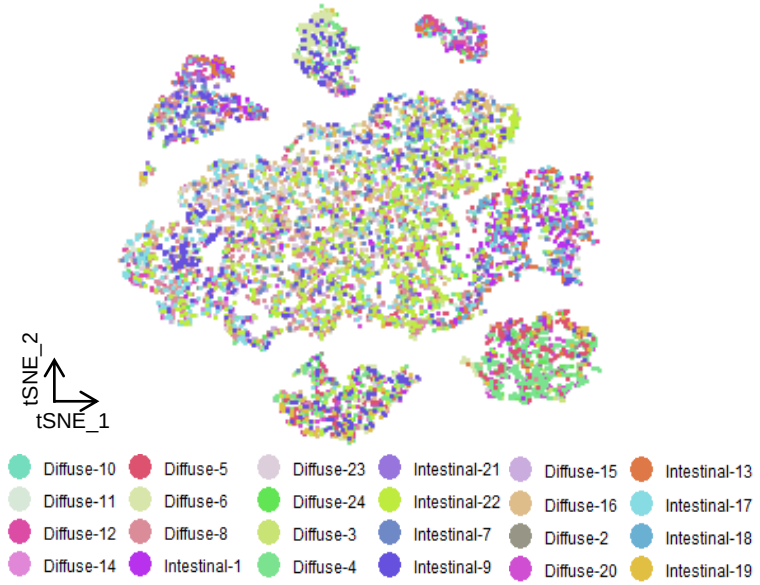
Supplementary Figures

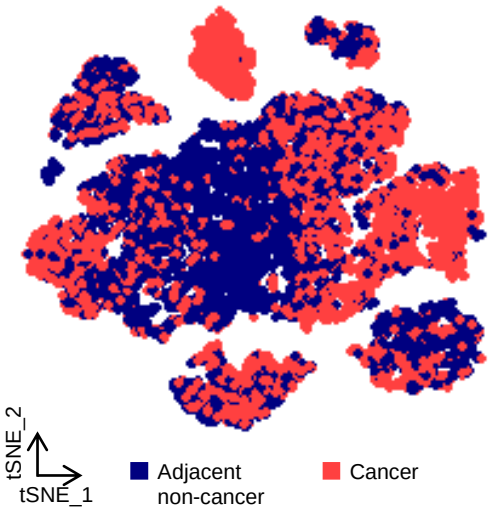


Supplementary Fig. 1. Heterogeneity of gastric cells from adjacent non-cancer and gastric cancer lesions. (GC) tissues. **a** Distribution of all cell clusters with cell types. Each color in the t-stochastic neighbor embedding (t-SNE) plot represents cell types (left), Lauren types (middle) and distinct lesions (right). **b** Immune scores with Lauren types from independent bulk RNA-sequencing using ESTIMATE. P-values were calculated by anova test. **c** Fractions of 11 cell types with malignancy and Lauren classification. Bar plots represent each patient with Lauren classification and malignancy separately.

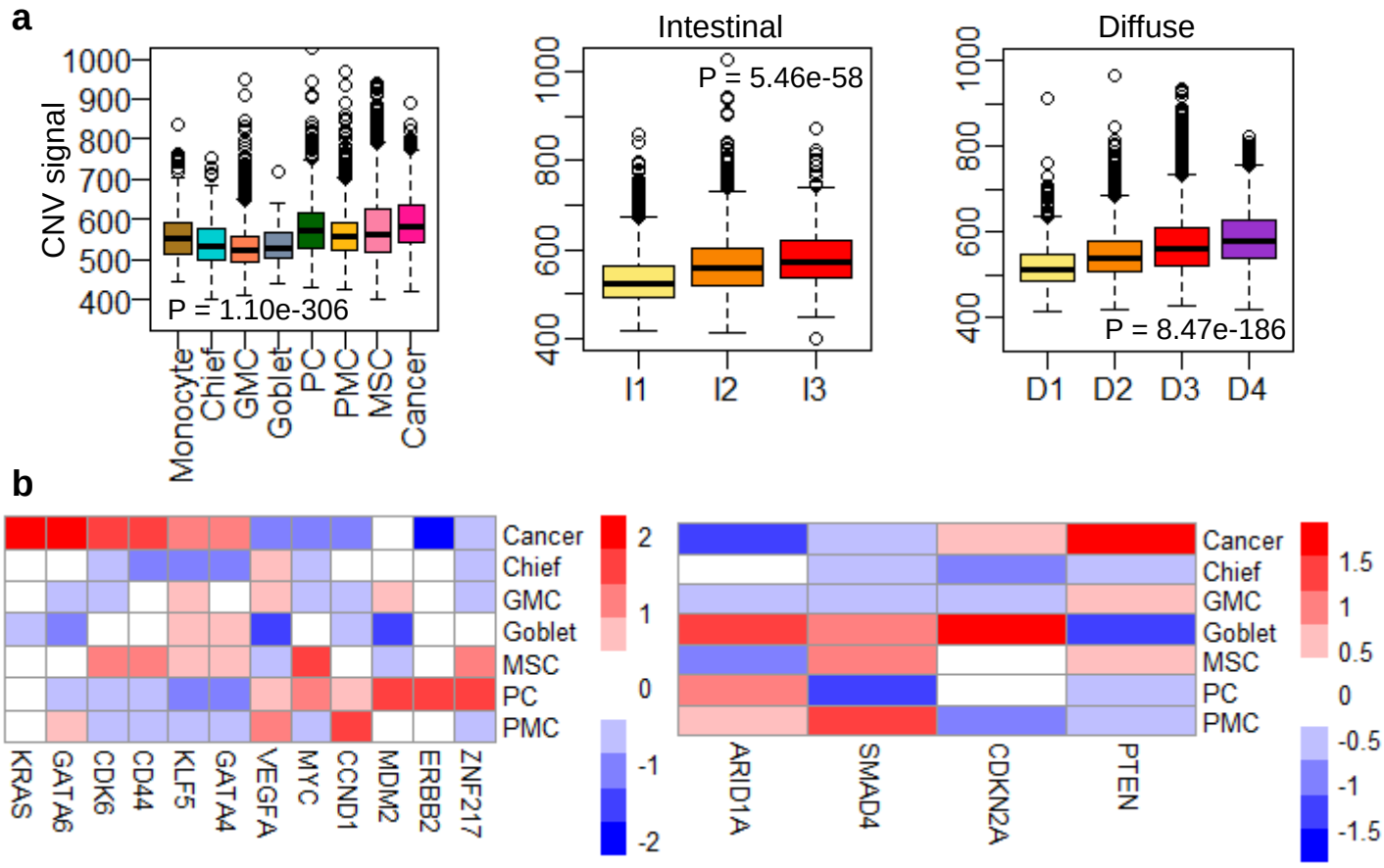


Supplementary Fig. 2. Immune cell sub-clustering and distribution. a Distribution of immune clusters. Each color in the t-stochastic neighbor embedding (t-SNE) plot represents a each cluster (left) and immune cell types (right). **b** Fractions of main 6 immune cell types with malignancy and Lauren classification. **c** Fractions of T immune sub-cell types with malignancy and Lauren classification.

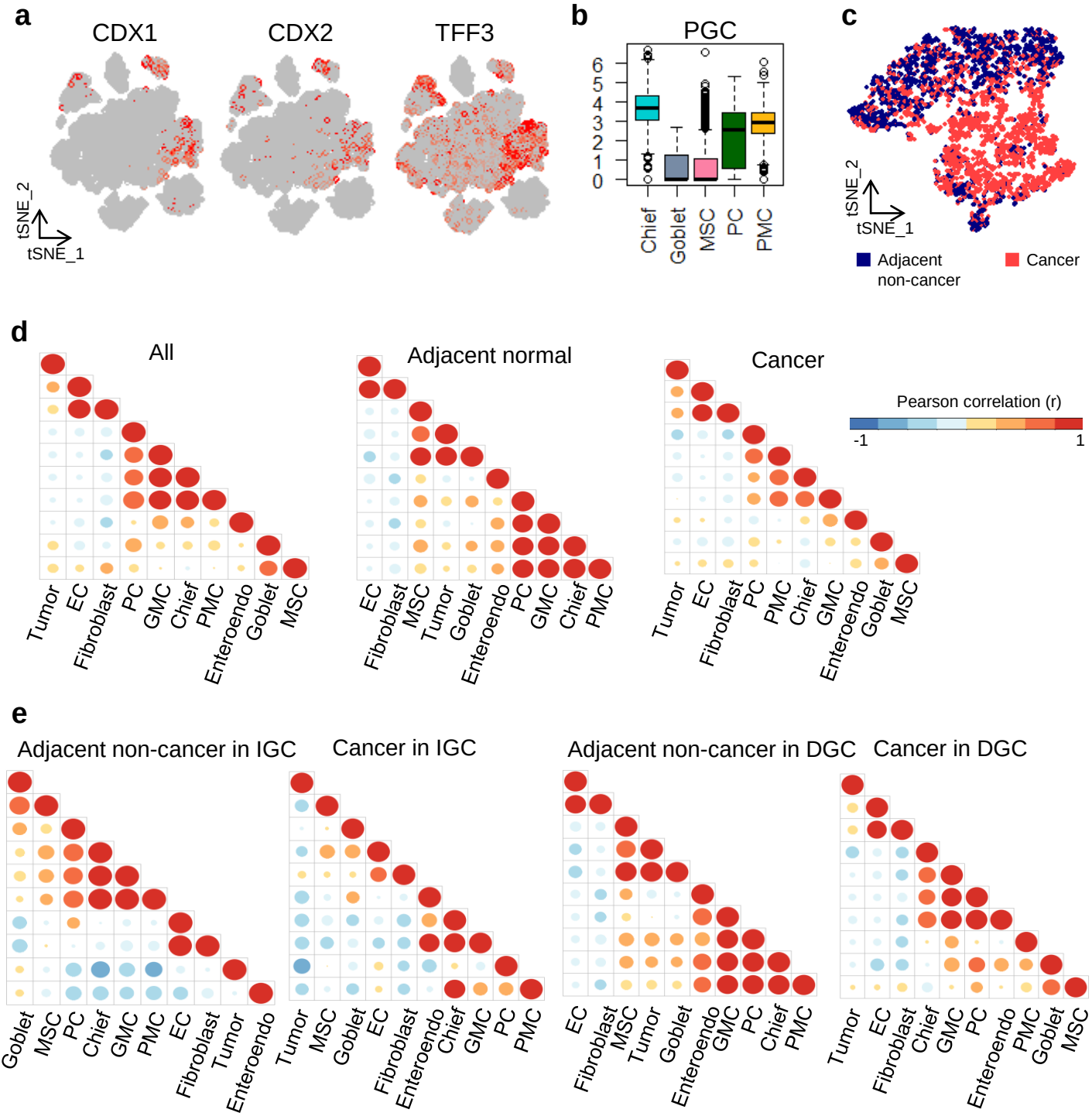




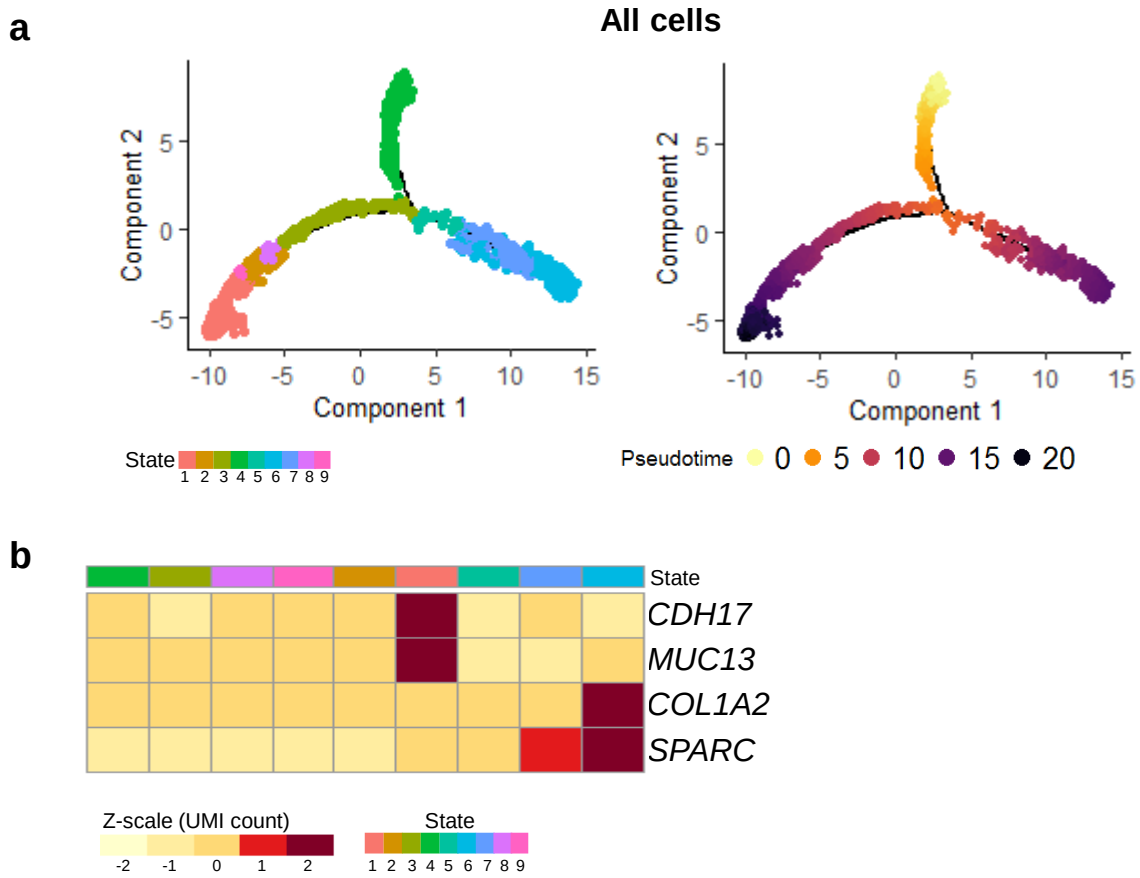
Supplementary Fig. 3. Heterogeneity of non-immune gastric cells from adjacent non-cancer and gastric cancer lesions. Distribution of cells for each patient in all clusters. Each color in the t-stochastic neighbor embedding (t-SNE) plot represents a patient (left) and distinct lesions (right).



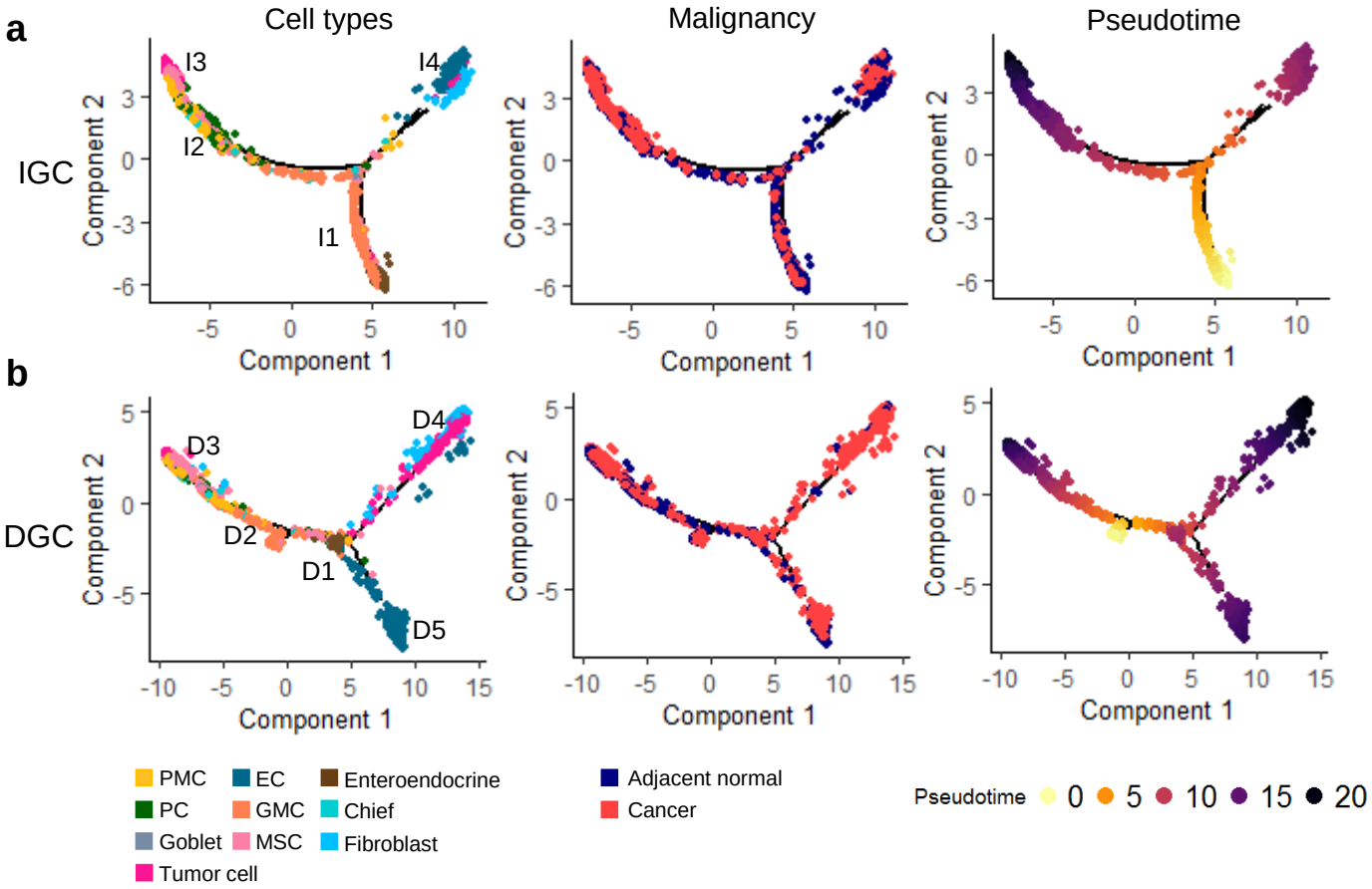
Supplementary Fig. 4. Copy number variations with gastric cell types. a CNV signals with epithelial cell types (left) and states from trajectory (middle and right panels). **b** CNV signals with annotated genes related amplification (left) and deletion (right) from TCGA STAD study, respectively.



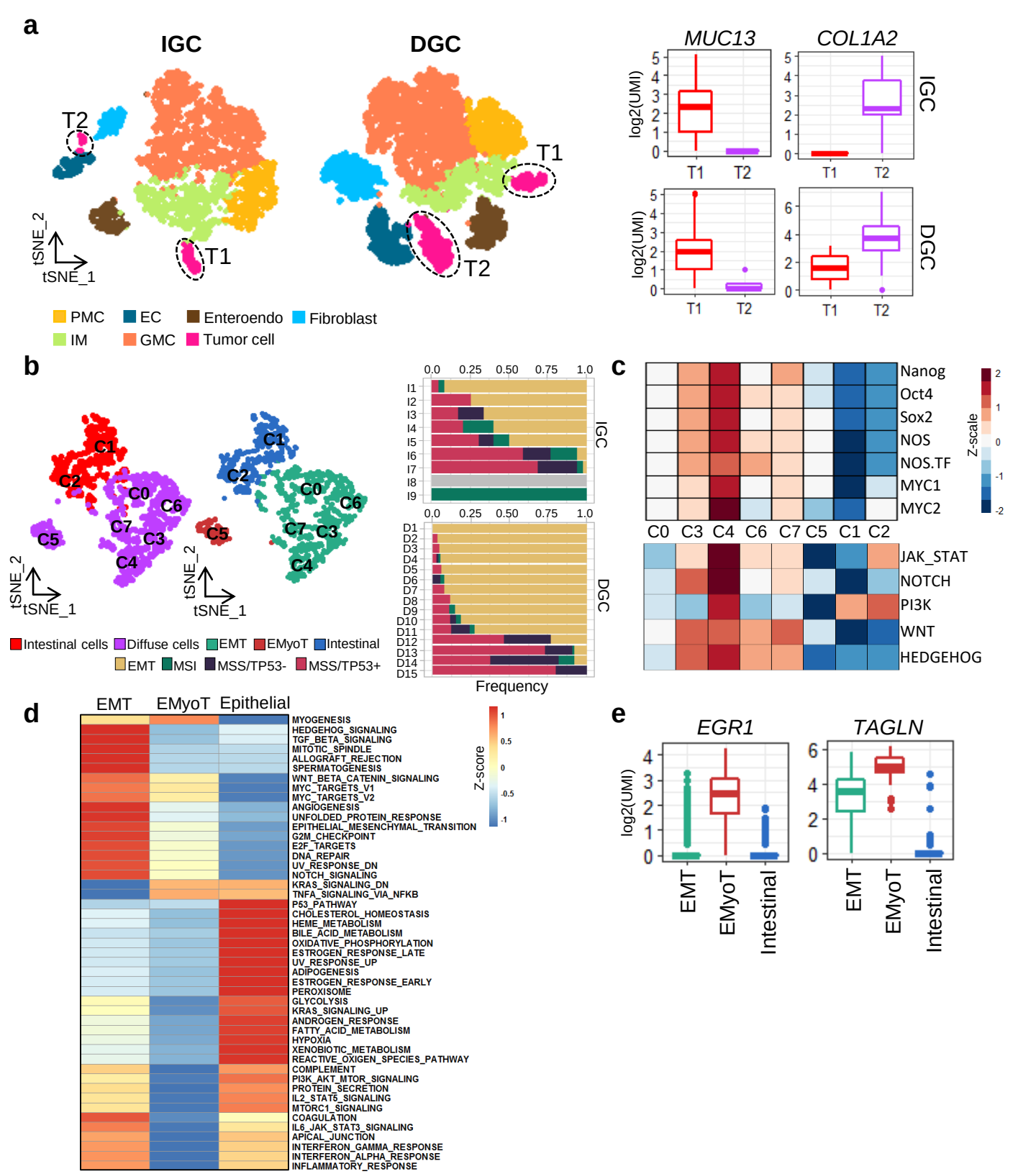
Supplementary Fig. 5. Cell type patterns for IM cluster and correlation with Lauren type. a t-SNE plot showing the expression of marker genes (*CDX1* and *CDX2*) of IM cell type. **b** Boxplot of *PGC* gene expression with IM cell types. **c** t-SNE plot representing distinct lesions in the IM sub-cluster. **d** Correlation matrix with 10 cell types according to malignancy. Colors represent correlation coefficient values calculated by the Pearson correlation test using the R software. **e** According to Lauren type with malignancy, separately.



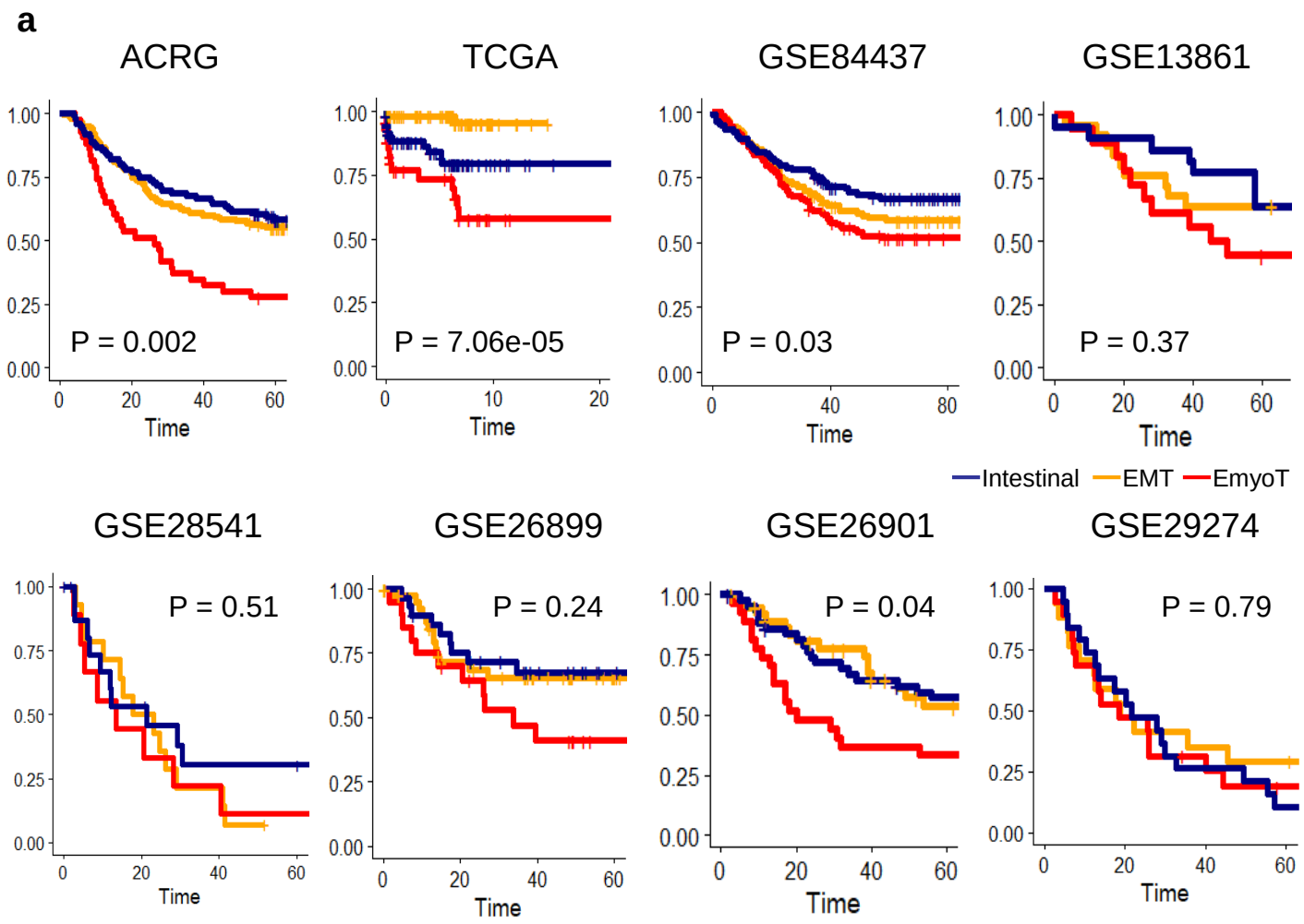
Supplementary Fig. 6. Characteristics of the pseudotemporal trajectory. a Pseudotemporal trajectory of all cells from adjacent non-cancer lesions and cancer lesions. Color of each cell represents annotated state (left) and pseudotime (right), determined using Monocle. **b** Expression patterns of known markers with states of the trajectory. CDH17 and MUC13 are markers of intestinal gastric cancer. COL1A2 and SPARC are known markers of diffuse gastric cancer.



