Patient Data

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| --- | --- |
| Name |  |
| Birthdate |  |
| Diagnosis |  |

Somatic Mutations in Known Driver Genes

|  |  |  |