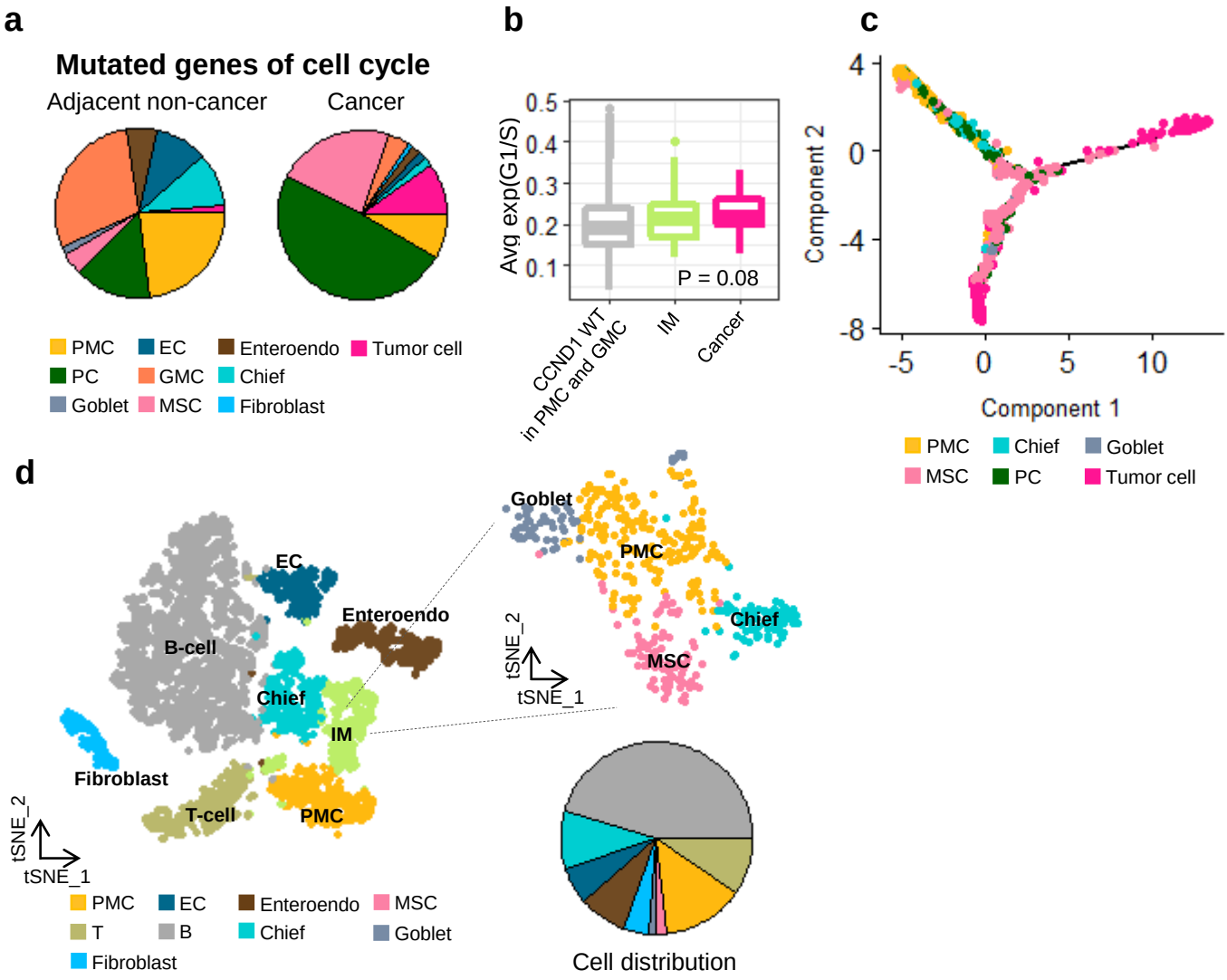
Supplementary Fig. 7. Pseudotemporal trajectory with Lauren type. a-b) Pseudotemporal trajectory with Lauren classification. Colors of cells represent cell type, malignancy, and pseudotime in respective plots.



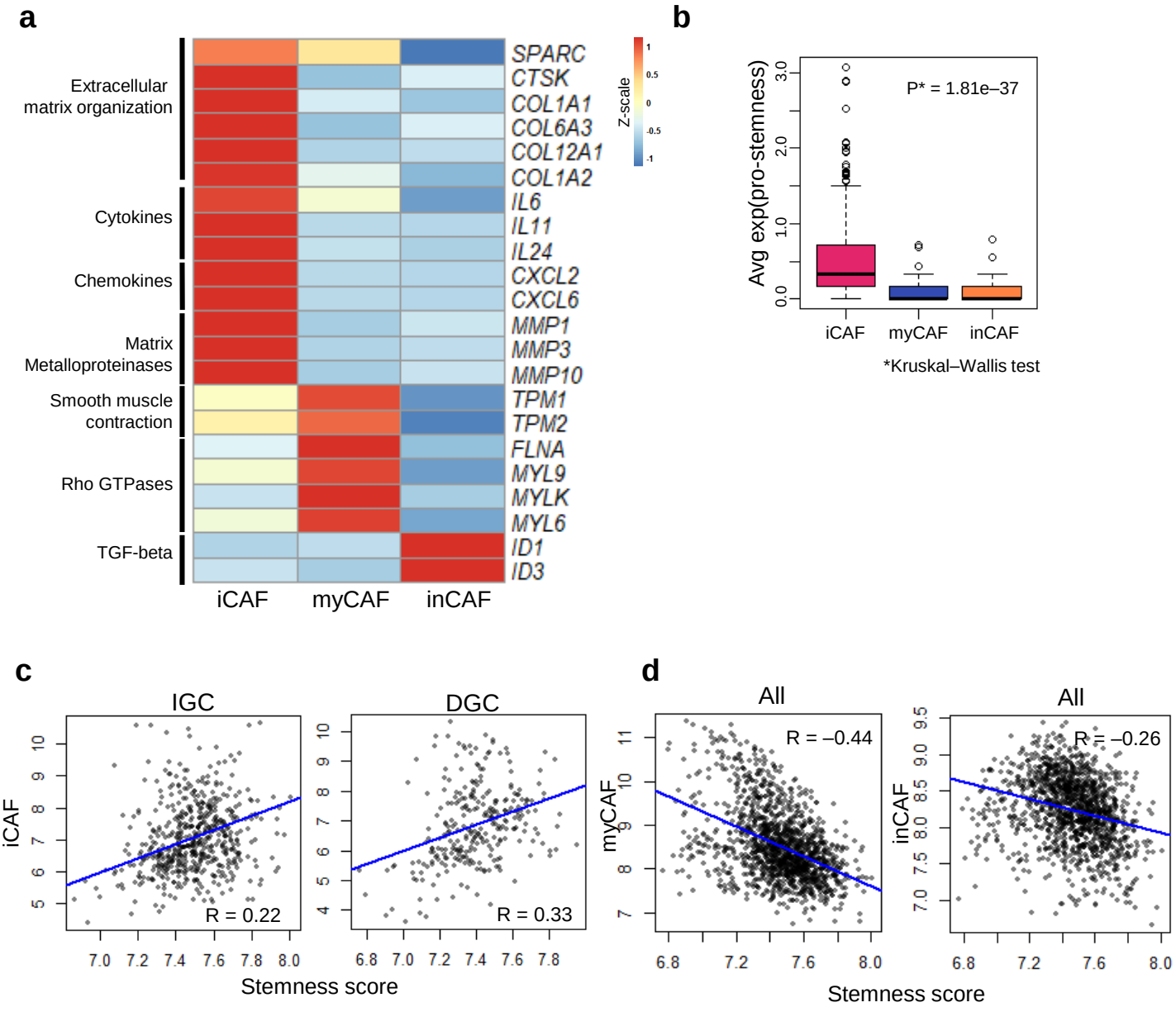
Supplementary Fig. 8. Defined tumor cell clusters and biological functional pathways with tumor sub-clusters. a t-Stochastic neighbor embedding (tSNE) plots with Lauren type, respectively (left). Box plots of known gastric cancer markers with separate sub-clusters of tumor cells (T1 and T2). **b** tSNE map of 1,003 tumor cells. Each cell represents a cell type mapped to two major cell types and three molecular types (left). Proportions of tumor cells with ACRG subtypes per patient and corresponding Lauren types (right). **c** Expression patterns of known signatures and pathways with eight tumor cell clusters. **d** Gene set enrichment analysis with cancer sub-clusters using hallmark pathways. **e)** Box plots of EMyoT markers (EGR1 and TAGLN) with cancer sub-clusters.



Supplementary Fig. 9. Survival analysis with cancer cells each independent cohort.



Supplementary Fig. 10. Cell cycle gene mutations and characteristics of hotspot mutations in the control. a Pie plots of the cell types with mutations of 8 cell cycle genes including CCND1 in adjacent non-cancer and cancer tissue, respectively. **b** Average gene expression levels of the G1/S phase pathway according to CCND1 mutation and cell type. P-values were calculated by analysis of variance (ANOVA) test. **c** Trajectory tree of premalignant (IM cells) and malignant cells. Each color represents a different cell type. **d** t-Stochastic neighbor embedding (tSNE) map of 4,813 cells in the control group diagnosed as having IM, but without GC for more than 5 years. Pie plot of the cell types in the control group.



Supplementary Fig. 11. Differentially expressed genes in CAF subtypes and the relationship between CAF and stemness. a Heatmap of differentially expressed genes and pathways according to CAF subtypes. **b** Boxplot of pro-stemness-related genes for CAF subtypes. **c** Scatter plots between iCAF and stemness scores with Lauren type, respectively. R values were calculated by the glm test. **d** Patterns of stemness score and genes determined using myCAF and inCAF, respectively.

Supplementary Table 1. Clinical information

	Gender	Age	Diagnosis	Lauren	Atrophy	Cancer location*	*H.pylori*	MSI*	EBV*	#Cells (Adjacent noncancer)	#Cells (Cancer)
Patient01	M	75	EGC	Intestinal	N	LB, AW	+	MSS		80	91
Patient02	M	72	AGC	Diffuse	N	LB, GC	+	MSS	-	553	679
Patient03	F	66	EGC	Diffuse	Y	Antrum, GC, PW	-	MSS		260	409
Patient04	F	56	EGC	Diffuse	Y	Antrum, PW	+	MSS		236	244
Patient05	M	45	EGC	Diffuse	N	MB, LC	+	MSS		427	208
Patient06	M	58	EGC	Diffuse	N	UB, PW	Equivocal	MSS		1111	383
Patient07	M	76	EGC	Intestinal	Y	Angle, PW	+	MSS		275	111
Patient08	F	56	EGC	Diffuse	N	LB, LC	+	MSS		202	389
Patient09	M	55	EGC	Intestinal	Y	MB, LC	+	MSS		580	216
Patient10	M	54	EGC	Diffuse	N	LB, LC	+	MSS		154	208
Patient11	F	55	AGC	Diffuse	Y	MB, LC	+	MSS	-	170	162
Patient12	F	62	AGC	Diffuse	N	LB, LC	+	MSS	-	419	544
Patient13	M	70	EGC	Intestinal	N	Angle-antum, AW	+	MSS		317	155
Patient14	F	45	AGC	Diffuse	N	Antrum, PW	+	MSS	-	148	274
Patient15	M	66	AGC	Diffuse	N	MB, AW	-	MSS	-	442	269
Patient16	M	57	EGC	Diffuse	N	Angle, LC	Equivocal	MSS		84	331
Patient17	M	51	EGC	Intestinal	N	Antrum, AW	+	MSS		82	118
Patient18	M	58	EGC	Intestinal	N	Antrum, GC	+	MSS		401	203
Patient19	M	80	EGC	Intestinal	N	Angle, LC	+	MSS		83	163
Patient20	F	41	AGC	Diffuse	N	UB, LC	+	MSS		173	39
Patient21	M	63	AGC	Intestinal	Y	Antrum, LC	-	MSS		110	-
Patient22	M	46	EGC	Intestinal	Y	Antrum, PW	+	MSS		463	363

Patient23	M	76	AGC	Diffuse	Y	Angle, LC Antrum, AW	+	MSS		162	43
Patient24	F	44	AGC	Diffuse	N	LB, GC	+	MSS	+	163	325
Patient25	F	72	CAG with IM	-		-	+	-	-	253	
Patient26	F	59	CSG	-		-	+	-	-	479	
Patient27	F	61	CSG	-		-	+	-	-	2032	
Patient28	F	48	CSG	-		-	+	-	-	163	
Patient29	F	43	CAG with IM	-		-	+	-	-	1886	

*Abbreviation

EGC	Early gastric cancer	+	positive
AGC	Advanced gastric cancer	-	negative
CAG	Chronic atrophic gastritis	blank	not tested
IM	Intestinal metaplasia		
CSG	Chronic superficial gastritis		
LB	Lower body		
AW	Anterior wall		
GC	Great Curvature		
PW	Post wall		
MB	Midbody		
UB	Upper body		
LC	Less curvature		
MSS	Microsatellite stability		
MSI	Microsatellite instability		

EBV Epstein-Barr virus

Supplementary Table 2. DEG lists with cancer progression

DEGs	State	DEGs	State	DEGs	State	DEGs	State	DEGs	State	DEGs	State
C16orf89	I1	*FAM3D*	D1	*UBA52*	I2	*TAGLN2*	I2	*GPX2*	I2	*TUBB4B*	I2
C6orf58	I1	*PTMA*	I2	*UQCRH*	I2	*TXN*	I2	*H3F3A*	I2	*UBB*	I2
CLU	I1	*SNRPG*	I2	*ATP5B*	I2	*UQCRQ*	I2	*H3F3B*	I2	*UQCR10*	I2
CST3	I1	*TMSB10*	I2	*CDKN2A*	I2	*ATP5E*	I2	*HINT1*	I2	*UQCRB*	I2
LIPF	I1	*ATP5G3*	I2	*IFITM3*	I2	*ATP5G1*	I2	*HIST1H4C*	I2	*YBX1*	I2
MUC6	I1	*CYCS*	I2	*LY6E*	I2	*ATP5I*	I2	*HNRNPA2B1*	I2	*AKR1B10*	I2
PGC	I1	*EIF4A1*	I2	*MT1G*	I2	*ATP5J2*	I2	*HSP90AB1*	I2	*ANXA10*	I2
REG3A	I1	*ENO1*	I2	*MT1H*	I2	*ATP5L*	I2	*HSPA8*	I2	*CLIC1*	I2
LTF	I1	*GAPDH*	I2	*MT2A*	I2	*BTF3*	I2	*LDHA*	I2	*CLTB*	I2
LYZ	I1	*H2AFZ*	I2	*NACA*	I2	*C14orf2*	I2	*MT1E*	I2	*CTSE*	I2
PRR4	I1	*HMGB1*	I2	*PTGES3*	I2	*COX7B*	I2	*NPM1*	I2	*MUC5AC*	I2
REG1A	I1	*HMGN2*	I2	*TFF3*	I2	*COX7C*	I2	*OAZ1*	I2	*NQO1*	I2
ZG16B	I1	*HSP90AA1*	I2	*UBE2C*	I2	*COX8A*	I2	*PKM*	I2	*OCIAD2*	I2
BPIFB1	I1	*HSPE1*	I2	*ALDOA*	I2	*DBI*	I2	*PPIB*	I2	*PSME2*	I2
MSMB	I1	*PFN1*	I2	*CALM2*	I2	*EEF1A1*	I2	*SERF2*	I2	*TFF1*	I2
OLFM4	I1	*PPIA*	I2	*COX4I1*	I2	*EEF1B2*	I2	*SLIRP*	I2	*TMSB4X*	I2
GAST	D1	*PRDX1*	I2	*COX6B1*	I2	*EEF1D*	I2	*SPINK1*	I2	*AGR2*	I2
LCN2	D1	*PSMA7*	I2	*DYNLL1*	I2	*EIF1*	I2	*TMA7*	I2	*CA2*	I2
PRSS1	D1	*RAN*	I2	*GSTP1*	I2	*FABP5*	I2	*TPT1*	I2	*CYSTM1*	I2
PRSS3	D1	*TPI1*	I2	*NDUFA4*	I2	*FAU*	I2	*TSPO*	I2	*SEC61G*	I2
TFF2	D1	*TUBA1B*	I2	*RPL36AL*	I2	*GNB2L1*	I2	*TUBB*	I2	*ALDOB*	D2
ANPEP	D2	*KRT18*	D2	*S100P*	D2	*CES2*	I3	*MAL2*	I3	*TSPAN1*	I3
ANXA1	D2	*KRT19*	D2	*SDCBP2*	D2	*CFL1*	I3	*MALAT1*	I3	*TXNDC17*	I3
ANXA2	D2	*KRT20*	D2	*SH3BGRL3*	D2	*CLDN18*	I3	*MGST3*	I3	*VAMP8*	I3

APOA1	D2	*KRT7*	D2	*TM4SF1*	D2	*CLDN3*	I3	*MUC13*	I3	*GLRX*	I3
APOA4	D2	*KRT8*	D2	*TM4SF20*	D2	*CLDN4*	I3	*MYL12A*	I3	*PEPD*	I3
APOC3	D2	*LGALS3*	D2	*TM4SF4*	D2	*COX5B*	I3	*MYL12B*	I3	*PLS1*	I3
C15orf48	D2	*MTTP*	D2	*TMPRSS15*	D2	*COX6C*	I3	*MYL6*	I3	*DGAT1*	I3
CEACAM5	D2	*NEAT1*	D2	*TSPAN8*	D2	*COX7A2*	I3	*PHLDA2*	I3	*DHRS11*	I3
CEACAM6	D2	*PCK1*	D2	*LGALS4*	D2	*CSTB*	I3	*POLD4*	I3	*FUOM*	I3
CLDN7	D2	*PHGR1*	D2	*AGPAT2*	I3	*EDF1*	I3	*POMP*	I3	*KHK*	I3
CRIP1	D2	*PI3*	D2	*AGR3*	I3	*EPCAM*	I3	*PRR13*	I3	*TM4SF5*	I3
DPCR1	D2	*PLAC8*	D2	*ATP5J*	I3	*FTH1*	I3	*RARRES3*	I3	*CRYL1*	D3
FABP1	D2	*PRAP1*	D2	*B2M*	I3	*FTL*	I3	*RHOC*	I3	*CYBRD1*	D3
FABP2	D2	*PSCA*	D2	*C19orf33*	I3	*HLA-A*	I3	*SEPP1*	I3	*FAM3C*	D3
FXYD3	D2	*RBP2*	D2	*C19orf77*	I3	*HLA-B*	I3	*SERPINB6*	I3	*HIGD1A*	D3
GKN1	D2	*REG4*	D2	*CALM1*	I3	*HLA-C*	I3	*SFN*	I3	*HSD17B2*	D3
GKN2	D2	*S100A10*	D2	*CBR1*	I3	*HPGD*	I3	*SLPI*	I3	*MALL*	D3
HN1	D2	*S100A11*	D2	*CD55*	I3	*HRASLS2*	I3	*SMIM22*	I3	*MISP*	D3
IFI27	D2	*S100A14*	D2	*CD59*	I3	*HSPB1*	I3	*SRI*	I3	*OAT*	D3
IL32	D2	*S100A16*	D2	*CD63*	I3	*ISG15*	I3	*TACSTD2*	I3		
KLK10	D2	*S100A6*	D2	*CD9*	I3	*ISG20*	I3	*TMEM54*	I3		
EZR	D3	*CHN1*	D4	*GADD45B*	D4	*PTRF*	D4	*CALD1*	D4		
PERP	D3	*CNN3*	D4	*GPX3*	D4	*RERGL*	D4	*CAV1*	D4		
RAC1	D3	*COL15A1*	D4	*IFITM2*	D4	*RGS16*	D4	*CD36*	D4		
AKR1C3	D3	*COL18A1*	D4	*IGFBP7*	D4	*RGS5*	D4	*EMP3*	D4		
ARPC1B	D3	*COL1A1*	D4	*ITGB1*	D4	*S100A4*	D4	*FN1*	D4		
CALR	D3	*COL1A2*	D4	*JUNB*	D4	*SDC2*	D4	*FRZB*	D4		
COX6A1	D3	*COL3A1*	D4	*LGALS1*	D4	*SELM*	D4	*PPP1R14A*	D4		
GSTA1	D3	*COL4A1*	D4	*LMNA*	D4	*SERPINH1*	D4	*PRKCDBP*	D4		

HSP90B1	D3	*COL4A2*	D4	*LUM*	D4	*SOD3*	D4	*PRSS23*	D4		
MMP7	D3	*COL5A2*	D4	*MFGE8*	D4	*SPARC*	D4	*TUBA1A*	D4		
NDUFA1	D3	*COL6A1*	D4	*MGP*	D4	*SPARCL1*	D4	*VIM*	D4		
SPRR1B	D3	*COL6A2*	D4	*MYH11*	D4	*SPON2*	D4	*ARHGDIB*	D4		
TCEB2	D3	*CRIP2*	D4	*MYL9*	D4	*TAGLN*	D4	*BGN*	D4		
UQCR11	D3	*CSRP2*	D4	*MYLK*	D4	*TFPI*	D4				
USMG5	D3	*CTSC*	D4	*NDUFA4L2*	D4	*THY1*	D4				
YWHAZ	D3	*DCN*	D4	*PI15*	D4	*TIMP1*	D4				
PCK2	D3	*DSTN*	D4	*PLN*	D4	*TPM1*	D4				
SULT1A1	D3	*EID1*	D4	*POSTN*	D4	*TPM2*	D4				

Supplementary Table 3. DEG lists with cancer sub-clusters

cluster	gene	cluster	gene	cluster	gene	cluster	gene	cluster	gene	cluster	gene
Intestinal	*PHGR1*	Intestinal	*APOA1*	Intestinal	*SEPP1*	Intestinal	*REEP6*	Intestinal	*ALPI*	Intestinal	*OAT*
Intestinal	*RBP2*	Intestinal	*APOA4*	Intestinal	*SULT1A2*	Intestinal	*CLDN4*	Intestinal	*AOC1*	Intestinal	*MDK*
Intestinal	*C19orf77*	Intestinal	*KHK*	Intestinal	*FXYD3*	Intestinal	*VIL1*	Intestinal	*GLRX*	Intestinal	*HEBP1*
Intestinal	*ANPEP*	Intestinal	*C11orf86*	Intestinal	*EPCAM*	Intestinal	*VAMP8*	Intestinal	*TM4SF4*	Intestinal	*C8G*
Intestinal	*ALDOB*	Intestinal	*HSD17B2*	Intestinal	*TSPAN8*	Intestinal	*CRYL1*	Intestinal	*HPGD*	Intestinal	*SAT2*
Intestinal	*PRAP1*	Intestinal	*TM4SF20*	Intestinal	*CYB5A*	Intestinal	*SCP2*	Intestinal	*CDHR2*	Intestinal	*CCL25*
Intestinal	*FABP2*	Intestinal	*PCK1*	Intestinal	*FBP1*	Intestinal	*MISP*	Intestinal	*PLS1*	Intestinal	*HLA-DRB1*
Intestinal	*MTTP*	Intestinal	*GSTA1*	Intestinal	*PPP1R14D*	Intestinal	*CHP2*	Intestinal	*PLAC8*	Intestinal	*CTSE*
Intestinal	*FABP1*	Intestinal	*DGAT1*	Intestinal	*LGALS3*	Intestinal	*DHRS11*	Intestinal	*SERPINA1*	Intestinal	*DPEP1*
Intestinal	*CDHR5*	Intestinal	*MYO1A*	Intestinal	*AGPAT2*	Intestinal	*FUOM*	Intestinal	*MPST*	Intestinal	*HLA-DRA*
Intestinal	*CBR1*	Intestinal	*LGALS4*	Intestinal	*C19orf33*	Intestinal	*CIDEC*	Intestinal	*CYP3A4*	Intestinal	*ENPP7*
Intestinal	*CREB3L3*	Intestinal	*SMIM22*	Intestinal	*ESPN*	Intestinal	*ELF3*	Intestinal	*MYO15B*	Intestinal	*CD74*
Intestinal	*APOB*	Intestinal	*PRR13*	Intestinal	*SULT1A1*	Intestinal	*SFN*	Intestinal	*ABCG2*	Intestinal	*ATP1B1*
Intestinal	*PIGR*	Intestinal	*MALL*	Intestinal	*CLDN7*	Intestinal	*ALDH1A1*	Intestinal	*AADAC*	Intestinal	*CDKN2B-AS1*
Intestinal	*TM4SF5*	Intestinal	*CLDN3*	Intestinal	*PRSS3*	Intestinal	*MUC13*	Intestinal	*CDH17*	Intestinal	*UGT2B17*
Intestinal	*CES2*	Intestinal	*AKR1B10*	Intestinal	*TMPRSS15*	Intestinal	*CLDN15*	Intestinal	*C2orf88*	Intestinal	*REG1A*
Intestinal	*KRT8*	Intestinal	*KRT20*	Intestinal	*FAM3C*	Intestinal	*SI*	Intestinal	*HRASLS2*	Intestinal	*S100G*
Intestinal	*PCK2*	Intestinal	*CIDEB*	Intestinal	*S100A10*	Intestinal	*FAM3B*	Intestinal	*AGR3*	Intestinal	*REG1B*
Intestinal	*AKR7A3*	Intestinal	*APOC3*	Intestinal	*PEBP1*	Intestinal	*CYP3A5*	Intestinal	*PEPD*	Intestinal	*AGR2*
Intestinal	*S100P*	Intestinal	*ANXA10*	Intestinal	*CTSE*	Intestinal	*OLFM4*	EmyoT	*JUN*	EmyoT	*EIF4A2*
Intestinal	*TFF1*	Intestinal	*S100A10*	Intestinal	*KRT7*	Intestinal	*FCGBP*	EmyoT	*PLN*	EmyoT	*CKB*
Intestinal	*TSPAN1*	Intestinal	*S100A14*	Intestinal	*PI3*	Intestinal	*SPINK4*	EmyoT	*GADD45B*	EmyoT	*IGFBP5*
Intestinal	*TSPAN8*	Intestinal	*PRSS3*	Intestinal	*LYZ*	Intestinal	*MUC2*	EmyoT	*EGR1*	EmyoT	*FRZB*

Intestinal	*REG4*	Intestinal	*CLDN4*	Intestinal	*TACSTD2*	Intestinal	*MT1G*	EmyoT	*BCAM*	EmyoT	*MLTK*
Intestinal	*S100A6*	Intestinal	*CLDN18*	Intestinal	*TFF2*	Intestinal	*ITLN1*	EmyoT	*FOS*	EmyoT	*RHOB*
Intestinal	*CEACAM5*	Intestinal	*SDCBP2*	Intestinal	*CEACAM6*	Intestinal	*REG1A*	EmyoT	*MYL9*	EmyoT	*RCAN2*
Intestinal	*FXYD3*	Intestinal	*SMIM22*	Intestinal	*SERPINB1*	Intestinal	*ZG16*	EmyoT	*SORBS2*	EmyoT	*FLNA*
Intestinal	*KRT18*	Intestinal	*MAL2*	Intestinal	*TXN*	Intestinal	*MMP1*	EmyoT	*TSC22D1*	EmyoT	*C11orf96*
Intestinal	*GPRC5A*	Intestinal	*C19orf33*	Intestinal	*VSIG2*	EMT	*FN1*	EmyoT	*TAGLN*	EmyoT	*CNN1*
Intestinal	*SLPI*	Intestinal	*PLAC8*	Intestinal	*LMO7*	EMT	*HIST1H4C*	EmyoT	*LBH*	EmyoT	*KLF2*
Intestinal	*KRT19*	Intestinal	*CYSTM1*	Intestinal	*TM4SF20*	EMT	*TUBA1B*	EmyoT	*NET1*	EmyoT	*SOCS3*
Intestinal	*SH3BGRL3*	Intestinal	*OCIAD2*	Intestinal	*MUC13*	EMT	*H2AFZ*	EmyoT	*TPM2*	EmyoT	*BTG2*
Intestinal	*KRT8*	Intestinal	*AGR3*	Intestinal	*SPINK1*	EMT	*STMN1*	EmyoT	*ZFP36*	EmyoT	*MFAP4*
Intestinal	*TFF3*	Intestinal	*LGALS3*	Intestinal	*TMEM54*	EMT	*UBE2C*	EmyoT	*MAP3K7CL*	EmyoT	*GBP2*
Intestinal	*EPCAM*	Intestinal	*SFN*	Intestinal	*LCN2*	EmyoT	*RERGL*	EmyoT	*SNCG*	EmyoT	*ARID5A*
Intestinal	*CD55*	Intestinal	*MUC1*	Intestinal	*PSCA*	EmyoT	*MYH11*	EmyoT	*PPP1R15A*	EmyoT	*MFGE8*
Intestinal	*LGALS4*	Intestinal	*PERP*	Intestinal	*MUC5AC*	EmyoT	*DSTN*	EmyoT	*CIRBP*	EmyoT	*SOD3*
Intestinal	*TM4SF1*	Intestinal	*GPX2*	Intestinal	*C15orf48*	EmyoT	*IER2*	EmyoT	*SPARCL1*	EmyoT	*CSRP1*
Intestinal	*S100A16*	Intestinal	*HN1*	Intestinal	*PDZK1IP1*	EmyoT	*JUNB*	EmyoT	*CSRP2*	EmyoT	*FHL1*
EmyoT	*MYLK*	EmyoT	*C10orf10*	EmyoT	*LIPF*	EMT	*COL3A1*	EMT	*FN1*	EMT	*RGS5*
EmyoT	*NUPR1*	EmyoT	*DES*	EMT	*COL4A1*	EMT	*COL1A1*	EMT	*IL8*	EMT	*IGJ*
EmyoT	*SERPINI1*	EmyoT	*CYR61*	EMT	*COL1A2*	EMT	*S100A4*	EMT	*COL15A1*	EMT	*FABP4*

Supplementary Table 4. Known gene sigatures with previous studies

EMyoT	EMT	Cytokine	P53	MSI	ES exp	Nanog targets	Oct4 targets	Sox2 targets	EBV
SRF	*ADAM23*	*CCL18*	*MDM2*	*ADAM10*	*ACTA1*	*ABCB7*	*ADD3*	*ABCB7*	*HLA-A*
MKL	*ADAMTS1*	*CCL19*	*CDKN1A*	*AK2*	*ACTC1*	*ACADM*	*AUH*	*ACO2*	*HLA-B*
CNN1	*AFF3*	*CCL2*		*AMFR*	*ACTN3*	*ACAT2*	*BMP7*	*ACOX1*	*HLA-C*
TAGLN	*AK5*	*CCL21*		*ANP32E*	*ADD2*	*ACO2*	*ZFP36L1*	*ADAR*	*HLA-DMB*
SMAD3	*AKAP12*	*CCL3*		*ARL6IP1*	*PARP1*	*ADAR*	*KLF5*	*ADD3*	*HLA-DPA1*
MRTF	*ALPK2*	*CCL4*		*ARNTL2*	*ALPL*	*ADD3*	*BUB1B*	*ADFP*	*HLA-DPB1*
ZEB1	*ANGPTL2*	*CCL5*		*ASPHD2*	*AMD1*	*ADFP*	*CA2*	*ADRBK2*	*HLA-DQA1*
	ANKRD1	*CCL8*		*ATP1B1*	*BIRC5*	*ADRBK2*	*CA4*	*AP2A1*	*HLA-DQB1*
	ANTXR1	*CXCL10*		*ATP5A1*	*ATP1A2*	*AP2A1*	*CACNA2D1*	*ALCAM*	*HLA-DRA*
	ANXA6	*CXCL11*		*ATP6V1B2*	*BMPR1A*	*AP1G1*	*CAPZA2*	*ALPL*	*HLA-DRB1*
	AOX1	*CXCL13*		*B3GNT4*	*BUB1*	*AK3L1*	*ENTPD1*	*APEX1*	*HLA-DRB5*
	AP1S2	*CXCL9*		*BNIP3L*	*BUB1B*	*ALCAM*	*CDH1*	*APP*	*HLA-F*
	ARMCX1			*C12orf23*	*C1QBP*	*ANGPT1*	*COL12A1*	*AQP2*	
	ATP8B2			*C12orf57*	*CASP3*	*ANXA1*	*CPT1A*	*ARF3*	
	ATP8B3			*C18orf21*	*CBS*	*APLP2*	*CTGF*	*ARF4*	
	AXL			*C18orf24*	*CCNA2*	*APOA2*	*DPYSL2*	*ARL4D*	
	BDNF			*C18orf25*	*CCNB1*	*APOB*	*DPYSL3*	*ARHGAP1*	
	BICC1			*C18orf55*	*CD24*	*AQP2*	*DTNA*	*ASNA1*	
	BNC2			*C19orf51*	*CDC2*	*ARF3*	*DUSP6*	*ATF3*	
	BVES			*C1orf149*	*CDC6*	*ARF4*	*EIF2S1*	*ATF4*	
	C10orf38			*C4orf27*	*CDC20*	*ARHGAP1*	*ELAVL2*	*ALDH7A1*	
	C10orf56			*C9orf30*	*CDC25A*	*ASAH1*	*EPHA1*	*ATP5F1*	
	C16orf45			*CAMK2N2*	*CTSC*	*ATF4*	*FGF2*	*AUH*	
	C1S			*CCDC109B*	*CHEK1*	*ATP5F1*	*FGFR1*	*BCAT1*	

C9orf19	*CCDC5*	*CRABP1*	*ATP6V1A*	*FGFR2*	*BCKDHA*
CAP2	*CCL7*	*CRABP2*	*B2M*	*FOXO1*	*CCND1*
CCL2	*CCL8*	*CRMP1*	*BCAT1*	*FUS*	*BCL9*
CDH11	*CD68*	*CSE1L*	*BCKDHA*	*GAP43*	*BMP2*
CDH2	*CDC42SE1*	*CXADR*	*BCL9*	*GAS1*	*BMP7*
CDH4	*CDCA2*	*CYP26A1*	*BMP2*	*GATA6*	*ZFP36L1*
CHN1	*CDK2*	*COCH*	*BMP7*	*GJA1*	*KLF5*
CLDN11	*CNOT7*	*DHFR*	*POLR3D*	*GPC3*	*BTG1*
CLIP3	*COPG*	*DIAPH2*	*BNIP1*	*GLDC*	*BUB1B*
CMTM3	*COPS3*	*DLG3*	*ZFP36L1*	*GNG10*	*CA2*
COL12A1	*CSNK1G1*	*DNA2L*	*KLF5*	*GPS1*	*CA4*
COL1A2	*CYB5D1*	*DNMT3A*	*BUB1B*	*GRID2*	*CACNA1A*
COL3A1	*DCAKD*	*DNMT3B*	*CA2*	*HAS2*	*CACNA2D1*
COL4A1	*DCUN1D1*	*DSG2*	*CA4*	*HHEX*	*CALM2*
COL5A1	*DOCK5*	*ECT2*	*CACNA1A*	*HMGB2*	*CALR*
COL5A2	*DUSP4*	*SLC29A1*	*CACNA2D1*	*HOXB5*	*CAPZA2*
COL6A1	*EXOSC9*	*EPHA1*	*CALB1*	*TNC*	*CASP9*
CPA4	*FAM151B*	*EPRS*	*CALD1*	*ID2*	*CDC2*
CTGF	*FAM18B*	*ERBB2*	*CALM2*	*IFI16*	*CDH2*
CYBRD1	*FECH*	*ETV1*	*CALR*	*JARID2*	*CDH3*
DAB2	*FNTB*	*ETV4*	*CAPZA2*	*JUND*	*CDK6*
DFNA5	*FUT8*	*FABP5*	*CASP9*	*JUP*	*CETN3*
DIO2	*GNLY*	*FEN1*	*CAV1*	*KCNN2*	*CFL1*
DKK3	*GPR126*	*GPC4*	*RUNX1T1*	*KDR*	*FOXN3*
DLC1	*GTF2A2*	*FGF2*	*SERPINH1*	*LAMA4*	*CLN3*
DOCK10	*HBS1L*	*FGF13*	*ENTPD1*	*MAN2C1*	*COL12A1*
DPYSL3	*HNRNPL*	*FGFR1*	*CDC2*	*MCC*	*COPB1*

EDIL3	*HPSE*	*FKBP5*	*CDH1*	*MEIS2*	*CPT1A*
ELOVL2	*INSR*	*FOXO1*	*CDH2*	*MAP3K3*	*CSNK1E*
EML1	*IQGAP3*	*GABRA5*	*CDK6*	*MMP2*	*VCAN*
EMP3	*KCNRG*	*GABRB3*	*CETN3*	*MTM1*	*CTGF*
EPB41L5	*KCTD9*	*GAD1*	*CFL1*	*NCBP1*	*CTH*
EPDR1	*KDELR3*	*GART*	*CHD2*	*NEFM*	*DDX5*
EVI2A	*KDSR*	*GJA1*	*FOXN3*	*NEFL*	*DNM2*
F2R	*KIR2DL4*	*GLDC*	*CKS2*	*ROR1*	*DPAGT1*
FAM101B	*KLRD1*	*GPM6B*	*CLIC1*	*ORC1L*	*DPYSL2*
FAT4	*KPNA1*	*GPR19*	*CLN3*	*PAK1*	*DPYSL3*
FBN1	*KRT7*	*MSH6*	*CNN2*	*PDCL*	*DTNA*
FGF2	*LRRC16A*	*HAS3*	*CNN3*	*PCTK2*	*DUSP6*
FGF5	*LYG1*	*HELLS*	*COL4A5*	*ENPP2*	*DVL2*
FGFR1	*MAP3K6*	*HMGB3*	*COL4A6*	*PFTK1*	*E2F3*
FHL1	*MBP*	*HMGA1*	*COL7A1*	*EXOSC9*	*EEF2*
FLRT2	*ME2*	*HMMR*	*COL12A1*	*POU5F1*	*EGR3*
FSTL1	*MFAP1*	*HNRPAB*	*COX6A1*	*PPP2R1B*	*EIF4G2*
GFPT2	*MIB1*	*HSPA4*	*CPT1A*	*PPP2R3A*	*ELAVL2*
GLIPR1	*MSH4*	*HSPA8*	*CRYZ*	*PRPS1*	*ENSA*
GLT25D2	*MT1X*	*HSPD1*	*CS*	*PSMA3*	*EPHA1*
GNB4	*MT2A*	*ILF3*	*MAPK14*	*PTPN2*	*ERBB2*
GNG11	*MTA2*	*INDO*	*CSNK1E*	*RAB5A*	*FANCC*
GPC6	*NAP1L4*	*ITPR3*	*VCAN*	*RAD51C*	*FANCF*
GPR176	*NARS*	*JARID2*	*CSTF1*	*RASGRF2*	*FARSA*
GREM1	*NUCB2*	*KAL1*	*CSTF3*	*REST*	*FGF2*
HAS2	*NUTF2*	*KCNS3*	*CTGF*	*RFNG*	*FGFR1*
HEG1	*PAFAH1B2*	*KIF5C*	*CTSL2*	*RPL32*	*FGFR2*

HS3ST3A1
HTRA1
IGFBP7
IL13RA2
JAM3
KIRREL
LAMA4
LEPREL1
LGALS1
LHFP
LIX1L
LOX
MAP1B
MMP2
MRAS
MSRB3
NAP1L3
NAV3
NDN
NEGR1
NEXN
NID1
NRG1
NUDT11
PAPPA
PDE7B
PLAGL1
PBK
PGGT1B
PHF5A
PIAS2
PLAA
POLDIP3
PPIB
PPM1A
PPP1R8
PPP4R1
PRPF39
PSIP1
PTPN2
RAB27B
RAC3
RAP2B
RNF19B
RNF215
RPL22L1
RPRD1A
RPS29
RTTN
SAP30
SEC22B
SERPINB8
SETD5
SFRS6
KLKB1
KPNA2
KRT8
LCK
LGALS8
TACSTD1
M6PR
MAN2A1
MARS
MAT2A
MCM2
MCM3
MCM4
MCM5
MCM6
MCM7
MFGE8
MGST1
MICB
MRE11A
MSH2
NUDT1
MTHFD1
NASP
NFYB
NODAL
NPM1
CXADR
CYLD
CYP1B1
DCX
DDX5
DMXL1
DHCR7
DNM2
DPAGT1
DPYSL2
DPYSL3
DTNA
DUSP6
DVL2
E2F3
EEF2
EIF4B
EIF4G2
ENSA
EPHA1
ERBB2
ERCC1
ERH
EXTL2
FANCA
ACSL4
FANCF
RPS3A
RPS18
VPS52
SALL1
SET
SFRP1
SFRP2
SFRS4
SKIL
SNRPN
SOX2
STAT3
TAF12
TAL1
TALDO1
TCF4
TCF12
TCF20
TDGF1
NR2F2
LEFTY2
THBS2
TLE3
TOP2A
TRPS1
UBE2D3
WEE1
FOXO1
FTL
FUS
FZD2
GJA1
GNAI1
GNG10
GRK6
GRID2
GSK3A
GSK3B
H2AFX
H3F3B
HAS2
HDAC2
HELLS
HHEX
HMOX1
HNRNPA1
HNRNPA2B1
HNRNPC
HNRPK
HNRNPL
HSP90AB1
TNC
ID1
IDH3G

PMP22	*SFXN1*	*NTHL1*	*FBLN1*	*ZIC1*	*IFI16*
PNMA2	*SGPP1*	*NTS*	*FARSA*	*ZIC2*	*IGFBP2*
POPDC3	*SLC25A37*	*OAZ2*	*FAT*	*ZIC3*	*CYR61*
POSTN	*SLC2A5*	*ORC1L*	*FDPS*	*USP7*	*IK*
PRKD1	*SLC35A1*	*PAK1*	*GPC4*	*MYST3*	*ILF2*
PRR16	*SMAD2*	*PCDH1*	*FGF2*	*MLLT10*	*ILF3*
PTGIS	*SMAD4*	*PDCD2*	*FGFR1*	*CDC7*	*INHBA*
PTRF	*SMCHD1*	*PDK1*	*FGFR2*	*EOMES*	*JARID2*
PTX3	*SMURF2*	*PFAS*	*FHIT*	*HIST2H2BE*	*JUP*
RBM24	*SOCS6*	*PIK3CB*	*FKBP1B*	*PARG*	*KCNN2*
RBMS3	*SSR1*	*PLCB3*	*FOXO1*	*CDC14B*	*KDR*
RBPMS2	*STT3A*	*PMAIP1*	*FOXO3*	*KLF7*	*KIF11*
RECK	*STYX*	*EXOSC9*	*FUS*	*PPAP2A*	*KPNA3*
RFTN1	*TFAP2A*	*PNN*	*FZD2*	*B3GALT4*	*LAMA4*
SERPINE1	*THEX1*	*PODXL*	*GALK2*	*TRIM24*	*LASP1*
SIRPA	*THRAP3*	*POLE2*	*GANC*	*HESX1*	*ABLIM1*
SLC2A3	*TIPIN*	*POU5F1*	*GART*	*ALKBH1*	*LOH11CR2A*
SLC47A1	*TMEM107*	*PPM1B*	*GATA6*	*TSC22D1*	*LOXL2*
SPARC	*TNFSF9*	*PPP2R1B*	*GJA1*	*CDC123*	*LRP2*
SRGN	*TNNT1*	*PPP2R2B*	*GLA*	*SPAG9*	*CAPRIN1*
SRPX	*TNPO1*	*PRIM1*	*GLG1*	*BUB3*	*NBR1*
ST3GAL2	*TOMM22*	*PRIM2*	*GLUD1*	*LARGE*	*SMAD3*
SUSD5	*TRIM7*	*PRKX*	*GNAI1*	*LRAT*	*MAN2C1*
SYDE1	*TSPAN14*	*PRPS1*	*GNG10*	*MSC*	*MLH1*
TBXA2R	*TWSG1*	*PTPN2*	*GOLGA4*	*DHRS3*	*MAP3K11*
TCF4	*TXNDC1*	*PTPRZ1*	*GSK3A*	*TRIP4*	*MOBP*
TGFB2	*TXNDC10*	*RAB3B*	*GSTT2*	*GTF3C4*	*MTM1*

TMEM158
TMEM47
TMSL8
TNFRSF19
TRPA1
TTC28
TTLL7
TUB
TUBA1A
UCHL1
VIM
WIPF1
WNT5B
ZEB1
ZEB2
ZFPM2
ZNF788

TXNDC9
TXNL1
TXNL4A
UBE2M
USF1
USP14
VAPA
WDR41
WDR43
WDR57
WDR76
ZCCHC2

RARRES2
RBBP8
RFC3
RFC4
ABCE1
ROBO1
RPS24
RRM2
SALL2
SALL1
SCNN1A
SFRP1
SFRP2
SFRS1
SFRS7
ST6GAL1
SLC6A8
SLC16A1
SMS
SNRPA
SNRPN
SORL1
SOX2
SSB
TDGF1
TEAD4
TERF1

GTF2E1
GTF2H2
GYPC
H2AFX
H2AFZ
HIST1H2BD
HAS2
HELLS
HHEX
HNRNPA1
HNRNPA2B1
HNRPH2
HOXB5
HSPA4
HSPA5
TNC
ID1
ID2
IDH3A
IFI16
IGFBP2
IGFBP3
CYR61
ILF2
ILF3
ING1
INPP4A

PLAA
CDYL
BAG5
ATP6V1G1
GTPBP1
NFE2L3
FEZ1
KIAA0101
KIAA0174
ZEB2
SUPT7L
JOSD1
MED12
NAALAD2
ARPC5
ZMPSTE24
TRIM22
HMG20A
TIMM23
NEBL
SORBS1
POLR3G
MGEA5
BLCAP
GADD45G
MAGED2
STMN2

MYO9A
NCBP1
NDUFA2
NDUFB5
NDUFB8
NIT1
NKTR
NOTCH1
NP
ROR1
OAZ2
ORC1L
OXA1L
PRDX1
PAK1
PDCL
PCBP1
PCSK5
PCTK1
PCTK2
ENPP2
PFTK1
SERPINA1
PIN4
PITX2
EXOSC9
POU2F1

TFAM	*ITGB1*	*IL1RAPL1*	*POU5F1*
TIA1	*JARID2*	*HHLA3*	*PPM1B*
TMPO	*JUN*	*HYPE*	*PPP1R2*
TNNT1	*JUP*	*NUDT5*	*PPP1R10*
UGP2	*KCNN2*	*FZD10*	*PPP2R1A*
UNG	*KDR*	*RNF24*	*PPP2R1B*
VSNL1	*KPNA3*	*DUSP12*	*PPP2R3A*
ZIC2	*TNPO1*	*ZHX2*	*PPP2R5C*
ZIC3	*KRT18*	*DKK1*	*PRCC*
ZNF195	*LAMA4*	*SLC4A1AP*	*PRKAR1A*
LRP8	*LOH11CR2A*	*WDFY3*	*PRNP*
FZD5	*LRP2*	*PHF8*	*PRPSAP1*
DEK	*LRP3*	*ANKRD15*	*PRSS8*
FXR1	*NBR1*	*SULF1*	*PSEN2*
USP9X	*SMAD3*	*DNAJC9*	*PSMB1*
FZD7	*MAN2C1*	*FBXW11*	*PSMC2*
UTF1	*MCC*	*OBSL1*	*PTN*
IFITM1	*MDH1*	*SMG5*	*PTPN2*
TMEFF1	*MEF2A*	*PIP5K1C*	*PTPN3*
RUVBL1	*MICA*	*FRAT2*	*RAB5A*
PPAP2A	*MICB*	*COMMD3*	*RAD23A*
USO1	*MLH1*	*SLC44A1*	*RASA1*
ADAM23	*MAP3K11*	*ICMT*	*RASGRF2*
TRIM24	*MMP2*	*CHST5*	*REST*
HESX1	*MMP9*	*MKRN1*	*RFX1*
PROM1	*MOBP*	*SSBP2*	*RGS10*
FUBP1	*MOV10*	*ZKSCAN5*	*RPL7*

DDX18	*MRE11A*	*CBY1*	*RPL9*
MAP7	*MSH2*	*RAD54B*	*RPL15*
CLDN6	*MTM1*	*BAMBI*	*RPL30*
SYNGR3	*NAP1L2*	*TXN2*	*RPL36A*
BUB3	*NDUFB3*	*ABTB2*	*RPLP1*
DDX21	*NDUFS2*	*SFRS18*	*RPS3A*
DCLK1	*NKTR*	*PRPF31*	*RPS18*
AURKB	*NMT1*	*KIAA1279*	*RPS26*
NOLC1	*NODAL*	*PHGDH*	*RPS29*
PTTG1	*NP*	*ANKRD1*	*RTN2*
MED14	*NPAS2*	*SNX5*	*SORT1*
CER1	*ROR1*	*TJP3*	*VPS52*
HOMER1	*NVL*	*TNRC6A*	*SALL1*
C1orf38	*OAZ2*	*KCNMB4*	*SAT1*
GDF3	*ORC1L*	*MRPL13*	*SC5DL*
NFE2L3	*OXA1L*	*ATAD2*	*SCNN1A*
DLG7	*P4HA1*	*TFPT*	*CXCL5*
G3BP2	*PDCL*	*TRA2A*	*SDHD*
RABGAP1L	*PBX1*	*MYEF2*	*SET*
SRA1	*PCBP1*	*KLHL5*	*SFPQ*
CHAF1A	*PCNA*	*HN1*	*SFRP1*
DNAJB6	*PCTK1*	*DBR1*	*SFRP2*
AP1M2	*PCTK2*	*CXorf26*	*SFRS4*
G3BP1	*PDHB*	*PIPOX*	*SFRS7*
GPR64	*ENPP2*	*UBR5*	*SGTA*
CEBPZ	*PEX1*	*ATP6V1D*	*SH3GL3*
AASS	*PFTK1*	*UFM1*	*ST3GAL2*

PRMT3	*SERPINA1*	*ANKHD1*	*SKIL*
ZNF267	*PIK3R2*	*WDR70*	*SLC3A2*
TRIM22	*PITX2*	*RIF1*	*HLTF*
NPM3	*EXOSC9*	*RIC8B*	*SNAPC1*
TUBB2C	*PODXL*	*C12orf35*	*SNAPC3*
LYPLA1	*POU2F1*	*DPPA4*	*SNRPA*
OLFM1	*POU4F1*	*LSG1*	*SNRPD3*
MAD2L2	*POU5F1*	*TBC1D22B*	*SNRPN*
NOL5A	*PPP1R2*	*NPLOC4*	*SNX1*
PAICS	*PPP2R1A*	*RBM22*	*SOX2*
PAICS	*PPP2R1B*	*CCDC94*	*SP2*
POLR3G	*PPP2R3A*	*FLJ10769*	*SSR4*
RAD51AP1	*PPP2R5C*	*TMEM30A*	*STAT3*
LEFTY1	*PRCP*	*H2AFJ*	*STC1*
IGF2BP3	*PKIB*	*PRR11*	*STCH*
IGF2BP2	*MAPK8*	*JMJD1A*	*STXBP2*
MTHFD2	*PRNP*	*KLHL4*	*TAF12*
NMU	*PRSS8*	*PARD3*	*TAL1*
KIF2C	*PSEN2*	*SMARCAD1*	*TALDO1*
PIM2	*PSMA1*	*OLFML3*	*TARBP2*
NUDT21	*PSMB1*	*KIF15*	*TBP*
LECT1	*PSMB4*	*KIAA1143*	*TCF7L2*
DIDO1	*PSMB5*	*ARID1B*	*TCF20*
MYST2	*PSMC2*	*LRRN1*	*PPP1R11*
HRASLS3	*PSMD9*	*TMEM16H*	*TDGF1*
PSIP1	*PTN*	*TGIF2*	*LEFTY2*
WDHD1	*PTPN1*	*PRDM14*	*THBS2*

CHEK2	*PTPN2*	*LHPP*	*THOP1*
GPR176	*PXMP3*	*SOX17*	*TIA1*
OIP5	*QARS*	*ZDHHC6*	*TIAL1*
RRAS2	*RAB5A*	*NUCKS1*	*TIMP4*
MTF2	*RAB5B*	*DDX31*	*TLE1*
SEPHS1	*RAD23A*	*ARMCX5*	*TLE2*
GARNL4	*RANGAP1*	*ACD*	*TLE3*
TTLL12	*RAP1A*	*GNPTAB*	*TNFAIP2*
PASK	*RARB*	*LRFN3*	*TOP2A*
MDN1	*RASA1*	*C13orf7*	*TPM3*
COBL	*RASGRF2*	*EFTUD1*	*HSP90B1*
BOP1	*RBBP4*	*PRKRIP1*	*TUBG1*
NCAPH	*RBM4*	*TBL1XR1*	*TXNRD1*
FRAT2	*RBP1*	*C15orf29*	*UBC*
SIRT1	*REST*	*NANOG*	*UBE2D3*
CBX5	*RFX1*	*CNTNAP3*	*UBP1*
TNPO3	*RGS10*	*DHDDS*	*UFD1L*
PRKD3	*RNF2*	*PHF17*	*UGT8*
KIF4A	*RPL17*	*GRHL2*	*VASP*
RAD54B	*RPL21*	*URM1*	*VIM*
NOL11	*RPL32*	*C14orf156*	*ZIC1*
SFRS18	*RPLP1*	*TCF7L1*	*ZIC2*
LRIG1	*RPS3A*	*USP44*	*ZIC3*
CNTNAP2	*RPS13*	*C14orf153*	*ZNF140*
AUTS2	*RPS18*	*GTPBP3*	*ZNF217*
SERBP1	*RPS26*	*C14orf151*	*MAP3K12*
PITPNC1	*RPS27A*	*LINGO1*	*USP7*

GNL3	*RYR3*	*PRPF38A*	*FZD3*
FOXD3	*S100A11*	*MST150*	*MYST3*
ITGB1BP3	*VPS52*	*ATPBD4*	*MLLT10*
C6orf66	*SALL2*	*CABLES1*	*ANP32A*
CYP2S1	*SALL1*	*WDR20*	*SLC7A5*
PYCR2	*SC5DL*	*SFXN1*	*TAF15*
RRP15	*SCNN1A*	*PRKCDBP*	*MKKS*
GMNN	*SDC4*	*NAT12*	*CDC7*
GAL	*SEPP1*	*TMEM170*	*CDC45L*
FAM108B1	*SET*	*OSR1*	*EOMES*
PIPOX	*SFRP1*	*AASDH*	*FZD1*
ZNF589	*SFRP2*	*WDR36*	*FZD7*
RNF138	*SFRS4*	*C1orf211*	*HIST2H2AA3*
HSPC111	*SGK*	*COMMD7*	*HIST2H2BE*
LARP7	*SCG5*	*IRX2*	*HIST1H4C*
ESF1	*ST3GAL2*	*RDH10*	*TTF2*
AZIN1	*SILV*	*C9orf97*	*TEAD2*
LSR	*SKIL*	*SPRED1*	*OGT*
GINS2	*SLC1A1*	*SGMS1*	*CDC42BPA*
GPRC5B	*HLTF*	*AMIGO2*	*PIK3R3*
CECR1	*SNRP70*	*FAM33A*	*PARG*
BRWD1	*SNRPA*	*IER5L*	*AP3B1*
C21orf45	*SNRPE*	*MED11*	*CDC14B*
FAM64A	*SNRPN*		*PPAP2A*
PUS7	*SNX1*		*USO1*
EPB41L4B	*SON*		*EIF3F*
L1TD1	*SOX2*		*B3GALT4*

ERCC6L
RBM35A
NCAPG2
ZNF770
PAK1IP1
C12orf48
FANCL
DPPA4
C14orf115
NUDT15
BXDC2
C14orf106
LGR4
MCM10
PRPF40A
TMEM48
C12orf11
CCAR1
WDR12
RCC2
KLHL7
CHST7
EXOSC5
NUP107
SALL4
SLC39A10
MRS2L
SP2
SPARC
STAT3
STC1
AURKA
STRN
STXBP2
SUPT4H1
TAF4B
TAF12
TAL1
TALDO1
TARBP2
TBCC
TBL1X
TBP
TCF7L2
TCF20
TDGF1
TERF1
LEFTY2
THBS2
TIA1
TIAL1
TIAM1
TIMP4
TLE2
GBF1
RIPK1
TRIM24
SAP30
HESX1
TSC22D1
PER2
SPAG9
SDCCAG1
TMSB10
BUB3
DDX21
LARGE
LRAT
PNMA1
MSC
DHRS3
B4GALT6
CNOT8
CER1
CDYL
MED17
GGPS1
ATP6V1G1
RBM39
MPHOSPH1
NFE2L3

SPC25	*TLE3*	*RNF14*
NLN	*TSPAN6*	*FEZ1*
NLGN4X	*TOP2A*	*MORF4L2*
MTA3	*TSSC1*	*MDC1*
ZNF398	*TTF1*	*ZNF516*
SEMA6A	*TUBG1*	*KIAA0391*
LRRN1	*TXNRD1*	*PUM1*
CACHD1	*UBC*	*TMEM63A*
FAM60A	*UBE2D3*	*ZNF646*
PRDM14	*SUMO1*	*HDAC9*
NOC3L	*UBP1*	*KNTC1*
ISG20L1	*UFD1L*	*FAM115A*
SLC13A3	*VIM*	*KIAA0247*
CAPRIN2	*VLDLR*	*BCLAF1*
DBNDD1	*VRK2*	*DHX38*
CAMKV	*WARS*	*MTSS1*
NUP37	*WEE1*	*SPCS2*
ELOVL6	*ZIC1*	*ARHGAP11A*
DCC1	*ZIC2*	*ZEB2*
GNPTAB	*ZIC3*	*HEPH*
C1orf108	*CNBP*	*EPM2AIP1*
NARG2	*ZNF174*	*SMG7*
LIN28	*ZNF185*	*MED12*
NANOG	*ZNF202*	*NAALAD2*
PHF17	*ZNF217*	*ACOT8*
NARG1	*ZNF226*	*ABCF2*
MYO19	*ZNF228*	*DPP3*

PUS1	*MAP3K12*	*HUWE1*
TMEM177	*USP7*	*GPC6*
SLC38A1	*BAT3*	*ACTR1A*
TXNDC1	*MYST3*	*G3BP1*
WBSCR16	*MLLT10*	*SFRS14*
CDT1	*FXR1*	*DDX39*
SPRY4	*ANP32A*	*MRPS31*
TCF7L1	*SLC7A5*	*TRIM22*
BCL2L12	*MKKS*	*HMG20A*
USP44	*PICALM*	*TIMM23*
GINS4	*AXIN2*	*VAT1*
HPS3	*CDC7*	*DDX17*
RBM13	*CDC45L*	*NEBL*
SLC7A3	*EOMES*	*ANP32B*
ZSCAN10	*FZD7*	*ARFGEF1*
ANGEL2	*FZD8*	*POLR3G*
KIFC2	*HIST2H2AA3*	*TRIM16*
LOC91431	*HIST1H4C*	*PDPN*
C20orf72	*TTF2*	*LEFTY1*
DMKN	*PPFIBP1*	*EXOC5*
EGLN3	*PARG*	*IGF2BP3*
CDCA5	*AP3B1*	*GNA13*
MAL2	*CDC14B*	*MGEA5*
FAM46B	*KHSRP*	*RBBP9*
SCGB3A2	*KLF7*	*SDCCAG8*
GYLTL1B	*PPAP2A*	*C5orf4*
LOC157627	*EIF3D*	*NMU*

C8orf42
C11orf82
ARL5B
TUBB2B
CKMT1A

EIF3F
PEA15
B3GALT4
GBF1
RIPK1
CDS2
MTMR1
MPDZ
TRIM24
DPM1
HESX1
ALKBH1
TSC22D1
CDC123
CDC16
DDX18
AP1S2
SPAG9
NFS1
PAPSS2
CLDN6
PKMYT1
USP10
SEC22C
SDCCAG1
TMSB10
BUB3

GADD45G
MAGED2
MORF4L1
MSL3L1
CLP1
MAPRE2
KIF2C
RBPMS
UBE2C
DIDO1
HNRPUL1
PWP1
HYPE
NUDT4
FZD10
RNF24
DUSP12
CBX3
OIP5
MTF2
LPHN1
DKK1
MAST1
ACIN1
AZI1
EXPH5
MRPS27

LARGE
VAPB
NOLC1
LRAT
PNMA1
MSC
DHRS3
TRIP10
TRIP4
GTF3C4
B4GALT6
CNOT8
CER1
DDX23
CDYL
MED23
EIF2AK3
PIGL
EEF1E1
TMEM59
BAG5
ATP6V1G1
SEC22B
GTPBP1
GDF3
PREPL
RBM39
PHF8
NCDN
39331
ZCCHC14
ANKRD15
KIAA0280
RRS1
SULF1
NUP160
FBXW11
NEDD4L
SASH1
DNAJC16
OBSL1
KIAA0368
PIP5K1C
FRAT2
COMMD3
SLC44A1
ICMT
CBX5
ETHE1
ZNF281
ORC6L
PPP1R15A
SSBP3
SLC7A11

NFE2L3
NCOR1
FEZ1
MORF4L2
ZNF516
KIAA0391
FAM131B
TMEM63A
SART3
KNTC1
FAM115A
KIAA0101
BCLAF1
KIAA0652
DHX38
DLG7
SFI1
TSC22D2
ARHGAP11A
LCMT2
ZEB2
EPM2AIP1
SUPT7L
NCAPD2
JOSD1
USP3
MED12
SGK3
GSPT2
C9orf5
CBY1
RAB3GAP2
RAD54B
LSM4
BAMBI
ARIH1
ABTB2
USP49
CLIC4
FAM98A
C20orf194
SFRS18
TBC1D10B
PLEKHG3
GGA1
KIAA1279
TRPC4AP
KIF26A
TIMM9
TIMM8B
HBP1
ZRF1
ANKRD1
FOXP1

NAALAD2
ACOT8
ABCF2
SNUPN
GPC6
ACTR1B
ACTR1A
SFRS14
CEBPZ
CHST4
RBM7
DDX39
PSMD14
SPRY1
KATNB1
TRIM22
HMG20A
CITED2
CEPT1
YAP1
TIMM23
RBM14
HMGN4
SEMA4F
SEMA3C
DDX17
NEBL
TJP3
EIF2C2
SLC39A1
LSM3
TNRC6A
PRPF19
KCNMB4
MAT2B
NKIRAS1
MAPBPIP
C11orf67
MRPS18B
MCTS1
ATAD2
MRPL15
UBE2T
C16orf80
SCG3
USP25
UCRC
TRA2A
NME7
AK3
COPS7A
C14orf122
TXNDC12
KLHL5

ANP32B
CCT7
SORBS1
AHSA1
USP16
POLR3G
TRIM16
PDPN
GAS2L1
LEFTY1
IGF2BP3
KHDRBS1
CUGBP2
GNA13
CCT6B
MGEA5
NFAT5
RAI1
SEC24A
UTP14A
C5orf4
NMU
BLCAP
TCERG1
MORF4L1
MSL3L1
SERINC3
APH1A
RDH11
HSD17B12
ING4
HN1
NUSAP1
CRIM1
PIPOX
MEX3C
UBR5
NIP7
C11orf73
UFM1
LARP7
PCF11
NAG
MRPS23
SUFU
CYB5R2
UIMC1
WBP11
ARID4B
CRKRS
RSF1
RNUXA
FXYD5
RAB4B

TMED10
KDELR3
RABL4
RBPMS
PIM2
ABHD2
LECT1
DIDO1
HNRPUL1
KRR1
PWP1
IL1RAPL1
PKIG
NUDT5
WDHD1
WDR6
FZD10
DDX20
RNF24
DUSP12
COPE
XAB1
CBX3
OIP5
DNAJC8
ELL2
DKK1
POLE3
ERRFI1
GDAP1
SLC38A2
CCDC93
FBXL19
FAM63B
RRN3
TRIT1
TMEM103
ANKHD1
FLJ20309
WHSC1L1
TMEM160
TIPIN
ZNF770
ZSCAN2
PIH1D1
PPP2R3C
C14orf119
RNF31
C6orf166
RBM23
DARS2
RIF1
RIC8B
C12orf35

SLC4A1AP
TPX2
NT5C2
FBXL11
WDTC1
KIAA0241
EXPH5
SPG20
PHF8

39331

ANKRD15
RRS1
SULF1
DNAJC9
KLHL18
FBXW11
EHBP1
SIN3B
NEDD4L
SASH1
DNAJC16
OBSL1
SMG5
KIAA0368
FRAT2
COTL1
COMMD3

DPPA4
C14orf115
UBE2W
LSG1
ZNF331
FEM1A
STAP2
OSGEP
HIF1AN
IWS1
RBM22
CCDC94
POLR3E
VPS35
FLJ10769
C14orf108
RCOR3
ZNF701
H2AFJ
PRR11
FOXJ2
JMJD1A
EAPP
CISD1
MYNN
KIAA1166
UBQLN4

SLC44A1
SF3B1
ICMT
CBX5
ISCU
LEPROTL1
HEY2
KCTD2
R3HDM1
ZNF281
RBM9
CDC42EP4
ORC6L
MKRN1
SSBP2
SSBP3
SLC7A11
LSM5
SGK3
RAB38
GSPT2
C9orf5
RAB3GAP2
RAD54B
BAMBI
ARIH1
METTL7A
BDH2
SPIRE1
EXOSC5
SMARCAD1
OLFML3
XAB2
TNFSF5IP1
KIF15
AVEN
RAB25
MRPL47
KIAA0495
ZNF286A
KIAA1143
SFRS15
ODF2L
ARID1B
NUFIP2
SEMA6A
ARRDC3
RANBP10
LRRN1
CACHD1
TMEM16H
SCAF1
FAM60A
SENP2

WDSOF1
POLR1A
ZNF473
RP11-529I10.4
ZNF521
CLIC4
C20orf194
SFRS18
TMEM87A
TBC1D10B
GORASP2
PLEKHG3
PPP1R16B
GGA1
PRPF31
TRPC4AP
KIF26A
PHGDH
BSCL2
HBP1
ZRF1
ANKRD1
STK36
SALL3
SERP1
LSM3
APEX2

TGIF2
SAV1
NSUN3
ZNF335
PRDM14
LHPP
RAB17
NOC3L
MOSPD3
NUCKS1
MRPS11
NOL6
RSRC2
C1orf163
PLEKHA3
RASL11B
TMEM108
C19orf43
SCNM1
C19orf58
TMEM109
DCC1
WDR77
PHF23
GNPTAB
LRFN3
C13orf7

TNRC6A
GOLIM4
UBE2S
PRPF19
POLL
MAT2B
BZW2
MCTS1
ATAD2
C16orf72
UBE2T
HSPC171
TBK1
CYP2S1
UCRC
TFPT
NME7
LMCD1
SLC40A1
EHD4
MYEF2
AK3
F11R
C14orf122
C1orf121
NDUFA13
KLHL5
C14orf138
HMBOX1
C1orf54
C1orf108
PRKRIP1
TBL1XR1
TBC1D17
ZNF668
C15orf29
VASH2
DCAKD
NANOG
KIAA0319L
DHDDS
PHF17
GRHL2
RMI1
C14orf159
PIF1
MUS81
FBXO11
WDR23
C1orf21
URM1
FIP1L1
DIAPH3
MED25

IFT52
C8orf70
APH1A
HSD17B12
ING4
HN1
SS18L2
NUSAP1
VRK3
C3orf19
MRPL37
CXorf26
MRPL27
PIPOX
ARMCX1
TNFRSF12A
UBR5
NIP7
DDX41
HSPC111
LARS
UFM1
MIR16
LARP7
ASB1
TMEM66
MPP6
SLC7A5P1
TCF7L1
SF3B5
ABHD11
C22orf13
USP44
ARID5B
FAM96A
POLDIP3
LSMD1
AKT1S1
PPAPDC1B
MRPL43
GTPBP3
HDGF2
LINGO1
CCDC123
ZFYVE19
PRPF38A
MPND
JUB
MST150
ZCCHC3
ZCRB1
ATPBD4
CCDC45
TMEM55B

SUFU
UIMC1
WBP11
NUP54
FXYD5
MYO3A
PPIL3
ZFAND6
CCDC93
FAM35A
DDX49
FAM63B
RRN3
DYM
C10orf26
LRRC49
ANKRD49
TMEM103
WHSC1L1
RPP25
ZNF434
TMEM160
HCFC1R1
ZNF770
PIH1D1
PPP2R3C
PRPF39
BTF3L4
CABLES1
ZNF300
HIST3H2A
PERLD1
ARMC6
SFXN1
C21orf66
TSGA14
EGLN3
PRKCDBP
OSBPL1A
TMEM123
WDFY2
LYPD1
NAT12
TMEM170
HEXIM2
WDR81
C18orf37
ZNF428
NDUFA11
AASDH
WDR36
C20orf96
HECTD2
XRRA1

PTCD3
RNF31
FANCL
C6orf166
THAP1
DARS2
RIF1
RIC8B
NADSYN1
C12orf35
P15RS
DPPA4
EXDL2
C14orf115
UBE2W
RNF121
SLC39A9
ZNF331
C2orf56
ETNK1
FEM1A
OTUB1
C20orf42
OSGEP
IWS1
RBM22
CCDC94
FAM76B
ZNF664
C12orf60
FBXL14
FLJ40125
CREB3L4
C1orf211
COMMD7
IRX2
AMOTL1
RDH10
FBXO16
C8orf42
C9orf97
SPRED1
FAM134C
C1orf55
UBR1
TUBB
FLJ25801
FAM124A
C6orf130
SGMS1
PGM2L1
GLT8D3
FAM100B
ZIK1

VPS35
FLJ10769
ZNF701
H2AFJ
PRR11
FOXJ2
JMJD1A
CAND1
UBAP2
WWC3
C3orf10
CISD1
PSENEN
APOM
LIN37
GNG12
KLHL4
NDNL2
KIAA1217
EIF4ENIF1
C21orf59
GRIPAP1
C15orf24
UBQLN4
EXOSC5
SMARCAD1
GPR108
C19orf54
C1orf174
ZNF677
FAM33A
RAB15
IMAA
IER5L
PCNXL3

FEM1C

OLFML3

XAB2

OTUD7B

FAM20C

KIF15

ANKMY2

RAB25

INTS12

PHTF2

ZNF286A

KIAA1143

SFRS15

ODF2L

ARID1B

ZNF398

SLAIN2

RANBP10

LRRN1

CACHD1

TMEM16H

NOPE

GATAD1

SCAF1

EPS15L1

C6orf115

SENP2

EXOC4

SAV1

NIF3L1

C14orf133

NSUN3

PRDM14

PERP

LHPP

KIF9

TFB2M

RAB17

NOC3L

RNF25

DCLRE1C

TTC31

NUCKS1

C11orf1

39148

NOL6

TMEM135

RSRC2

PLEKHA3

RASL11B

TMEM108

SCNM1

GIYD2

C19orf58

KCTD15
SECISBP2
TMEM109
DCC1
WDR77
C19orf42
PHF23
GNPTAB
TMEM43
LRFN3
CARS2
C13orf7
C14orf138
HMBOX1
C1orf54
C1orf108
HSPBAP1
PARP8
TMEM149
TBL1XR1
PALB2
ISOC2
C15orf29
FBXO31
ALG9
GSTCD
MOBKL2B

ASAM
METTL8
DCAKD
C9orf82
NANOG
CNTNAP3
DHDDS
PHF17
GRHL2
DNAJB14
NIP30
UXS1
FLJ22795
MUS81
C2orf44
WDR23
CYB5B
ECOP
C1orf21
TXNDC5
URM1
MAP1LC3B
MED25
C14orf156
SLC7A5P1
TCF7L1
SF3B5

ABHD11
EIF2A
USP44
TOMM40L
ARID5B
ASCC2
FAM96A
TRAF7
DCUN1D5
ALKBH7
CHCHD5
LSMD1
C14orf153
SPIRE2
DCTN5
GTPBP3
FKSG24
C14orf151
SFT2D3
ADO
ZSCAN10
LINGO1
DIRC2
ATG4C
PRPF38A
JUB
TMEM60

MST150
ZCCHC3
ZCRB1
RSPRY1
ATPBD4
ZNF551
CCDC45
TMEM55B
TCEAL8
C19orf6
C22orf32
CABLES1
WDR20
COG7
ZNF300
HIST3H2A
PERLD1
ARMC6
ATPIF1
EGLN3
PRKCDBP
SAT2
C6orf117
CCDC104
FAM54A
DTX2
STK11IP

OSBPL1A
TMEM123
TLCD1
LYPD1
SCGB3A2
SLC36A4
CYP2R1
LRIG3
NAT12
C16orf63
IQCK
FAM100A
TMEM170
HEXIM2
WDR81
C18orf37
TYW3
ZNF684
C1orf83
TMEM77
MBOAT2
OSR1
ZFP42
AASDH
GRPEL2
WDR36
FAM92A1

UNC5D
C20orf96
C20orf52
HECTD2
ZNF664
C12orf60
FBXL14
C1orf211
SLC30A7
C1orf213
COMMD7
CCDC12
C9orf19
MARVELD2
IRX2
AMOTL1
C8orf42
SPRED1
ADAL
FAM134C
ASXL1
HIGD2A
THAP8
FLJ25801
C11orf82
FAM124A
ZNRF2

SGMS1

BCL9L

GLT8D3

FAM100B

ZIK1

C19orf54

WDR62

RABL3

ATP11C

AMIGO2

FAM33A

UNQ501

RAB15

IMAA

FLJ45455

IER5L

PCNXL3

FAM128A

FAM72B

Supplementary Table 5. Immunohistochemistry staining results for 10 patiets

	MRTFA	***SRF***	***IGFBP5***
Patient24	O	O	O
Patient20	O	O	O
Patient11	O	O	O
Patient08	O	O	O
Patient05	O	O	O
Patient12	O	O	O
Patient06		O	O
Patient15	O	O	O
Patient04	O	O	O
Patient03	O	O	O

MRTFA: Myocardin related transcription factor A

SRF: Serum response factor

IGFBP5: Insulin like growth factor binding protein 5

Supplementary Table 6. Hotspot mutation lists with oncogenes

ID	Mutation	Hugo_Symbol	Chromosome	Start_Position	End_Position	Reference_Allele	Tumor_Seq_Allele2	HGVSp_Short	Existing_variation	Type	Lauren	Cell type*
P01A-ACCGTAATCCTTTCTC-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	Enteroendocrine
P01A-TGGCCAGCACCTCGGA-1	BAP1:3:52443593	*BAP1*	3	52443593	52443595	GTA	-	p.Y33del		Adjacent non-cancer	Intestinal	EC
P01B-ATTTCTGTCAGTTTGG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	Tumor

P01B-CCTTACGGTACCATCA-1	KRAS:12:25380282	*KRAS*	12	25380282	253802822	G	T	p.A59E	COSM1135365,COSM1318029,COSM28518,COSM547	Cancer	Intestinal	Tumor
P01B-CCTTACGGTACCATCA-1	KRAS:12:25380278	*KRAS*	12	25380278	253802778	A	C	p.G60=	COSM1159613,COSM1168050,COSM253757	Cancer	Intestinal	Tumor
P01B-CGGACTGTCGACAGCC-1	SMARCB1:22:24176330	*SMARCB1*	22	24176330	241763300	G	A	p.R374Q	rs1057517825,COSM1266245,COSM998	Cancer	Intestinal	Tumor
P01B-TACTTACAGCCACCTG-1	KRAS:12:25378561	*KRAS*	12	25378561	253785611	G	A	p.A146V	rs1057519725,COSM1360827,COSM19900,COSM5752083,COSM5752084	Cancer	Intestinal	Tumor
P01B-TTCT	CCND1:1	*CCN*	11	6946	694	C	G	p.P2	COSM4855094,COSM4855095,COSM931396	Cancer	Int	PMC

CCTAGTCGAGTG-1	1:946602 1	*D1*		6021	660 21			87A			estinal		
P02A-AAAGTAGTCAGGATCT-1	CCND1:1 1:946602 2	*CCND1*	11	69466022	6946602 2	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	MSC	
P02A-ACACTGACATAAAGGT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC	
P02A-ACAGCCGGTGTGGCTC-1	CCND1:1 1:946602 1	*CCND1*	11	69466021	6946602 1	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	Tumor	
P02A-ACCCACTCAAGAAAGG-1	SF3B1:2:1982668 30	*SF3B1*	2	19826683 0	1982668 30	A	G	p.V701A	COSM4569855,COSM4745929	Adjacent non-cancer	Diffuse	GMC	

P02A-ACCTTTACATCACCCT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P02A-ACTGCTCGTCGGCACT-1	RAC1:7:6431628	*RAC1*	7	64316288	64316288	C	A	p.Q61K		Adjacent non-cancer	Diffuse	PC
P02A-AGAATAGCAAGTGCG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Tumor
P02A-AGGCCGTGTCTCTTAT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P02A-CACAGTAGTCCG	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Tumor

TTAA-1												
P02A-CACAGTATCGCAAGCC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P02A-CCATGTCCACCAGGCT-1	KRAS:12:25378648	*KRAS*	12	25378648	253786482	T	C	p.K117R	COSM4696721,COSM4696722	Adjacent non-cancer	Diffuse	Tumor
P02A-GAAATGACACTCGACG-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	GMC
P02A-GAACCTAGTCCGAACC-1	FBXW7:4:153250906	*FBXW7*	4	153250906	153250906	G	A	p.T385I	COSM1309812,COSM1309813,COSM1309814,COSM1309815,COSM1309816	Adjacent non-cancer	Diffuse	PMC
P02A-GCA	CCND1:1	*CCN*	11	6946	694	C	T	p.P2	COSM4855094,COSM4855095,COSM931396	Adjac ent	Diff	PC

GCCACAGCCTTTC-1	1:6946602 1	*D1*		6021	66021			87S		non-cancer	use	
P02A-GCGCCAAAGCATGGCA-1	CCND1:11:6946602 2	*CCND1*	11	6946602 2	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	GMC
P02A-TAGCCGGTCATAGCAC-1	CCND1:11:6946602 1	*CCND1*	11	6946602 1	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	PMC
P02A-TGCGCAGCAGCATACT-1	KRAS:12:25378648	*KRAS*	12	25378648	25378648	T	C	p.K117R	COSM4696721,COSM4696722	Adjacent non-cancer	Diffuse	MSC
P02B-ACGTCAATCTGTTGT-1	CREBBP:16:3786707	*CREBBP*	16	3786707	37867707	A	T	p.W1502R	COSM5363732	Cancer	Diffuse	MSC

P02B-ACTGCTCTCTATGTGG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC
P02B-AGAGCTTAGGGATACC-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Diffuse	PMC
P02B-AGGCCACGTTACGTCA-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	GMC
P02B-CAACTAGAGTGGGCTA-1	SDHAF2:11:61197647	*SDHAF2*	11	61197647	61197647	C	T	p.S10L	COSM4836035	Cancer	Diffuse	Tumor
P02B-CACAGGCAGAAT	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC

TGTG-1												
P02B-CACAGGCCATAGTAAG-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PC
P02B-CACATTTAGACGACGT-1	SMAD4:18:48604706	*SMAD4*	18	48604706	48604706	G	T	p.G510*	COSM6056828	Cancer	Diffuse	Tumor
P02B-CAGAATCTCATAAAGG-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PMC
P02B-CAGTAACCAGTAAGCG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PMC
P02B-CATCAA	SDHA:5:2	*SDHA*	5	2564704	2564	G	A	p.V644M	rs3211483,COSM6170729	Cancer	Diffu	MSC

GGTCCAACTA-1	56470				70							se	
P02B-CCTCTGACAGCTGCTG-1	ETV6:12:11803095	*ETV6*	12	118030095	118030095	G	A	p.X11_splice	COSM5948338	Cancer	Diffuse	GMC	
P02B-CGGACACCACTTGGAT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PC	
P02B-CGGTTAAGTGTGAAAT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC	
P02B-CGTGTCTAGGATGGTC-1	RAC1:7:6439807	*RAC1*	7	6439807	6439807	T	G	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Diffuse	PMC	

P02B-CTAATGGTCACAACGT-1	RAC1:7:6431629	*RAC1*	7	6431629	64316291	A	G	p.Q61R	COSM1131540	Cancer	Diffuse	PC
P02B-CTAATGGTCACAACGT-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Diffuse	PC
P02B-CTCATTAGTATTCTCT-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	Chief
P02B-CTGATCCTCCGTTGTC-1	SDHA:5:256470	*SDHA*	5	256470	256470	G	T	p.V644L	COSM6170729	Cancer	Diffuse	Tumor
P02B-CTGGTCTAGCGA	SMARCB1:22:417	*SMARCB1*	22	24176339	24176 3	G	T	p.R377L	CM122478,COSM1578803,COSM27977,COSM4596765,COSM4596766,COSM989	Cancer	Diffuse	GMC

TCCC-1	6339				39								
P02B-GACGGCTTCCGTCAAA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC	
P02B-GCAGCCAAGGAATTAC-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69460621	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	GMC	
P02B-GGGAGATCAATAGCAA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC	
P02B-GGGCACTTCACAATGC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69460622	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	GMC	
P02B-GGTGAA	EIF1AX:X:20	*EIF1*	X	20156719	20156	C	A	p.R13L	COSM1119080	Cancer	Diffu	PC	

GAGTACGTTC-1	156719	*AX*			67199						se	
P02B-GTATCTTGTAAGAGGA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P02B-GTGCATATCCTTGCCA-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PMC
P02B-TAAGCGTGTTCAGCGC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PMC
P02B-TCACAAGCAGCTGGCT-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PC

P02B-TCCACACGTCTAGTCA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P02B-TGAGGGAGTTCGTGAT-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PC
P02B-TGTCCCATCTAACGGT-1	RAC1:7:6426892	*RAC1*	7	64268922	64268922	C	A	p.P29T	COSM1167878,COSM125734	Cancer	Diffuse	PC
P02B-TGTCCCATCTAACGGT-1	RAC1:7:6426892	*RAC1*	7	64268922	64268923	CC	TT	p.P29F		Cancer	Diffuse	PC
P02B-TTAGGACGTCTG	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC

GAGA-1												
P03A-CACCACTAGCCAGTAG-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	MSC
P03A-CCTTCGATCCTCAGT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	GMC
P03A-CTGATCCTCTGATACG-1	KRAS:12:25380278	*KRAS*	12	25380278	25380278	A	T	p.G60=	rs397517037,COSM1159613,COSM1168050,COSM253757	Adjacent non-cancer	Diffuse	GMC
P03A-TCGCGAGCAAGAGTCG-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	PMC
P03B-ACCCAC	RAC1:7:6	*RAC1*	7	6441974	6441	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffu	GMC

TTCCTCGCAT-1	441974				974						se	
P03B-ACGAGCCGTATAATGG-1	KRAS:12:25380277	*KRAS*	12	25380277	25380278	GA	TT	p.Q61K	COSM4387500,COSM87298	Cancer	Diffuse	MSC
P03B-ACGAGCCGTATAATGG-1	KRAS:12:25380277	*KRAS*	12	25380277	25380277	G	C	p.Q61E	rs121913238,COSM1159597,COSM549,COSM550	Cancer	Diffuse	MSC
P03B-AGCATACTCAGCAACT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PMC
P03B-CAAGTTGGTTAAAGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor

P03B-CCGTGGACAGCTTCGG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor
P03B-CCTTCCCAGTACCGGA-1	SMAD2:18:45368211	*SMAD2*	18	45368211	45368211	G	C	p.S464*	COSM268154,COSM268520,COSM4169157	Cancer	Diffuse	Tumor
P03B-CGATTGACACTGTCGG-1	ETV6:12:11803095	*ETV6*	12	11803095	11803095	G	A	p.X11_splice	COSM5948338	Cancer	Diffuse	MSC
P03B-CGGACACAGCTAGTCT-1	RAC1:7:6439806	*RAC1*	7	64398066	64398066	A	T	p.N111I	COSM1684687,COSM5624655,COSM5624656	Cancer	Diffuse	PC
P03B-CTCAGAACAGGG	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor

TTAG-1												
P03B-GACTAACTCGAACGGA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	GMC
P03B-GCACATATCTGCTTGC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P03B-GCGAGAAGTCAATGTC-1	RAC1:7:6439807	*RAC1*	7	6439807	64398807	T	G	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Diffuse	Tumor
P03B-GGCTCGAAGAATCTCC-1	CCND1:11:6946021	*CCND1*	11	69460621	69460621	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	PMC
P03B-GTAACT	CCND1:11:6	*CCN*	11	69460621	6946	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Diffu	MSC

GCACAAGACG-1	9466021	*D1*			60211						se	
P03B-GTGCAGCTCGCTTAGA-1	CCND1:11:6946021	*CCND1*	11	69466021	694660211	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	GMC
P03B-GTGGGTCCAGTCGTGC-1	RAC1:7:6441974	*RAC1*	7	64419744	644197441	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC
P03B-TCTCTAATCTTCCTTC-1	NFE2L2:2:178098810	*NFE2L2*	2	178098810	1780988810	C	A	p.E79*	COSM120958,COSM132851,COSM1631472	Cancer	Diffuse	PC
P03B-TCTGAGATCTGTCAAG-1	SPOP:17:47696450	*SPOP*	17	47696450	476964501	A	C	p.F125V	COSM95273	Cancer	Diffuse	EC

P03B-TGCACCTTCTACTATC-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	GMC
P03B-TGCGCAGTCTGTTGAG-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	MSC
P03B-TGTTCCGAGATCCCAT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P03B-TTGCGTCGTCTCTTAT-1	PTPN11:12:112888199	*PTPN11*	12	112888199	112888199	C	G	p.A72G	rs121918454,CM013417,COSM13015,COSM13035,COSM5945277	Cancer	Diffuse	Tumor
P04A-CTGAAGTCACGT	CCND1:11:69466019	*CCND1*	11	69466019	69466060	C	T	p.T286I	COSM931395	Adjacent non-	Diffuse	PMC

GAGA-1	6019				19					cancer		
P04B-TCATTACGTGACGCCT-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC
P05A-CTGTGCTCAGGCTCAC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P05A-GGAAAGCTCATTCACT-1	FBXW7:4:153244092	*FBXW7*	4	153244092	153244092	G	A	p.R689W	COSM1154288,COSM206681,COSM206682,COSM206683,COSM27083,COSM5751359,COSM5751360,COSM5751361,COSM5751362,COSM5751363	Adjacent non-cancer	Diffuse	GMC
P05B-TAAACCGTCGGTTAAC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PMC
P06A-AAC	KRAS:12:	*KR*	12	2539	253	C	A	p.Q22H	COSM545	Adjacent	Diff	GMC

TCAGCATGTCCTC-1	25398253	*AS*		8253	98253					non-cancer	use	
P06A-ACATCAGTCAATAAGG-1	CCND1:11:6946602 1	*CCND1*	11	6946602 1	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	PC
P06A-ACATGGTGTAGAGTGC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC
P06A-ACGCAGCCATGGTCTA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P06A-ACTTGTTGTCATGCCG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC

P06A-AGAGCTTGTTGCCTCT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-AGGTCATGTTAGAACA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC
P06A-AGTGTCATCATCATTC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC
P06A-ATGGGAGAGATGTTAG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-ATTCTACAGCAC	CCND1:11:69460211	*CCND1*	11	69460211	69460211	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	GMC

CGTC-1					21							
P06A-CAGAGAGTCAGGTAAA-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P06A-CGGACGTTCATGCTCC-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-CTCAGAAGTCATCGGC-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P06A-CTCGTCACACGCGAAA-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P06A-GAACGG	RAC1:7:6	*RAC1*	7	6441974	64419	C	T	p.A178V	COSM1154840,COSM389868	Adjacent no	Diffu	Chief

ACAAGCCGCT-1	441974				974						non-cancer	se	
P06A-GACCTGGCAGACGTAG-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC
P06A-GCTCTGTAGCCAGTAG-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-GGCTCGAAGTACTTGC-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-GTATTCTCACATGTGT-1	CCND1:11:6946601 9	*CCND1*	11	69466019	69466019	C	T	p.T286I	COSM931395	Adjacent non-cancer	Diffuse	PMC

P06A-GTCTTCGGTCTAAACC-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	GMC
P06A-GTTCATTCGTTACAG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-TACAGTGCATCCAACA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P06A-TACTTGTCAACACGCC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-TAGACCAGTCTC	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PC

CCTA-1												
P06A-TAGCCGGCAAACCCAT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Chief
P06A-TCTTCGGGTGAAAGAG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P06A-TGCGGGTCAGTGAGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P06A-TTGAACGTCTAACTCT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Enteroendocrine
P06A-TTGACT	CCND1:11:6	*CCN*	11	69466022	6946	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent no	Diffu	PMC

TTCTGTTTGT-1	9466022	*D1*			60222					n-cancer	se	
P06A-TTTGGTAGGCCCTTG-1	CCND1:11:6946601 8	*CCND1*	11	6946601 8	69466018	A	G	p.T286A		Adjacent non-cancer	Diffuse	PMC
P06B-AACTGGTAGGTACTCT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Enteroendocrine
P06B-AGAGCTTAGTGAACGC-1	FBXW7:4:153244185	*FBXW7*	4	153244185	153244185	G	T	p.R658=	COSM1427626,COSM167197,COSM167198,COSM167199,COSM22967,COSM4837611,COSM4837612,COSM4837613,COSM4837614,COSM4837615	Cancer	Diffuse	GMC
P06B-GGGCACTGTTAAGATG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	GMC

P06B-GTGAAGGTTCCACAA-1	EP300:22:41525969	*EP300*	22	41525969	41525969	T	C	p.L415P	COSM221269	Cancer	Diffuse	Tumor
P07A-CCCATACTCCTTGACC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Interstinal	PMC
P07A-GTAACGTTCGCCAGCA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Interstinal	PC
P07B-AACTCCCAGTTAACC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Interstinal	EC
P07B-ACACCA	CDK4:12:581	*CDK4*	12	58145436	58144	T	A	p.K22M	COSM3463915	Cancer	Inte	Tumor

ACAGGCTGAA-1	45436				54366							stinal	
P07B-ACGGGTCCACCGTTGG-1	CCND1:11:6946601 8	*CCND1*	11	6946601 8	69466018	A	G	p.T286A		Cancer	Intestinal	MSC	
P07B-CTCACACCAACTGGCC-1	CCND1:11:6946602 1	*CCND1*	11	6946602 1	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	Tumor	
P07B-TATTACCTCAGGCCCA-1	CCND1:11:6946601 9	*CCND1*	11	6946601 9	69466019	C	T	p.T286I	COSM931395	Cancer	Intestinal	PC	
P08A-AGTCTTTAGTACG	CCND1:11:6946602 2	*CCND1*	11	6946602 2	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	EC	

ACG-1					22							
P08A-ATCTACTCACATTCGA-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	PMC
P08A-CCGGTAGCACTAAGTC-1	PDGFRA:4:55144146	*PDGFRA*	4	55144146	55144146	A	T	p.N659Y	COSM22416,COSM51516	Adjacent non-cancer	Diffuse	Fibroblast
P08A-CCTACACGTACTTCTT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P08A-CGGAGCTGTACAGACG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P08A-CTAGAG	CCND1:11:6	*CCN*	11	6946622	6946	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent no	Diffu	EC

TAGGCGTACA-1	94660222	*D1*			60222					n-cancer	se		
P08A-CTAGAGTAGGCGTACA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC	
P08A-TACTTGTAGTACATGA-1	FBXW7:4:153244185	*FBXW7*	4	153244185	153244185	G	A	p.R658*	COSM1427626,COSM167197,COSM167198,COSM167199,COSM22967,COSM4837611,COSM4837612,COSM4837613,COSM4837614,COSM4837615	Adjacent non-cancer	Diffuse	EC	
P08B-AGCTCTCCATGGTAGG-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	MSC	
P08B-CCTAAAGGTCGAATCT-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	EC	

P08B-GCAGTTAGTTCTGTTT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P08B-GGCCGATGTCCGCTGA-1	CDKN2A:9:21970972	*CDKN2A*	9	21970972	21970972	T	C	p.Y129C	COSM13633	Cancer	Diffuse	Enteroendocrine
P08B-GGTGTTATCAACCATG-1	KRAS:12:25380275	*KRAS*	12	25380275	25380276	TT	GC	p.Q61R	COSM1168052	Cancer	Diffuse	Fibroblast
P08B-GGTGTTATCAACCATG-1	KRAS:12:25380275	*KRAS*	12	25380275	25380275	T	G	p.Q61H	rs17851045,COSM1135364,COSM1146992,COSM554,COSM555	Cancer	Diffuse	Fibroblast
P08B-GTCCTCAAGGAC	CCND1:11:69466022	*CCND1*	11	69466022	69466060	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Fibroblast

TGGT-1					22							
P08B-TATGCCCAGCTCGCA-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Diffuse	MSC
P08B-TCGCGAGGTGCACTTA-1	SMARCA4:19:1106926	*SMARCA4*	19	11106926	111069288	AGA	-	p.K546del	COSM5576272,COSM5576273	Cancer	Diffuse	Fibroblast
P08B-TGGTTAGAGAAACCGC-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P09A-AAGACCTTCAGGTAAA-1	EIF1AX:X:20156713	*EIF1AX*	X	20156713	20156713	C	A	p.G15V	COSM3973543,COSM3973544	Adjacent non-cancer	Interstinal	MSC
P09A-AAG	RAC1:7:6	*RA*	7	6441	644	C	T	p.A1	COSM1154840,COSM389868	Adjacent	Int	PMC

GAGCGTGTGGTTT-1	441974	*C1*		974	1974			78V		non-cancer	estinal	
P09A-AAGTCTGTCCACTCCA-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	PMC
P09A-ACGAGGAAGCCTTGAT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	GMC
P09A-AGAGCGATCCCTAATT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-AGCTCCTAGCAG	CREBBP:16:378	*CREBBP*	16	37886065	37886	T	C	p.Y1450C	COSM88739	Adjacent non-	Intesti	GMC

GTCA-1	8605				05						cancer	nal	
P09A-ATCATGGCAAATACAG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C		T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-ATTATCCGTTCATGGT-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C		T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	PMC
P09A-CACAAACCAATGGTCT-1	VHL:3:10183734	*VHL*	3	10183734	101837334	C		A	p.S68*	rs869025617,CM003058,CM971566,COSM14372,COSM17870	Adjacent non-cancer	Intestinal	GMC
P09A-CACACAACCTTGTC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C		T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC

P09A-CATCAAGAGACAGAGA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-CCACCTAGTCTAGTCA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-CCAGCGACAGTGGGAT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-CCGTGGAAGGATGGAA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-CGA	RAC1:7:6	*RA*	7	64441	644	C	T	p.A1	COSM1154840,COSM389868	Adjacent	Int	GMC

TCGGTCTTGCAAG-1	441974	*C1*		974	1974			78V		non-cancer	estinal	
P09A-CGCTTCACATGAAGTA-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	GMC
P09A-CGCTTCACATGAAGTA-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69466018	A	G	p.T286A		Adjacent non-cancer	Intestinal	GMC
P09A-CGTCTACCACCGCTAG-1	RAC1:7:6441974	*RAC1*	7	64419 74	64419 74	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	Tumor
P09A-CTAGCCTGTCTA	ERBB3:12:5648	*ERBB3*	12	56482606	5648 26	A	C	p.T355P		Adjacent non-	Intesti	MSC

CCTC-1	2606				06						cancer	nal	
P09A-CTCTACGGTTGAGTTC-1	RAC1:7:6441974	*RAC1*	7	64419974	64419744	C		T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-CTGTTTACAATCGAAA-1	CCND1:11:6946602 2	*CCND1*	11	6946602 2	69466022	C		G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	PMC
P09A-GACGTGCTCGAGCCCA-1	FBXW7:4:153244092	*FBXW7*	4	15324092	153244092	G		A	p.R689W	COSM1154288,COSM206681,COSM206682,COSM206683,COSM27083,COSM5751359,COSM5751360,COSM5751361,COSM5751362,COSM5751363	Adjacent non-cancer	Intestinal	Chief
P09A-GCGAGAAAGCCCAATT-1	RAC1:7:6441974	*RAC1*	7	64419974	64419744	C		T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	PMC

P09A-GCTGCAGAGAACAACT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09A-GTGCAGCGTCAGTGGA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	Chief
P09A-TATCAGGGTGTCGCTG-1	PTEN:10:89725043	*PTEN*	10	89725043	89725043	G	T	p.X343_splice	COSM1180410,COSM5962,COSM921160	Adjacent non-cancer	Intestinal	GMC
P09A-TGGGCGTTCTTGCAAG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P09B-ACG	RAC1:7:6	*RA*	7	6441	644	C	T	p.A1	COSM1154840,COSM389868	Cancer	Int	PC

GGTCTCCAAACTG-1	441974	*C1*		974	1974			78V			estinal	
P09B-AGCCTAATCAGCTTAG-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC
P09B-AGTAGTCGTTCGCGAC-1	KRAS:12:25380276	*KRAS*	12	25380276	25380276	T	C	p.Q61R	rs121913240,COSM1140131,COSM1158660,COSM3688142,COSM551,COSM552,COSM553	Cancer	Intestinal	EC
P09B-AGTAGTCGTTCGCGAC-1	KRAS:12:25380276	*KRAS*	12	25380276	25380277	TG	GC	p.Q61A		Cancer	Intestinal	EC
P09B-CCACGGAAGCCC	RAC1:7:6441974	*RAC1*	7	64419974	64419	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intesti	MSC

GAAA-1					74						nal	
P09B-CTGATCCATTCCTGC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC
P09B-GATCGCGAGCCCTAAT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC
P09B-GATCGCGTCACCTTAT-1	PTEN:10:89725053	*PTEN*	10	89725053	89725053	T	G	p.Y346D		Cancer	Intestinal	PC
P09B-GCAATCACAGCTGCAC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC

P09B-GCGCGATAGGTTTCT-1	RAC1:7:6439806	*RAC1*	7	64398806	64398806	A	T	p.N111I	COSM1684687,COSM5624655,COSM5624656	Cancer	Intestinal	MSC
P09B-TCTTTCCCAGGATTGG-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	EC
P09B-TGCGGGTAGGTGTTAA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	PMC
P10A-AGCTCCTCATAGTAAG-1	RHOA:3:49405933	*RHOA*	3	49405933	49405933	G	T	p.L69M		Adjacent non-cancer	Diffuse	Fibroblast
P10A-CGGACG	CREBBP:16:	*CREB*	16	3786715	3786	A	C	p.L1499R	COSM220497,COSM88752	Adjacent no	Diffu	Goblet

TGTATGAATG-1	3786715	*BP*			715						n-cancer	se	
P10A-CGGACGTGTATGAATG-1	CREBBP:16:3786703	*CREBBP*	16	37867033	37867033	T	C	p.Y1503C	rs587783497,CM085345,COSM1161162,COSM88745	Adjacent non-cancer	Diffuse	Goblet	
P10A-GTGAAGGTCAACATC-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	PC	
P10B-ACGAGGATCCGCGTTT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	PC	
P10B-CGTCACTTCGGCGCTA-1	SDHA:5:25647070	*SDHA*	5	25647070	25647070	G	T	p.V644L	COSM6170729	Cancer	Diffuse	PMC	

P10B-CTGATCCTCACTCTTA-1	EIF1AX:X:20156720	*EIF1AX*	X	20156720	20156720	G	C	p.R13G	COSM5899335	Cancer	Diffuse	MSC
P10B-GATCGTAAGTTCGCGC-1	KRAS:12:25380275	*KRAS*	12	25380275	25380276	TT	AA	p.Q61L	COSM1168052	Cancer	Diffuse	Tumor
P10B-GATCGTAAGTTCGCGC-1	KRAS:12:25380275	*KRAS*	12	25380275	25380275	T	A	p.Q61H	rs17851045,COSM1135364,COSM1146992,COSM554,COSM555	Cancer	Diffuse	Tumor
P10B-GGTATTGAGCCTTGAT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC
P11A-CCACGGATCCCT	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC

CTTT-1												
P11A-CCTTCCCGTCGACTGC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P11B-AAAGCAAGGTTCCTA-1	KRAS:12:25378648	*KRAS*	12	25378648	253786484	T	C	p.K117R	COSM4696721,COSM4696722	Cancer	Diffuse	PC
P11B-CGTTAGACACGGATAG-1	RAC1:7:6439807	*RAC1*	7	6439807	64398077	T	A	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Diffuse	Fibroblast
P11B-TGAGAGGAGGACACCA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor
P11B-TGGGAA	RAC1:7:6	*RAC1*	7	6441974	64419741	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffu	PMC

GAGGACACCA-1	441974				974							se	
P11B-TTTGGTTTCAAGAAGT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Chief	
P12A-ACGCCGACAGATCGGA-1	RB1:13:4888814144	*RB1*	13	48881414	48881414	A	G	p.X46_splice	CS040288,COSM5686958,COSM5686959	Adjacent non-cancer	Diffuse	EC	
P12A-AGAGTGGGTACCATCA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Chief	
P12A-ATGAGGGGTCAGCTAT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC	

P12A-ATTCTACTCAGCTCTC-1	RAC1:7:64419744	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Chief
P12A-ATTGGACGTACCTACA-1	CREBBP:16:37867055	*CREBBP*	16	37867055	37867055	C	G	p.W1502C	COSM1377824,COSM88753	Adjacent non-cancer	Diffuse	Fibroblast
P12A-ATTGGACGTACCTACA-1	CREBBP:16:37867077	*CREBBP*	16	37867077	37867077	A	T	p.W1502R	COSM5363732	Adjacent non-cancer	Diffuse	Fibroblast
P12A-CAAGGCCAGTGTGAAT-1	RAC1:7:64419744	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P12A-GAACATCAGCAG	RAC1:7:64419744	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC

GCTA-1												
P12A-GACCAATAGCCTCGTG-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P12A-GAGCAGTAGATTAG-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Fibroblast
P12A-GCCTCTAGTTGCCTCT-1	PTEN:10:89720876	*PTEN*	10	89720876	89720876	G	A	p.X342_splice	rs786201041,CS043794,CS110216,COSM3441286,COSM5957,COSM5978	Adjacent non-cancer	Diffuse	PMC
P12A-GGCTCGACACGCTTTC-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P12A-GGGACC	PTEN:10:897	*PTEN*	10	8972057	8972	C	A	p.Y336*	COSM5290,COSM5300	Adjacent no	Diffu	PMC

TTCCGTTGTC-1	20857				08577						n-cancer	se	
P12A-TCAGGTACAAAGGTGC-1	RAC1:7:6439806	*RAC1*	7	6439806	64398066	A	T	p.N111I	COSM1684687,COSM5624655,COSM5624656	Adjacent non-cancer	Diffuse	Fibroblast	
P12B-ACGGCTAGGAATCGC-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC	
P12B-AGCAGCCGTGCCTGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	EC	
P12B-AGGTCCGAGAAACCGC-1	CCND1:11:6946602	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	MSC	

P12B-CAAGATCGTCGGCTCA-1	PPP6C:9:127912061	*PPP6C*	9	127912061	127912061	G	A	p.S270L	COSM1167935,COSM228125	Cancer	Diffuse	MSC
P12B-CACACCTTCAGTACGT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	EC
P12B-CATCGAAGGCCGAAT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	CAF
P12B-CTGCGGAGTGTGCC-1	CDKN2A:9:21971028	*CDKN2A*	9	21971028	21971028	C	T	p.W110*	rs121913389,CM060208,COSM12547,COSM126615,COSM126616,COSM1598222,COSM48297	Cancer	Diffuse	MSC
P12B-GATCGATTCGA	FBXW7:4:153244185	*FBXW7*	4	153244185	153244	G	A	p.R658*	COSM1427626,COSM167197,COSM167198,COSM167199,COSM22967,COSM4837611,COSM4837612,COSM4837613,COSM4837614,COSM4837615	Cancer	Diffuse	EC

GCCA-1					185							
P12B-GCTTCCACAACTGCGC-1	EP300:22:41566475	*EP300*	22	41566475	41566475	A	C	p.H1451P	COSM1034564,COSM1484264,COSM254672	Cancer	Diffuse	MSC
P12B-GGCTCGACAAGTCTAC-1	KRAS:12:25380279	*KRAS*	12	25380279	25380279	C	T	p.G60D	COSM1667041,COSM4531523,COSM548,COSM5879374,COSM87290	Cancer	Diffuse	MSC
P12B-GGGCATCGTCCGTGAC-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Diffuse	MSC
P12B-GGGTCTGTCAGGCGAA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	EC
P12B-GTT	CCND1:1	*CCN*	11	69466	694	A	G	p.T2		Cancer	Diff	MSC

CTCGCAATGCCAT-1	1:6946601 8	*D1*		6018	66018			86A			use		
P12B-TACAGTGTCCTATTCA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC	
P12B-TCTTTCCTCAGAGACG-1	CREBBP:16:37867005	*CREBBP*	16	37867005	37867005	C	G	p.W1502C	COSM1377824,COSM88753	Cancer	Diffuse	CAF	
P12B-TGATTTCAGCACCGCT-1	PTEN:10:89725054	*PTEN*	10	89725054	89725054	A	G	p.Y346C		Cancer	Diffuse	CAF	
P13A-ACATACGTCTTAGAGC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Interstinal	EC	

P13A-ATTGGACGTCTAGGTT-1	NFE2L2:2:178098803	*NFE2L2*	2	178098803	178098803	C	T	p.G81D	COSM132957,COSM132961	Adjacent non-cancer	Intestinal	Fibroblast
P13A-CACAAACAGTATTGGA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	EC
P13A-CGCCAAGCAAGTCTAC-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Adjacent non-cancer	Intestinal	Chief
P13A-CTTACCGAGATGCGAC-1	CREBBP:16:37867115	*CREBBP*	16	37867115	37867115	A	C	p.L1499R	COSM220497,COSM88752	Adjacent non-cancer	Intestinal	EC
P13A-CTT	CCND1:1	*CCN*	11	6946	694	C	G	p.P2	COSM2043470,COSM226265,COSM931397	Adjacent	Int	EC

ACCGAGATGCGAC-1	1:6946602 2	*D1*		6022	6602 2			87R		non-cancer	estinal	
P13A-TCAGGTAAGCCACGTC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	6946602 2	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	PC
P13B-ACCGTAATCGAACTGT-1	CDKN2A:9:2197097 1	*CDKN2A*	9	21970971	2197097 1	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	MSC
P13B-CACAGGCAGCCCAACC-1	CCND1:11:6946602 1	*CCND1*	11	6946602 1	6946602 1	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	PC
P13B-CAGTAACGTGCG	KRAS:12:25380278	*KRAS*	12	25380278	2538 02	A	C	p.G60=	COSM1159613,COSM1168050,COSM253757	Cancer	Intesti	MSC

AAAC-1					78						nal	
P13B-CCGTTCAGTAAGTTCC-1	PTEN:10:89720808	*PTEN*	10	89720808	89720808	T	C	p.L320S	CD110181,CM992427,CM033671,COSM28895,COSM35671	Cancer	Intestinal	Tumor
P13B-CGACCTTAGATCGGGT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	PC
P13B-GCAAACTAGGCTCAGA-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	219709669	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	MSC
P13B-GCTCCTAAGCGTAATA-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	219709669	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC

P13B-GTCGGGTTCACCAGGC-1	CDKN2A:9:21971036	*CDKN2A*	9	21971036	21971036	C	T	p.D108N	rs121913381,CM071585,CM973278,COSM12484,COSM1314728,COSM13489,COSM13520,COSM1674414,COSM753735,COSM753736,COSM753737,COSM753738	Cancer	Intestinal	MSC
P13B-GTCGGGTTCACCAGGC-1	KRAS:12:25378647	*KRAS*	12	25378647	25378647	T	A	p.K117N	COSM1256061,COSM1562192,COSM19940,COSM28519	Cancer	Intestinal	MSC
P13B-TATGCCCCAGGAATCG-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Intestinal	PC
P14A-ACGTCAAGGACCACCA-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P14A-ACGTCA	TP53:17:7	*TP53*	17	7574018	7574	G	A	p.R337C	rs587782529,CM981929,TP53_g.16900C>T,COSM11071,COSM111628,COSM111629,COSM117591,C	Adjacent no	Diffu	PC

ATCTATGTGG-1	574018				018				OSM1563605,COSM1563606,COSM235697	n-cancer	se	
P14A-CCTACCACACGGTAGAA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC
P14A-CCTATTATCTCCGGTT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P14A-CCTATTATCTCCGGTT-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69466018	A	G	p.T286A		Adjacent non-cancer	Diffuse	EC
P14A-TCATTTGTCTCAAGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	PMC

P14A-TTAGGCACATCGATGT-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	GMC
P14B-ACAGCTACAGCGTTCG-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	Tumor
P14B-ACTATCTGTTACAGAA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P14B-ACTTGTTCAAGCCGTC-1	PTEN:10:89720876	*PTEN*	10	89720876	89720876	G	T	p.X342_splice	CS043794,CS110216,COSM3441286,COSM5957,COSM5978	Cancer	Diffuse	Tumor
P14B-ACTTGTTCAAGC	PTEN:10:89720808	*PTEN*	10	89720808	89720808	T	C	p.L320S	CD110181,CM992427,CM033671,COSM28895,COSM35671	Cancer	Diffuse	Tumor

CGTC-1					08							
P14B-ACTTGTTCAAGCCGTC-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P14B-AGACGTTCAAGGTAA-1	FBXW7:4:153244185	*FBXW7*	4	153244185	153244185	G	A	p.R658*	COSM1427626,COSM167197,COSM167198,COSM167199,COSM22967,COSM4837611,COSM4837612,COSM4837613,COSM4837614,COSM4837615	Cancer	Diffuse	MSC
P14B-CATCGGGCACGGTTTA-1	KRAS:12:25398283	*KRAS*	12	25398283	25398283	A	C	p.G12=	COSM1159170,COSM3772370,COSM523,COSM524	Cancer	Diffuse	Tumor
P14B-CATTATCTCGGTGTCG-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P14B-CCT	CCND1:1	*CCN*	11	6946	694	C	G	p.P2	COSM2043470,COSM226265,COSM931397	Cancer	Diff	Tumor

TCCCAGACGCTTT-1	1:6946602 2	*D1*		6022	66022			87R			use		
P14B-CGAACATTCCCTAACC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	CAF	
P14B-CTAACTTAGCCCTAAT-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	Tumor	
P14B-CTACATTCTGACCTC-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Diffuse	Tumor	
P14B-GAGTCCGGTCGCATCG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor	

P14B-GATCGCGAGTCCCACG-1	KRAS:12:25378647	*KRAS*	12	25378647	25378647	T	G	p.K117N	rs770248150,COSM1256061,COSM1562192,COSM19940,COSM28519	Cancer	Diffuse	Tumor
P14B-GTAGGCCCAATGTTGC-1	CCND1:11:69460211	*CCND1*	11	69460211	69460211	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	MSC
P14B-GTCCTCATCACCATAG-1	CCND1:11:69460211	*CCND1*	11	69460211	69460211	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	Tumor
P14B-GTCTCGTTCCAGAGGA-1	CCND1:11:69460118	*CCND1*	11	69460118	69460118	A	G	p.T286A		Cancer	Diffuse	CAF
P14B-GTGCAGCTCTCC	CCND1:11:69460222	*CCND1*	11	69460222	69460222	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor

TATA-1					22							
P14B-GTGCAGCTCTCCTATA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P14B-TAGAGCTTCGGTTAAC-1	VHL:3:10188208	*VHL*	3	10188208	10188208	G	C	p.W117C	CM951286,HM971481,COSM14328,COSM14399,COSM17964,COSM479172	Cancer	Diffuse	Tumor
P14B-TGCCCATTCGAACTGT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P15A-AACCATGAGTCCATAC-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Chief
P15A-ACGCCA	DNMT3A:2:2	*DNMT*	2	25457243	25457243	G	A	p.R882C	rs377577594,COSM1166704,COSM1583136,COSM4383521,COSM53042,COSM87001	Adjacent no	Diffu	GMC

GGTCTAGTGT-1	54572243	*3A*			72433					n-cancer	se	
P15A-ACTGATGCAGGATCGA-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	PC
P15A-AGGCCGTAGGCCCTCA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Chief
P15A-ATTGGACGTTTCCACC-1	RAC1:7:6439807	*RAC1*	7	6439807	64398077	T	G	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Adjacent non-cancer	Diffuse	Chief
P15A-CAGCAGCCATACGCCG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC

P15A-CCTTACGCATTATCTC-1	CCND1:11:6946601 8	*CCND1*	11	6946601 8	6946601 8	A	G	p.T286A		Adjacent non-cancer	Diffuse	GMC
P15A-CTCACACTCTTGAGAC-1	CCND1:11:6946602 1	*CCND1*	11	6946602 1	6946602 1	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	PC
P15A-CTCGGGAGTGCGCTTG-1	CCND1:11:6946602 1	*CCND1*	11	6946602 1	6946602 1	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Diffuse	Chief
P15A-CTGTTTAAGGTGCAAC-1	CCND1:11:6946601 8	*CCND1*	11	6946601 8	6946601 8	A	G	p.T286A		Adjacent non-cancer	Diffuse	PMC
P15A-GATCTAGTCTAC	CCND1:11:6946602 2	*CCND1*	11	6946602 2	6946602 2	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	PC

TCAT-1					22							
P15A-GATCTAGTCTACTCAT-1	RAC1:7:6439806	*RAC1*	7	6439806	64398062	A	G	p.N111S	COSM1684687,COSM5624655,COSM5624656	Adjacent non-cancer	Diffuse	PC
P15A-GCTGGGTAGCAGCGTA-1	CCND1:11:6946601 9	*CCND1*	11	6946601 9	69466019	C	T	p.T286I	COSM931395	Adjacent non-cancer	Diffuse	PC
P15A-TACTCATTCAAACCGT-1	PTEN:10:89711902	*PTEN*	10	8971190 2	89711902	T	C	p.Y174H	COSM28897,COSM5221	Adjacent non-cancer	Diffuse	GMC
P15A-TGAAAGAGTAGGACAC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P15B-AGCGTA	RAC1:7:6	*RAC1*	7	6441974	64419741	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffu	GMC

TGTTCACGGC-1	441974				974						se	
P15B-AGCTCTCCACCAGGCT-1	RAC1:7:6439807	*RAC1*	7	6439807	6439807	T	G	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Diffuse	MSC
P15B-CAGATCAGTTCGGCAC-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC
P15B-CATGACATCGCACTCT-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC
P15B-GCACATAGTGCCTGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC

P15B-GCTCTGTAGTGGGATC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P15B-GGGTCTGTCTGCGTAA-1	PTPN11:12:112888189	*PTPN11*	12	112888189	112888189	G	A	p.E69K	rs397507511,CM030493,COSM13013,COSM6006328	Cancer	Diffuse	GMC
P15B-TGACTAGGTCGGCTCA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC
P15B-TGAGAGGCAGCTGTTA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	GMC
P16A-ATTACTCAGCGC	CDKN2A:9:2197	*CDKN2A*	9	21970972	21970972	T	C	p.Y129C	COSM13633	Adjacent non-	Diffuse	Enteroendoc

CTCA-1	0972				72					cancer		rine
P16A-CGTTGGGCATACGCCG-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P16A-TACCTTACATTAACCG-1	RAC1:7:64419744	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Tumor
P16A-TCAACGATCAGGCCCA-1	CCND1:11:69460602	*CCND1*	11	69460622	69460622	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	PC
P16B-AAAGATGCAGCCACCA-1	CCND1:11:69460602	*CCND1*	11	69460622	69460622	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC
P16B-ACGAGC	RAC1:7:6	*RAC1*	7	6441974	6441	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffu	Tumor

CCAGACAAGC-1	441974				974							se	
P16B-AGATCTGTCGTTTAGG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse		MSC
P16B-AGCCTAAGTAAACCTC-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse		MSC
P16B-AGCGGTCGTGAACCTT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse		MSC
P16B-AGGCCACTCTAACGGT-1	SMARCA4:19:110692 6	*SMARCA4*	19	11106926	11106928	AGA	-	p.K546del	COSM5576272,COSM5576273	Cancer	Diffuse		MSC

P16B-CACATAGGTGTAATGA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC
P16B-CACCTTGTCTGCAGTA-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	MSC
P16B-CACCTTGTCTGCAGTA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC
P16B-CAGCAGCTCTGTCTAT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-CCACCTATCCAA	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	MSC

ATGC-1					22							
P16B-CCTAGCTCACGTTGGC-1	RAC1:7:6439807	*RAC1*	7	6439807	64398007	T	A	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Diffuse	MSC
P16B-CCTCTGATCTCGCTTG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-CGCTATCTCAAACGGG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-GATCGCGGTGTGAATA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor
P16B-GATCTA	RAC1:7:6	*RAC1*	7	6441974	6441	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffu	PC

GAGTACGCGA-1	441974				974						se	
P16B-GCATGTAGTAGTAGTA-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-GCGACCACATTACGAC-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-GGCGTGTTCTGTTTGT-1	EP300:22:41566488	*EP300*	22	41566488	41566488	G	A	p.Q1455=	COSM1308207,COSM4387471	Cancer	Diffuse	MSC
P16B-GGGATGATCTTCGGTC-1	RAC1:7:6441974	*RAC1*	7	64419974	64419974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	PC

P16B-GTACGTAGTTGTTTC-1	GNAS:20:57484595	*GNAS*	20	57484595	57484595	C	A	p.Q227K	rs797045203,COSM28618,COSM4962872,COSM4962873,COSM5352260	Cancer	Diffuse	PC
P16B-GTGCATAAGCCCAACC-1	CCND1:11:69460211	*CCND1*	11	69460211	69460211	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	MSC
P16B-TAAGCGTAGCGTAGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-TCACGAACACCAACCG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P16B-TCGCGAGGTCAC	RAC1:7:6439807	*RAC1*	7	6439807	6439807	T	A	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Diffuse	MSC

TGGC-1												
P16B-TGCACCTCAGAGCCAA-1	KRAS:12:25380282	*KRAS*	12	25380282	25380282	G	T	p.A59E	COSM1135365,COSM1318029,COSM28518,COSM547	Cancer	Diffuse	GMC
P16B-TTGCGTCGTACAGTGG-1	SMAD2:18:45368213	*SMAD2*	18	45368213	45368213	G	T	p.C463*		Cancer	Diffuse	PC
P17A-AACTCTTAGTAGCCGA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Interstitinal	MSC
P17A-CCGTTCAAGGATCGCA-1	RB1:13:48954300	*RB1*	13	48954300	48954300	G	A	p.X474_splice	CS058009	Adjacent non-cancer	Interstitinal	EC

P17B-AAGTCTGCACTGAAGG-1	CDKN2A:9:21970972	*CDKN2A*	9	21970972	21970972	T	C	p.Y129C	COSM13633	Cancer	Intestinal	PC
P17B-ACAGCTAAGGAGCGAG-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21971685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	PC
P17B-ACAGCTAAGGAGCGAG-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC

P17B-ACGGGCTTCTTGCCGT-1	CDKN2A:9:21968242	*CDKN2A*	9	21968242	21968242	C	G	p.X153_splice	CS127044,COSM21562,COSM3952628,COSM99937	Cancer	Intestinal	PC
P17B-ACGGGCTTCTTGCCGT-1	CCND1:11:69460602	*CCND1*	11	69460602	69460602	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PC
P17B-ACGGGCTTCTTGCCGT-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-ACGGGCTTCTTGCCGT-1	CDKN2A:9:21968242	*CDKN2A*	9	21968242	21968243	-	A	p.X153_splice		Cancer	Intestinal	PC
P17B-ACG	CDKN2A:	*CDK*	9	2197	219	C	A	p.D1	rs121913381,CM071585,CM973278,COSM12484,COSM1314728,COSM13489,COSM13520,COSM1674	Cancer	Int	PC

GGCTTCTTGCCGT-1	9:2197103 6	*N2A*		1036	7103 6			08Y	414,COSM753735,COSM753736,COSM753737,COSM753738		estinal	
P17B-ACGGCTTCTTGCCGT-1	PPP6C:9:127912080	*PPP6C*	9	127912080	127912080	G	A	p.R264C	rs763733111,COSM1151204,COSM221754	Cancer	Intestinal	PC
P17B-AGATCTGAGTCCTCCT-1	CDKN2A:9:21971035	*CDKN2A*	9	21971035	21971035	T	C	p.D108G	COSM1638187,COSM4767456,COSM4767457,COSM4767458,COSM4767459,COSM753739,COSM753740,COSM753741	Cancer	Intestinal	PC
P17B-AGATCTGAGTCCTCCT-1	CDKN2A:9:21971028	*CDKN2A*	9	21971028	21971028	C	T	p.W110*	rs121913389,CM060208,COSM12547,COSM126615,COSM126616,COSM1598222,COSM48297	Cancer	Intestinal	PC
P17B-AGATCTGAGTCC	CDKN2A:9:2197	*CDKN2A*	9	21971036	2197 10	C	A	p.D108Y	rs121913381,CM071585,CM973278,COSM12484,COSM1314728,COSM13489,COSM13520,COSM1674414,COSM753735,COSM753736,COSM753737,COSM753738	Cancer	Intesti	PC

TCCT-1	1036				36							nal	
P17B-AGCGTATGTAGCGTCC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	PC
P17B-AGGGATGAGTGTACCT-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-AGGGATGAGTGTACCT-1	CDKN2A:9:21971028	*CDKN2A*	9	21971028	21971028	C	T	p.W110*	rs121913389,CM060208,COSM12547,COSM126615,COSM126616,COSM1598222,COSM48297	Cancer	Intestinal	PC
P17B-AGTCTTTCACGGCTAC-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC

P17B-AGTGGGAAGAGAACAG-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-ATAAGAGGTTGTGGAG-1	CDKN2A:9:21968242	*CDKN2A*	9	21968242	21968242	C	T	p.X153_splice	CS127044,COSM21562,COSM3952628,COSM99937	Cancer	Intestinal	PC
P17B-ATAAGAGGTTGTGGAG-1	CDKN2A:9:21968242	*CDKN2A*	9	21968242	21968243	-	A	p.X153_splice		Cancer	Intestinal	PC
P17B-ATGAGGGCACCAGGCT-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21971685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCAC	-	p.X51_splice		Cancer	Intestinal	PC

						TGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACA GACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCT GAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTA GGCCTGGAGATTTTTTTTTTTTTTTTGTTCACTGCTGTAT ATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAA ACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTA AG						
P17B-ATG AGG GCA CCA GGC T-1	CDKN 2A: 9:2 197 102 8	*CDKN 2A*	9	21 97 10 28	21971028	C	T	p.W110*	rs121913389,CM060208,COSM12547,COSM126615,COSM126616,COSM1598222,COSM48297	Cancer	Intestinal	PC
P17B-ATG AGG GCA CCA GGC T-1	CDKN 2A: 9:2 197 102 9	*CDKN 2A*	9	21 97 10 29	21971029	C	T	p.W110*	rs1057519852,COSM12481,COSM126617,COSM126618,COSM3382498	Cancer	Intestinal	PC
P17B-ATG AGG GCA CCA GGC T-1	SMARCA4:19:110692 6	*SMARCA4*	19	11 10 69 26	111069 28	AGA	-	p.K546del	COSM5576272,COSM5576273	Cancer	Intestinal	PC
P17B-ATG AGG GCA	CDKN 2A: 9:2 197	*CDKN*	9	21 97 09 87	21971	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACG GCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCC GGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGG GCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTC GGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCT	-	p.X51_splice		Cancer	Intes	PC

GCTGTAT-1	0987	*2A*			685	CCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG					tinal	
P17B-ATGAGGGCAGCTGTAT-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-ATGAGGGCAGCTGTAT-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	C	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-ATGAGGGCAGCT	CDKN2A:9:21971035	*CDKN2A*	9	21971035	21971035	T	C	p.D108G	COSM1638187,COSM4767456,COSM4767457,COSM4767458,COSM4767459,COSM753739,COSM753740,COSM753741	Cancer	Intestin	PC

GTAT-1					35						al	
P17B-CACAGGCGTCGCTTCT-1	CDKN2A:9:21971035	*CDKN2A*	9	21971035	21971035	T	C	p.D108G	COSM1638187,COSM4767456,COSM4767457,COSM4767458,COSM4767459,COSM753739,COSM753740,COSM753741	Cancer	Intestinal	PC
P17B-CACAGGCGTCGCTTCT-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	C	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-CACAGGCGTCGCTTCT-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	PC
P17B-CACTCCAGTTCGGCAC-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC

P17B-CAGCATAAGTCCTCCT-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21971685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	PC
P17B-CATATGGAGTACTTGC-1	CDKN2A:9:21970100	*CDKN2A*	9	21970100	21971000	C	A	p.E120*	CD972119,COSM12479,COSM13296,COSM3092256,COSM753749	Cancer	Intestinal	PC
P17B-CATATGGAGTACTTGC-1	CDKN2A:9:21970101 7	*CDKN2A*	9	21970101 7	21971017	G	A	p.P114L	rs121913386,CM983988,COSM12476,COSM13830,COSM3092257,COSM4408164,COSM4408165,COSM4408166,COSM4408167,COSM4605168,COSM4605169,COSM4605170,COSM753742,COSM753743	Cancer	Intestinal	PC

P17B-CATATGGAGTACTTGC-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	21971018	GG	AA	p.P114F		Cancer	Intestinal	PC
P17B-CATCGGGCATTGGCGC-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	C	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-CATGCCTGTGTCCTCT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PMC
P17B-CCAGCGACACTCTGTC-1	CDKN2A:9:21971000	*CDKN2A*	9	21971000	21971000	C	T	p.E120K	CD972119,COSM12479,COSM13296,COSM3092256,COSM753749	Cancer	Intestinal	PC
P17B-CCA	KRAS:12:	*KR*	12	2538	253	G	T	p.Q61K	rs121913238,COSM1159597,COSM549,COSM550	Cancer	Int	PC

GCGACACTCTGTC-1	25380277	*AS*		02 77	80277							estinal	
P17B-CCAGCGACACTCTGTC-1	KRAS:12:25378647	*KRAS*	12	25378647	25378647	T	G	p.K117N	rs770248150,COSM1256061,COSM1562192,COSM19940,COSM28519	Cancer	Intestinal	PC	
P17B-CCAGCGACACTCTGTC-1	CDKN2A:9:21971035	*CDKN2A*	9	21971035	21971035	T	A	p.D108V	COSM1638187,COSM4767456,COSM4767457,COSM4767458,COSM4767459,COSM753739,COSM753740,COSM753741	Cancer	Intestinal	PC	
P17B-CCAGCGACACTCTGTC-1	CCND1:11:69460601	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	PC	
P17B-CCAGCGACACTC	KRAS:12:25380277	*KRAS*	12	25380277	25380277	GA	TT	p.Q61K	COSM4387500,COSM87298	Cancer	Intesti	PC	

TGTC-1					78						nal	
P17B-CCGGGATCACACTGCG-1	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	PC
P17B-CCTCTGACACGGTAAG-1	PTEN:10:89725043	*PTEN*	10	89725043	89725043	G	-	p.X343_splice	COSM1180410,COSM5962,COSM921160	Cancer	Intestinal	PC
P17B-CCTCTGACACGGTAAG-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21971685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACG GCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCC GGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGG GCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTC GGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCT CCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGA GAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCAT GACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCA AGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCC TACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTC TATCCATTCTTCAGTACACAATGAATTCCATTATATCCTC CGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCAC TGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACA GACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCT GAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTA GGCCTGGAGATTTTTTTTTTTTTTTTTGTTCACTGCTGTAT ATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAA	-	p.X51_splice		Cancer	Intestinal	PC

						ACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG						
P17B-CCTCTGACACGGTAAG-1	CDKN2A:9:21970972	*CDKN2A*	9	21970972	21970972	T	C	p.Y129C	COSM13633	Cancer	Intestinal	PC
P17B-CGATTGAAGTTGTAGA-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-CGTGAGCGTGAGCGAT-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	21971017	G	T	p.P114H	CM983988,COSM12476,COSM13830,COSM3092257,COSM4408164,COSM4408165,COSM4408166,COSM4408167,COSM4605168,COSM4605169,COSM4605170,COSM753742,COSM753743	Cancer	Intestinal	PC
P17B-CGTGAGCGTGAGCGAT-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	21971018	GG	AA	p.P114F		Cancer	Intestinal	PC

P17B-CTAGCCTCAAGGACTG-1	CDKN2A:9:21971036	*CDKN2A*	9	21971036	21971036	C	G	p.D108H	CM071585,CM973278,COSM12484,COSM1314728,COSM13489,COSM13520,COSM1674414,COSM753735,COSM753736,COSM753737,COSM753738	Cancer	Intestinal	PC
P17B-CTAGCCTCAAGGACTG-1	CREBBP:16:37867077	*CREBBP*	16	37867077	37867077	A	T	p.W1502R	COSM5363732	Cancer	Intestinal	PC
P17B-CTAGCCTTCCCACTTG-1	SMARCA4:19:111069266	*SMARCA4*	19	11106926	111069288	AGA	-	p.K546del	COSM5576272,COSM5576273	Cancer	Intestinal	PC
P17B-CTTGGCTAGGTGGGTT-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-CTTT	CDKN2A:	*CDK*	9	2197	219	G	T	p.Y1	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Int	PC

GCGTCTCGAGTA-1	9:21970971	*N2A*		09971	709971			29*			estinal		
P17B-GAACATCCATCAGTAC-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	C	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC	
P17B-GAACATCCATCAGTAC-1	CDKN2A:9:21971035	*CDKN2A*	9	21971035	21971035	T	A	p.D108V	COSM1638187,COSM4767456,COSM4767457,COSM4767458,COSM4767459,COSM753739,COSM753740,COSM753741	Cancer	Intestinal	PC	
P17B-GAACATCCATCAGTAC-1	CDKN2A:9:21971000	*CDKN2A*	9	21971000	21971000	C	T	p.E120K	CD972119,COSM12479,COSM13296,COSM3092256,COSM753749	Cancer	Intestinal	PC	
P17B-GAACATCCATCA	SMARCA4:19:110	*SMARC*	19	11106926	11106969	AGA	-	p.K546del	COSM5576272,COSM5576273	Cancer	Intesti	PC	

GTAC-1	6926	*A4*			28							nal	
P17B-GCAACTAGAAGATTC-1	CDKN2A:9:21971000	*CDKN2A*	9	21971000	21971000	C	A	p.E120*	CD972119,COSM12479,COSM13296,COSM3092256,COSM753749	Cancer	Intestinal	Tumor	
P17B-GCAATCAAGACTAAGT-1	CDKN2A:9:21971000	*CDKN2A*	9	21971000	21971000	C	T	p.E120K	CD972119,COSM12479,COSM13296,COSM3092256,COSM753749	Cancer	Intestinal	PC	
P17B-GCACATAGTTAGGTG-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC	
P17B-GCAGTTACATTCCTGC-1	CDKN2A:9:21971029	*CDKN2A*	9	21971029	21971029	C	T	p.W110*	rs1057519852,COSM12481,COSM126617,COSM126618,COSM3382498	Cancer	Intestinal	PC	

P17B-GCATACAAGCCCTAAT-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-GGACAGACATGTAAGA-1	CDKN2A:9:21971110	*CDKN2A*	9	21971110	21971110	T	C	p.H83R	rs1057519881,COSM1167960,COSM1167961,COSM12494,COSM13253,COSM3656622,COSM5410930,COSM5410931,COSM5410932,COSM5410933,COSM5822047,COSM5822048,COSM5822049	Cancer	Intestinal	PC
P17B-GGCGACTAGCGTGAGT-1	CDKN2A:9:21971035	*CDKN2A*	9	21971035	21971035	T	A	p.D108V	COSM1638187,COSM4767456,COSM4767457,COSM4767458,COSM4767459,COSM753739,COSM753740,COSM753741	Cancer	Intestinal	PC
P17B-GGCTGGTAGTGTACGG-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	C	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-GGT	CDKN2A:	*CDK*	9	21970	219	A	C	p.L1	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,	Cancer	Int	PC

GCGTTCCAAGTA-1	9:21970969	*N2A*		0969	7096 9			30R	COSM3395739,COSM3788239,COSM3788240,COSM4571148		estinal	
P17B-GGTGTTAAGTGCTGCC-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-GGTGTTAAGTGCTGCC-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-GGTGTTAAGTGCTGCC-1	CDKN2A:9:21970970	*CDKN2A*	9	21970970	21970970	G	C	p.L130V	CM080134,COSM3395740,COSM3395741,COSM3395742	Cancer	Intestinal	PC
P17B-GTGCAGCCAGAT	CDKN2A:9:2197	*CDKN2A*	9	21971029	219710	C	T	p.W110*	rs1057519852,COSM12481,COSM126617,COSM126618,COSM3382498	Cancer	Intesti	PC

GGCA-1	1029				29						nal	
P17B-GTGCAGCCAGATGGCA-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	21971017	G	A	p.P114L	rs121913386,CM983988,COSM12476,COSM13830,COSM3092257,COSM4408164,COSM4408165,COSM4408166,COSM4408167,COSM4605168,COSM4605169,COSM4605170,COSM753742,COSM753743	Cancer	Intestinal	PC
P17B-GTGCAGCCAGATGGCA-1	CDKN2A:9:21970972	*CDKN2A*	9	21970972	21970972	T	C	p.Y129C	COSM13633	Cancer	Intestinal	PC
P17B-GTGCAGCCAGATGGCA-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	21971018	GG	AA	p.P114F		Cancer	Intestinal	PC
P17B-GTGCAGCCAGATGGCA-1	CDKN2A:9:21971155	*CDKN2A*	9	21971155	21971694	GCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCA	-	p.X51_splice		Cancer	Intestinal	PC

						GGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAGTTACACTTA						
P17B-GTGCAGCTCTGCGACG-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	219710118	GG	AA	p.P114F		Cancer	Intestinal	PC
P17B-GTGCAGCTCTGCGACG-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	219710117	G	A	p.P114L	rs121913386,CM983988,COSM12476,COSM13830,COSM3092257,COSM4408164,COSM4408165,COSM4408166,COSM4408167,COSM4605168,COSM4605169,COSM4605170,COSM753742,COSM753743	Cancer	Intestinal	PC
P17B-GTGCATAGTCAGGACA-1	CDKN2A:9:21971016	*CDKN2A*	9	21971016	219710116	G	A	p.R170C	COSM4387396,COSM4993334,COSM4993335,COSM4993336,COSM4993337,COSM85158	Cancer	Intestinal	PC
P17B-GTGCATAGTCAG	CDKN2A:9:21971016	*CDKN2A*	9	21971016	21971 0	GG	AA	p.P114L	COSM255155,COSM28573	Cancer	Intestin	PC

GACA-1					17						al	
P17B-GTTAAGCCACGGCGTT-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21970685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	PC
P17B-GTTAAGCCACGGCGTT-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-TACTCATGTGTGCCTG-1	STAG2:X:123179198	*STAG2*	X	123179198	123179198	G	A	p.R216Q	COSM1138066,COSM487901	Cancer	Intestinal	PC

P17B-TATCTCAGTCCATCCCT-1	CCND1:11:6946021	*CCND1*	11	6946602	6946602	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	PC
P17B-TATGCCCAGACTGTAA-1	CDKN2A:9:21971029	*CDKN2A*	9	21971029	21971029	C	T	p.W110*	rs1057519852,COSM12481,COSM126617,COSM126618,COSM3382498	Cancer	Intestinal	PC
P17B-TATGCCCAGACTGTAA-1	CDKN2A:9:21971018	*CDKN2A*	9	21971018	21971018	G	T	p.P114T	CM014526,CX073790,COSM13713,COSM3952629,COSM3952630,COSM3952631,COSM3952632	Cancer	Intestinal	PC
P17B-TATGCCCAGACTGTAA-1	CDKN2A:9:21971036	*CDKN2A*	9	21971036	21971036	C	G	p.D108H	CM071585,CM973278,COSM12484,COSM1314728,COSM13489,COSM13520,COSM1674414,COSM753735,COSM753736,COSM753737,COSM753738	Cancer	Intestinal	PC
P17B-TAT	CDKN2A:	*CDK*	9	2197	219	G	T	p.Y1	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Int	PC

GCCCAGACTGTAA-1	9:2197097 1	*N2A*		0971	70971			29*			estinal	
P17B-TATGCCCAGACTGTAA-1	CDKN2A:9:2197096 9	*CDKN2A*	9	21970969	21970969	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-TCAACGAAGACTTTCG-1	CDKN2A:9:2197097 1	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	PC
P17B-TCAACGAAGACTTTCG-1	CDKN2A:9:2197096 9	*CDKN2A*	9	21970969	21970969	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P17B-TCAGGTACACAA	CCND1:11:6946	*CCND1*	11	69466021	69466 0	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Cancer	Intesti	PC

CGTT-1	6021				21						nal	
P17B-TCAGGTACACAACGTT-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	219716855	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	PC
P17B-TCGAGGCCACTCTGTC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	PC
P17B-TCGAGGCGTACGCACC-1	CDK4:12:58145430	*CDK4*	12	58145430	581454300	C	A	p.R24L	CM980320,COSM1989836	Cancer	Intestin	PC

											al	
P17B-TCGAGGCGTACGCACC-1	SMARCB1:22:41763339	*SMARCB1*	22	24176339	24176339	G	A	p.R377H	rs387906812,CM122478,COSM1578803,COSM27977,COSM4596765,COSM4596766,COSM989	Cancer	Intestinal	PC
P17B-TCGCGTTCACCATCCT-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21971685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	PC
P17B-TGGGCGTGTGACGGTA-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC

P17B-TGGGCGTGTGACGGTA-1	SMARCB1:22:41763339	*SMARCB1*	22	24176339	24176339	G	A	p.R377H	rs387906812,CM122478,COSM1578803,COSM27977,COSM4596765,COSM4596766,COSM989	Cancer	Intestinal	PC
P17B-TTCGAAGCAAACAACA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PMC
P17B-TTTCCTCTCGTTACGA-1	CDKN2A:9:21971029	*CDKN2A*	9	21971029	21971029	C	T	p.W110*	rs1057519852,COSM12481,COSM126617,COSM126618,COSM3382498	Cancer	Intestinal	PC
P17B-TTTGTCAAGCCTTGAT-1	CDKN2A:9:21971028	*CDKN2A*	9	21971028	21971028	C	T	p.W110*	rs121913389,CM060208,COSM12547,COSM126615,COSM126616,COSM1598222,COSM48297	Cancer	Intestinal	PC
P18A-AAC	CCND1:11	*CCN*	11	6946	694	C	T	p.T2	COSM931395	Adjacent	Int	GMC

TCCCTCTATCGCC-1	1:6946601 9	*D1*		6019	660 19			86I		non-cancer	estinal	
P18A-AGAGCGACAAGCTGAG-1	CCND1:11:6946602 1	*CCND1*	11	69466021	6946602 1	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	GMC
P18A-AGGCCGTGTACATCCA-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	MSC
P18A-CAGCAGCTCCTTGGTC-1	PTPN11:12:112888199	*PTPN11*	12	11288819 9	112888199	C	T	p.A72V	rs121918454,CM013417,COSM13015,COSM13035,COSM5945277	Adjacent non-cancer	Intestinal	GMC
P18A-CATCGAACATAT	CCND1:11:6946	*CCND1*	11	69466022	6946600	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-	Intesti	PMC

ACCG-1	6022				22					cancer	nal	
P18A-GATCGATAGTCTCGGC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69460622	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	PC
P18A-TCAGCAACAATGTTGC-1	KRAS:12:25380279	*KRAS*	12	25380279	25380279	C	A	p.G60V	rs727503108,COSM1667041,COSM4531523,COSM548,COSM5879374,COSM87290	Adjacent non-cancer	Intestinal	MSC
P18A-TGTATTCGTAACGTTC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69460622	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	PMC
P18B-AAACGGGAGTTAGCGG-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69460618	A	G	p.T286A		Cancer	Intestinal	PMC

P18B-AACTCAGTCGGCTACG-1	CCND1:11:69460222	*CCND1*	11	69460222	69460022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	Chief
P18B-CACACAACACGACGAA-1	CCND1:11:69460211	*CCND1*	11	69460211	69460021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	PMC
P18B-CGGAGCTAGTAACCCT-1	KRAS:12:25378648	*KRAS*	12	25378648	25378648	T	C	p.K117R	COSM4696721,COSM4696722	Cancer	Intestinal	Enteroendocrine
P18B-CTCGAAACACTACAGT-1	CCND1:11:69460222	*CCND1*	11	69460222	69460022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	GMC
P18B-TCA	EP300:22:	*EP*	22	4156	415	G	A	p.W14	COSM1205369	Cancer	Int	GMC

TTTGCACTTCTGC-1	41566520	*300*		6520	665200			66*			estinal	
P19A-ATAACGCTCGTCTGAA-1	RAC1:7:6441974	*RAC1*	7	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P19A-CATTCGCTCTCGTTTA-1	FBXW7:4:153244091	*FBXW7*	4	153244091	C	T	p.R689Q	COSM1594355,COSM302214,COSM302215,COSM302216,COSM302217	Adjacent non-cancer	Intestinal	Enteroendocrine
P19A-CGGACGTCACTTCGAA-1	CCND1:11:6946602	*CCND1*	11	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	GMC
P19B-AACTCAGCAGCT	CDKN2A:9:2197	*CDKN2A*	9	21971018	21971 0	G	A	p.P114S	rs104894104,CM014526,CX073790,COSM13713,COSM3952629,COSM3952630,COSM3952631,COSM3952632	Cancer	Intesti	MSC

GCAC-1	1018				18						nal	
P19B-AACTCAGCAGCTGCAC-1	RAC1:7:6431628	*RAC1*	7	64316628	64316288	C	A	p.Q61K		Cancer	Intestinal	MSC
P19B-AACTCCCAGTGGGCTA-1	CCND1:11:6946602	*CCND1*	11	6946602	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC
P19B-ACACCGGTCCAGAAGG-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	219710117	G	T	p.P114H	CM983988,COSM12476,COSM13830,COSM3092257,COSM4408164,COSM4408165,COSM4408166,COSM4408167,COSM4605168,COSM4605169,COSM4605170,COSM753742,COSM753743	Cancer	Intestinal	MSC
P19B-ACACCGGTCCAGAAGG-1	CDKN2A:9:21971017	*CDKN2A*	9	21971017	219710118	GG	AA	p.P114F		Cancer	Intestinal	MSC

P19B-ACACCGGTCCAGAAGG-1	CDKN2A:9:21971018	*CDKN2A*	9	21971018	21971018	G	T	p.P114T	CM014526,CX073790,COSM13713,COSM3952629,COSM3952630,COSM3952631,COSM3952632	Cancer	Intestinal	MSC
P19B-ACCCACTAGAGAGCTC-1	RAC1:7:6431628	*RAC1*	7	64316288	64316288	C	A	p.Q61K		Cancer	Intestinal	PC
P19B-ACCGTAACATGCCCGA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	Tumor
P19B-ACCGTAACATGCCCGA-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	Tumor
P19B-AGA	CCND1:1	*CCN*	11	6946	694	C	G	p.P2	COSM4855094,COSM4855095,COSM931396	Cancer	Int	MSC

TCTGTCAGAAATG-1	1:6946021	*D1*		6021	660211			87A				estinal	
P19B-AGCCTAATCGTCACGG-1	RAC1:7:6426907	*RAC1*	7	64269077	64269077	C	T	p.P34S	COSM3640041,COSM3640042	Cancer	Intestinal	PC	
P19B-AGGGATGTCAACCATG-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC	
P19B-AGGTCATAGATTACCC-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	Chief	
P19B-AGTGAGGAGTAC	CDKN2A:9:2197	*CDKN2A*	9	21970971	21970979	G	C	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intesti	Tumor	

CGGA-1	0971				71						nal	
P19B-ATTACTCCAGGAACGT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	GMC
P19B-CAGCATATCGCGGATC-1	CDKN2A:9:21970971	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Cancer	Intestinal	MSC
P19B-CATCAAGGTAAGAGGA-1	CDKN2A:9:21970969	*CDKN2A*	9	21970969	21970969	A	C	p.L130R	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Intestinal	PC
P19B-CGGACGTTCCAAATGC-1	RAC1:7:6439806	*RAC1*	7	64398806	64398806	A	G	p.N111S	COSM1684687,COSM5624655,COSM5624656	Cancer	Intestinal	MSC

P19B-CGTCTACAGACACTAA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC
P19B-CGTTCTGTCCTCGCAT-1	CDKN2A:9:21970972	*CDKN2A*	9	21970972	219709722	T	C	p.Y129C	COSM13633	Cancer	Intestinal	MSC
P19B-CTAATGGCAGATCCAT-1	CDKN2A:9:21968242	*CDKN2A*	9	21968242	219682422	C	T	p.X153_splice	CS127044,COSM21562,COSM3952628,COSM99937	Cancer	Intestinal	MSC
P19B-CTAATGGCAGATCCAT-1	CDKN2A:9:21968242	*CDKN2A*	9	21968242	219682433	-	A	p.X153_splice		Cancer	Intestinal	MSC
P19B-CTA	RAC1:7:6	*RA*	7	6441	644	C	T	p.A1	COSM1154840,COSM389868	Cancer	Int	EC

GAGTGTGGCTCCA-1	441974	*C1*		974	1974			78V			estinal	
P19B-CTCCTAGCATCCCACT-1	CCND1:11:6946602 2	*CCND1*	11	69466022	6946602 2	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC
P19B-CTCGGAGCAAGAGGCT-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	21971685	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	MSC
P19B-CTCTAATGT	CCND1:11:6946	*CCND1*	11	69466022	694666	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intes	MSC

CTAGAGG-1	6022				022						tinal	
P19B-CTCTAATGTCTAGAGG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC
P19B-CTGATAGGTTTGTTG-1	CDKN2A:9:21970987	*CDKN2A*	9	21970987	219716855	CGATGGCCCAGCTCCTCAGCCAGGTCCACGGGCAGACGGCCCCAGGCATCGCGCACGTCCAGCCGCGCCCCGGCCCGGTGCAGCACCACCAGCGTGTCCAGGAAGCCCTCCCGGGCAGCGTCGTGCACGGGTCGGGTGAGAGTGGCGGGGTCGGCGCAGTTGGGCTCCGCGCCGTGGAGCAGCAGCAGCTCCGCCACTCGGGCGCTGCCCATCATCATGACCTGCCAGAGAGAACAGAATGGTCAGAGCCAGGGTGGGGGCCGGCATGACGGAAAGGAAGCTTGTGTAGAGCCCCCTCACCGCCAAGCAGACCCCCACACAAGCCCCAGGTGTCTAATTACCCCTACATTTGCTTCCAGTTTCCAATTTCCTTCTTGAGTTCTCTATCCATTCTTCAGTACACAATGAATTCCATTATATCCTCCGAACTTCTGCGGAGCTGTCGTCACAGGCAGAGAGCACTGTGAGGCACGGGCAAAATAGCAAAGGGGCAGGGACAGACTGACTTTTACTCCAGGCTAACTTCCTGTATTTCCCCTGAGATACAACTACTGAAATTTCTTCCTGAAATTATGTTAGGCCTGGAGATTTTTTTTTTTTTTTTGTTCACTGCTGTATATCCAAGCGCAGAATGTGGTAATTGTTAAAAAGAGAAAACTTGTTTGTTTGTTAAAACAAATTCTCACAAAACTTTTAAG	-	p.X51_splice		Cancer	Intestinal	PC
P19B-CTGGTCTCATCG	RAC1:7:6439806	*RAC1*	7	6439806	643980 6	A	G	p.N111S	COSM1684687,COSM5624655,COSM5624656	Cancer	Intestin	MSC

ATGT-1											al	
P19B-GAAACTCAGATGTGGC-1	CCND1:11:6946021	*CCND1*	11	6946602 1	69466021	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Cancer	Intestinal	MSC
P19B-GAAACTCAGATGTGGC-1	CCND1:11:6946022	*CCND1*	11	6946602 2	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC
P19B-GAATGAATCGCAAACT-1	RAC1:7:6431629	*RAC1*	7	6431629	64316229	A	G	p.Q61R	COSM1131540	Cancer	Intestinal	MSC
P19B-GGCAATTGTAAAGTCA-1	CCND1:11:6946018	*CCND1*	11	6946601 8	69466018	A	G	p.T286A		Cancer	Intestinal	PC

P19B-GGCCGATGTCAGAGGT-1	CCND1:11:69460222	*CCND1*	11	69460222	69460222	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	Tumor
P19B-GTACTTTGTCTTTCAT-1	RAC1:7:6439807	*RAC1*	7	6439807	6439807	T	G	p.N111K	COSM3640063,COSM3640064,COSM5038555,COSM5038556	Cancer	Intestinal	MSC
P19B-GTTCTCGAGCGGCTTC-1	CCND1:11:69460222	*CCND1*	11	69460222	69460222	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC
P19B-TAGGCATGTAGGACAC-1	CCND1:11:69460222	*CCND1*	11	69460222	69460222	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC
P19B-TCG	RAC1:7:6	*RA*	7	6441	644	C	T	p.A1	COSM1154840,COSM389868	Cancer	Int	MSC

CGAGAGTACGCGA-1	441974	*C1*		974	1974			78V			estinal	
P19B-TGAGAGGCATTCTTAC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Intestinal	MSC
P19B-TGAGAGGCATTCTTAC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	MSC
P19B-TGCCCATCAGGATTGG-1	RAC1:7:6439806	*RAC1*	7	64398066	64398066	A	T	p.N111I	COSM1684687,COSM5624655,COSM5624656	Cancer	Intestinal	MSC
P19B-TGGCCAGTCGTC	CCND1:11:6946	*CCND1*	11	69466022	69466060	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intesti	MSC

TGCT-1	6022				22							nal	
P20A-ATTACTCAGGGTATCG-1	RAC1:7:64419974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Chief	
P20A-CAAGATCCACACAGAG-1	RAC1:7:64419974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC	
P20A-GATCTAGTCGAGCCCA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	GMC	
P20A-TAGACCATCGACCAGC-1	RAC1:7:64419974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC	
P21A-AAA	CCND1:11	*CCN*	11	6946	694	C	A	p.P2	COSM4855094,COSM4855095,COSM931396	Adjacent	Int	Goblet	

CGGGTCGTTGCCT-1	1:6946021	*CCND1*		6021	660211			87T		non-cancer	estinal	
P21A-AACGTTGTCCTTGACC-1	CCND1:1:6946022	*CCND1*	11	6946602	6946602	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	GMC
P21A-AAGTCTGCATCCCACT-1	CCND1:1:6946021	*CCND1*	11	6946602	6946602	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	Chief
P21A-AAGTCTGCATCCCACT-1	CCND1:1:6946022	*CCND1*	11	6946602	6946602	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	Chief
P21A-AGGTCCGGTCAG	CCND1:1:6946	*CCND1*	11	6946602	694660	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-	Intesti	GMC

AGGT-1	6021				21					cancer	nal	
P21A-AGGTCCGGTCAGAGGT-1	CCND1:11:6946602 2	*CCND1*	11	6946602 2	6946602 2	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	GMC
P21A-CAGTCCTGTGGACGAT-1	CCND1:11:6946602 2	*CCND1*	11	6946602 2	6946602 2	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	GMC
P21A-CCTAGCTGTCAAACTC-1	CCND1:11:6946602 2	*CCND1*	11	6946602 2	6946602 2	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	GMC
P21A-CGAGCCAAGTGTTAGA-1	EP300:22:41566522	*EP300*	22	41566522	41566522	T	C	p.Y1467H	COSM220521,COSM220522,COSM3357344	Adjacent non-cancer	Intestinal	Enteroendocrine

P21A-CGAGCCAAGTGTTAGA-1	EP300:22:41566522	*EP300*	22	41566522	41566524	TAC	AAA	p.Y1467K		Adjacent non-cancer	Intestinal	Enteroendocrine
P21A-CGTTAGAAGGAGCGT-1	PTEN:10:89720857	*PTEN*	10	89720857	89720857	C	G	p.Y336*	COSM5290,COSM5300	Adjacent non-cancer	Intestinal	Fibroblast
P21A-CTCATTACAGAGCCAA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	Enteroendocrine
P21A-CTCTAATAGTAACCCT-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	PMC
P21A-CTG	CCND1:1	*CCN*	11	6946	694	C	T	p.P2	COSM2043470,COSM226265,COSM931397	Adjacent	Int	Chief

ATAGAGACGACGT-1	1:6946602	*D1*		6022	6602			87L		non-cancer	estinal	
P21A-CTGATAGAGACGACGT-1	CCND1:1 1:6946602	*CCND1*	11	69466021	6946602	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal	Chief
P21A-GGACAAGCATACTCTT-1	CCND1:1 1:6946602	*CCND1*	11	69466022	6946602	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal	PMC
P21A-TGGGAAGCACCTATCC-1	FBXW7:4:153244184	*FBXW7*	4	153244184	153244184	C	T	p.R658Q	rs759610249,COSM1594354,COSM206684,COSM206685,COSM206686,COSM206687	Adjacent non-cancer	Intestinal	Enteroendocrine
P21A-TGGGAAGCACCT	FBXW7:4:153244092	*FBXW7*	4	153244092	153244	G	A	p.R689W	COSM1154288,COSM206681,COSM206682,COSM206683,COSM27083,COSM5751359,COSM5751360,COSM5751361,COSM5751362,COSM5751363	Adjacent non-	Intesti	Enteroendoc

ATCC-1					092						cancer	nal	rine
P22A-ATCACGATCGCGTTTC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal		PMC
P22A-CGCTATCTCCTATTCA-1	KRAS:12:25398220	*KRAS*	12	25398220	25398220	A	T	p.D33E	COSM1511784,COSM1511785,COSM4384682,COSM4384683	Adjacent non-cancer	Intestinal		PC
P22A-CTCGGGAAGATTACCC-1	CCND1:11:6946602	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Adjacent non-cancer	Intestinal		Chief
P22A-CTCTACGGTTGACGTT-1	CCND1:11:6946602	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Intestinal		Enteroendocrine

P22A-GGTGTTATCTAACGGT-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P22A-TACTCATTCGGATGGA-1	FOXA1:14:38061240	*FOXA1*	14	38061240	38061240	G	T	p.S250Y	COSM433050,COSM5950325	Adjacent non-cancer	Intestinal	GMC
P22A-TTAGTTCTCAACCAAC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Intestinal	GMC
P22B-ACCCACTGTTCTGTTT-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Cancer	Intestinal	Chief
P22B-CAA	CCND1:1	*CCN*	11	6946	694	C	T	p.P2	COSM4855094,COSM4855095,COSM931396	Cancer	Int	PC

GTTGCAGCGTCCA-1	1:6946021	*D1*		6021	660211			87S			estinal		
P22B-CATATGGTCCGCAGTG-1	CCND1:11:6946019	*CCND1*	11	6946019	6946019	C	T	p.T286I	COSM931395	Cancer	Intestinal	PMC	
P22B-CCGTGGAGTTGTCTTT-1	CCND1:11:6946022	*CCND1*	11	6946022	6946022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PMC	
P22B-CGATTGAAGACGCTTT-1	CCND1:11:6946022	*CCND1*	11	6946022	6946022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PMC	
P22B-CGTTAGATCTGT	CCND1:11:6946	*CCND1*	11	6946018	694660	A	G	p.T286A		Cancer	Intesti	PMC	

CAAG-1	6018				18						nal	
P22B-CTCCTAGCAGTTCATG-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PMC
P22B-GCACTCTCATACAGCT-1	CCND1:11:6946601 9	*CCND1*	11	69466019	69466019	C	T	p.T286I	COSM931395	Cancer	Intestinal	PMC
P22B-GGTGAAGGTGCGAAAC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	PMC
P22B-GTCAAGTGTCACCTAA-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Intestinal	GMC

P23A-AAGTCTGGTAAGAGAG-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Adjacent non-cancer	Diffuse	PMC
P23A-ACAGCTATCTTGAGAC-1	HIST1H3B:6:26031971	*HIST1H3B*	6	26031971	26031971	C	T	p.E106=	rs752372678,COSM4903076	Adjacent non-cancer	Diffuse	MSC
P23A-AGGTCCGCAGACAGGT-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Adjacent non-cancer	Diffuse	GMC
P23A-CACTCCACAAGTTCTG-1	EP300:22:41566475	*EP300*	22	41566475	41566475	A	T	p.H1451L	COSM1034564,COSM1484264,COSM254672	Adjacent non-cancer	Diffuse	GMC
P23B-CAGCATAAGCAC	CCND1:11:69466021	*CCND1*	11	69466021	69466021	C	T	p.P287S	COSM4855094,COSM4855095,COSM931396	Cancer	Diffuse	PMC

CGCT-1					21							
P24A-ATCACGAGTTGCATG-1	NFE2L2:2:178098969	*NFE2L2*	2	178098969	178098970	GC	TT	p.Q26K	COSM1613739	Adjacent non-cancer	Diffuse	PMC
P24A-ATCACGAGTTGCATG-1	NFE2L2:2:178098969	*NFE2L2*	2	178098969	178098969	G	T	p.Q26K	COSM1009931,COSM132986	Adjacent non-cancer	Diffuse	PMC
P24A-CGGGTCACAAGCGATG-1	RAC1:7:6426907	*RAC1*	7	6426907	6426907	C	T	p.P34S	COSM3640041,COSM3640042	Adjacent non-cancer	Diffuse	Enteroendocrine
P24A-CGGGTCACAAGCGATG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	Enteroendocrine

P24A-GAATGAAGTAGCGGT-1	RAC1:7:64419744	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P24A-GAATGAATCCTGCTTG-1	RAC1:7:64419744	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	GMC
P24A-GAGTCCGTCCACGTTC-1	RAC1:7:64419744	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Adjacent non-cancer	Diffuse	EC
P24A-GCGCAACTCGCGGATC-1	CREBBP:16:37867155	*CREBBP*	16	37867155	37867155	A	C	p.L1499R	COSM220497,COSM88752	Adjacent non-cancer	Diffuse	GMC
P24A-TCAATCTTCGGA	RHOA:3:49405953	*RHOA*	3	49405953	49405959	C	T	p.G62E	COSM4118486,COSM5883835	Adjacent non-cancer	Diffuse	GMC

TGGA-1					53							
P24B-AGCTTGATCTTCATGT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	Tumor
P24B-ATCCGAATCGTGGTCG-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Tumor
P24B-CACAAACAGACGACGT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	MSC
P24B-CGGAGCTCAATCCAAC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	GMC
P24B-CGTAGG	FBXW7:4:153	*FBX*	4	153244	1532	C	T	p.R658Q	rs759610249,COSM1594354,COSM206684,COSM206685,COSM206686,COSM206687	Cancer	Diffu	GMC

CCAGTATAAG-1	244184	*W7*		184	44184							se	
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:4126610 1	*CTNNB1*	3	41266101	41266101	C	G	p.S33C	rs121913400,COSM5669,COSM5673,COSM5677	Cancer	Diffuse		PMC
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:4126610 3	*CTNNB1*	3	41266103	41266103	G	A	p.G34R	rs121913399,COSM3660550,COSM5684,COSM5686	Cancer	Diffuse		PMC
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:4126610 0	*CTNNB1*	3	41266100	41266213	TCTGGAATCCATTCTGGTGCCACTACCACAGCTCCTTCTCTGAGTGGTAAAGGCAATCCTGAGGAAGAGGATGTGGATACCTCCCAAGTCCTGTATGAGTGGGAACAGGGATTT	-	p.G34_S71del		Cancer	Diffuse		PMC
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:4126610 0	*CTNNB1*	3	41266100	41266100	T	G	p.S33A	COSM27311,COSM5682,COSM5683	Cancer	Diffuse		PMC

P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:41266098	*CTNNB1*	3	41266098	41266112	ACTCTGGAATCCATT	-	p.D32_S37delinsA		Cancer	Diffuse	PMC
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:41266098	*CTNNB1*	3	41266098	41266106	ACTCTGGAA	-	p.D32_I35delinsV		Cancer	Diffuse	PMC
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:41266098	*CTNNB1*	3	41266098	41266098	A	T	p.D32V	rs121913396,COSM5681,COSM5690,COSM5691	Cancer	Diffuse	PMC
P24B-CTGCCTAAGACAAGCC-1	CTNNB1:3:41266103	*CTNNB1*	3	41266103	41266104	GG	TT	p.G34L	COSM1666841	Cancer	Diffuse	PMC
P24B-GATGCTAGTTTA	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	EC

GCTG-1												
P24B-GCATACAAGTCGAGTG-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Cancer	Diffuse	EC
P24B-GGTGAAGCATGGTCTA-1	CCND1:11:6946601 9	*CCND1*	11	69466019	694660 19	C	T	p.T286I	COSM931395	Cancer	Diffuse	Enteroendocrine
P24B-GTAGGCCTCTGCAAGT-1	CCND1:11:6946602 2	*CCND1*	11	69466022	694660 22	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Cancer	Diffuse	Enteroendocrine
P24B-GTAGGCCTCTGCAAGT-1	KRAS:12:25380277	*KRAS*	12	25380277	253802 78	GA	TT	p.Q61K	COSM4387500,COSM87298	Cancer	Diffuse	Enteroendocrine
P24B-GTAGGC	KRAS:12:253	*KRAS*	12	25380277	25538	G	T	p.Q61K	rs121913238,COSM1159597,COSM549,COSM550	Cancer	Diffu	Enteroend

CTCTGCAAGT-1	80277				027 7							se	ocrine
P24B-TCTTTCCAGGTGACCA-1	CCND1:11:6946601 8	*CCND1*	11	6946601 8	6946601 8	A	G	p.T286A		Cancer	Diffuse	Tumor
P24B-TGCTACCTCCACGTGG-1	CDKN2A:9:21970969	*CDKN2A*	9	2197096 9	2197096 9	A	T	p.L130Q	COSM13670,COSM18438,COSM28675,COSM33799,COSM3395738,COSM3395739,COSM3788239,COSM3788240,COSM4571148	Cancer	Diffuse	MSC
P24B-TTGCGTCTCCAAGTA-1	KRAS:12:25378562	*KRAS*	12	2537856 2	2537856 2	C	T	p.A146T	rs121913527,COSM1140130,COSM1165198,COSM19404,COSM19905,COSM5967494	Cancer	Diffuse	EC
P25A-ATCATCTAGGTTTCT-1	CCND1:11:6946602 2	*CCND1*	11	6946602 2	6946602 2	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Control		Enteroendo

P25A-CGTCACTGTTAGTGGG-1	RAC1:7:64419744	*RAC1*	7	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		B
C02A-TGGTTCCGTGGACGAT-1	CCND1:11:69460602	*CCND1*	11	69460622	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Control		PMC
P27A-AAGGAGCTCGGCATCG-1	RAC1:7:64419744	*RAC1*	7	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		B
P27A-AAGGTTCGTCTCCACT-1	FBXW7:4:153244091	*FBXW7*	4	153244091	C	T	p.R689Q	COSM1594355,COSM302214,COSM302215,COSM302216,COSM302217	Control		B
P27A-ACACCAAGTCGT	CCND1:11:69460	*CCND1*	11	69460621	C	A	p.P287T	COSM4855094,COSM4855095,COSM931396	Control		B

GGCT-1	6021				21							
P27A-ACGGCCACATGGATGG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		Enteroendo
P27A-AGCGGTCCATCGACGC-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Control		PMC
P27A-AGCGGTCCATCGACGC-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		PMC
P27A-ATCCGAAAGAGCTTCT-1	CCND1:11:6946601 8	*CCND1*	11	69466018	69466018	A	G	p.T286A		Control		PMC
P27A-ATGCGA	CCND1:11:6	*CCN*	11	69466022	6946	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Control		PMC

TTCAGGTTCA-1	94660222	*D1*			60222							
P27A-CAAGATCTCGCACTCT-1	PTEN:10:89720853	*PTEN*	10	89720853	89720853	G	C	p.R335P	CD1212290,CM004524	Control		Enteroendo
P27A-CACAGGCCAATGAAAC-1	CCND1:11:69466019	*CCND1*	11	69466019	69466019	C	T	p.T286I	COSM931395	Control		PMC
P27A-CCGTACTGTTACGGAG-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Control		PMC
P27A-CCTAGCTGTTGCCTCT-1	CREBBP:16:37867155	*CREBBP*	16	37867155	37867155	A	T	p.L1499Q	COSM220497,COSM88752	Control		PMC

P27A-CCTCAGTCAGCGTCCA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Control		PMC
P27A-CGACTTCCAAGTCTAC-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Control		Fibroblast
P27A-CGAGAAGAGTGGTAGC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		PMC
P27A-CGCCAAGCACAGCCCA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		B
P27A-CTAGAGTCAGGA	PDGFRA:4:55514414 7	*PDGFRA*	4	55144147	55144411	A	G	p.N659S		Control		PMC

ATGC-1					47							
P27A-CTGCTGTTCGGTTCGG-1	SMARCA4:19:110692 6	*SMARCA4*	19	11106926	11106928	AGA	-	p.K546del	COSM5576272,COSM5576273	Control		Fibroblast
P27A-GACACGCTCACAACGT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		B
P27A-GACGCGTCACCACGTG-1	CCND1:11:6946602 1	*CCND1*	11	69466021	69466021	C	G	p.P287A	COSM4855094,COSM4855095,COSM931396	Control		PMC
P27A-GACGCGTCACCACGTG-1	CCND1:11:6946602 2	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Control		PMC
P27A-GACGCG	NFE2L2:2:178	*NFE2*	2	178098	1780	C	T	p.G81D	COSM132957,COSM132961	Control		PMC

TTCGAGAACG-1	098803	*L2*		803	98803							
P27A-GCAATCACAATGGATA-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		Fibroblast
P27A-GCATACATCGTCACGG-1	RAC1:7:6441974	*RAC1*	7	64419744	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		EC
P27A-GCGCCAACACGAGAGT-1	KRAS:12:25380275	*KRAS*	12	25380275	25380276	TT	CA	p.Q61L	COSM1168052	Control		B
P27A-GCGCCAACACGAGAGT-1	KRAS:12:25380281	*KRAS*	12	25380281	25380281	T	C	p.A59=	COSM1162236,COSM1162237,COSM5507485,COSM5507486	Control		B

P27A-GGCAATTCACTTCTGC-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	T	p.P287L	COSM2043470,COSM226265,COSM931397	Control		PMC
P27A-GGCAATTCAGTAAGCG-1	SMARCA4:19:110692696	*SMARCA4*	19	11069626	11106928	AGA	-	p.K546del	COSM5576272,COSM5576273	Control		PMC
P27A-GTCACGGAGATCGGGT-1	FBXW7:4:153244185	*FBXW7*	4	153244185	153244185	G	T	p.R658=	COSM1427626,COSM167197,COSM167198,COSM167199,COSM22967,COSM4837611,COSM4837612,COSM4837613,COSM4837614,COSM4837615	Control		B
P27A-GTCTCGTAGCTAGGCA-1	CCND1:11:69466022	*CCND1*	11	69466022	69466022	C	G	p.P287R	COSM2043470,COSM226265,COSM931397	Control		Fibroblast
P27A-TCAATCTCAAGG	CDKN2A:9:2197	*CDKN2A*	9	21970971	21970971	G	T	p.Y129*	COSM126614,COSM13221,COSM28562,COSM3788241	Control		B

ACAC-1	0971				71							
P27A-TCCACACAGACCTAGG-1	KRAS:12:25378647	*KRAS*	12	25378647	25378647	T	A	p.K117N	COSM1256061,COSM1562192,COSM19940,COSM28519	Control		PMC
P27A-TTAGGCAGTACCCAAT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		PMC
P27A-TTTATGCGTACCGAGA-1	CCND1:11:69466018	*CCND1*	11	69466018	69466018	A	G	p.T286A		Control		PMC
P29A-AAAGCAAGATGGCGT-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		B
P29A-AGGCCG	NFE2L2:2:178	*NFE2*	2	178098	17780	G	T	p.Q26K	COSM1009931,COSM132986	Control		PMC

TTCTGATTCT-1	098969	*L2*		969	98969							
P29A-ATCGAGTTCAGGCCCA-1	PTEN:10:89725055	*PTEN*	10	89725055	89725055	C	G	p.Y346*	COSM5310,COSM685100	Control		B
P29A-ATTGGACGTCCATCCT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Control		Chief
P29A-CAACTAGTCTCGGACG-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Control		PMC
P29A-CACACCTAGGTGATAT-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Control		B

P29A-CACACCTCAGATTGCT-1	EIF1AX:X:20156734	*EIF1AX*	X	20156734	20156734	C	T	p.G8E	COSM3036419,COSM4829462,COSM5625587	Control		Enteroendo
P29A-CCATTCGTCTACCAGA-1	RAC1:7:6441974	*RAC1*	7	6441974	6441974	C	T	p.A178V	COSM1154840,COSM389868	Control		PMC
P29A-CTACATTGTCTCGTTC-1	FBXW7:4:153244185	*FBXW7*	4	153244185	153244185	G	T	p.R658=	COSM1427626,COSM167197,COSM167198,COSM167199,COSM22967,COSM4837611,COSM4837612,COSM4837613,COSM4837614,COSM4837615	Control		B
P29A-CTCTAATCATAGAAAC-1	EIF1AX:X:20156720	*EIF1AX*	X	20156720	20156720	G	C	p.R13G	COSM5899335	Control		B
P29A-GACCTGGAGGTG	EIF1AX:X:20156731	*EIF1AX*	X	20156731	2015667	C	T	p.G9D	COSM3372213	Control		EC

CAAC-1					31							
P29A-GCATGTAGTATCAGTC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		B
P29A-GGAGCAACAGGGCATA-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		Enteroendo
P29A-TACGGTAGTCTTCTCG-1	JUN:1:59248409	*JUN*	1	59248409	59248409	C	T	p.E112K	COSM681630,COSM681631	Control		B
P29A-TCAATCTAGAACAATC-1	RAC1:7:6441974	*RAC1*	7	6441974	64419744	C	T	p.A178V	COSM1154840,COSM389868	Control		PMC

Supplementary Table 7. Pathways and cell counts related to mutated genes

Cell count	Adjacent non-cancer	Cancer	
Cell cycle	69	201	(CCND1,CDK4,CDKN2A,RB1)
Chromatin histone modifiers	10	7	(CREBBP, EP300)
Chromatin SWI/SNF complex	0	9	(SMARC4, SMARCB1)
Genome integrity	1	1	
Histone modification	0	2	
MAPK signaling	6	25	(KRAS)
Other signaling	91	96	(GNAS,PTPN11,RAC1,RHOA)
PI3K signaling	5	6	
Protein homeostasis/ubiquitination	10	8	
RTK signaling	2	0	
TGFB signaling	0	3	
Transcription factor	4	1	
Wnt/B-catenin signaling	0	8	

Supplementary Table 8. DEGs with CAF subtypes

State	Markers	State	Markers	State	Markers	State	Markers	State	Markers	State	Markers
iCAF	*CXCL1*	iCAF	*COL6A3*	iCAF	*SULF1*	myCAF	*TPM1*	myCAF	*CES1*	inCAF	*PDGFRA*
iCAF	*IL8*	iCAF	*SPON2*	iCAF	*PDPN*	myCAF	*PLN*	myCAF	*SCPEP1*	inCAF	*CAV1*
iCAF	*MMP1*	iCAF	*TNFAIP6*	iCAF	*IER3*	myCAF	*ENPP2*	myCAF	*PROM1*	inCAF	*TBXAS1*
iCAF	*MMP3*	iCAF	*COL1A2*	iCAF	*STC1*	myCAF	*NPNT*	myCAF	*FHL1*	inCAF	*IL1RL1*
iCAF	*HBB*	iCAF	*SPARC*	iCAF	*FTH1*	myCAF	*TPM2*	myCAF	*COL4A1*	inCAF	*CXCL14*
iCAF	*CHI3L1*	iCAF	*CXCL13*	iCAF	*COL3A1*	myCAF	*DES*	myCAF	*LMOD1*	inCAF	*ID3*
iCAF	*CXCL6*	iCAF	*CXCL10*	iCAF	*ISLR*	myCAF	*WFDC2*	myCAF	*PDLIM7*	inCAF	*DIO2*
iCAF	*CST1*	iCAF	*WNT5A*	iCAF	*FDCSP*	myCAF	*LTBP1*	inCAF	*GHRL*	inCAF	*CARD16*
iCAF	*CTHRC1*	iCAF	*CTSK*	iCAF	*CSF3*	myCAF	*CKB*	inCAF	*TM4SF1*	inCAF	*FAM105A*
iCAF	*CXCL5*	iCAF	*STEAP1*	iCAF	*CXCL2*	myCAF	*LPP*	inCAF	*IGFBP3*	inCAF	*NSG1*
iCAF	*MT2A*	iCAF	*INHBA*	iCAF	*COL10A1*	myCAF	*CNN1*	inCAF	*POSTN*	inCAF	*CAV2*
iCAF	*FN1*	iCAF	*COL12A1*	iCAF	*TNFRSF12A*	myCAF	*WFDC1*	inCAF	*F3*	inCAF	*DMKN*
iCAF	*IGFBP5*	iCAF	*TIMP1*	myCAF	*MYH11*	myCAF	*KCNMB1*	inCAF	*TPSAB1*	inCAF	*RGS10*
iCAF	*BGN*	iCAF	*PLAU*	myCAF	*TAGLN*	myCAF	*DSTN*	inCAF	*PLAT*	inCAF	*FENDRR*
iCAF	*COL1A1*	iCAF	*IGFBP7*	myCAF	*HHIP*	myCAF	*SYNPO2*	inCAF	*MFGE8*	inCAF	*EDIL3*
iCAF	*MMP13*	iCAF	*HBA2*	myCAF	*NPY*	myCAF	*MYL6*	inCAF	*PTGS1*	inCAF	*C8orf4*
iCAF	*ASPN*	iCAF	*RARRES2*	myCAF	*SOSTDC1*	myCAF	*NDUFA4*	inCAF	*AGT*	inCAF	*GMFG*
iCAF	*THY1*	iCAF	*IL7R*	myCAF	*PTN*	myCAF	*FLNA*	inCAF	*HSD17B2*	inCAF	*ENHO*
iCAF	*CXCL3*	iCAF	*MMP10*	myCAF	*MYL9*	myCAF	*MAP1B*	inCAF	*ID1*		
iCAF	*THBS2*	iCAF	*SAA1*	myCAF	*MYLK*	myCAF	*CD9*	inCAF	*APOC1*		

Supplementary Table 9. percentage of cell types in Adjacent non-cancer and GC

Cell type	Adjacent non-cancer tissue (%)	Gastric Cancer (%)
Cancer	2.1	14.4
Chief	4.3	2.8
EC	7.3	9.3
Enteroendo	7.5	5.5
Fibroblast	9.2	8.6
GMC	40	19.1
Goblet	0.8	0.7
MSC	3	20.3
PC1	4.8	3.6
PC2	0.5	5
PMC	20.5	10.9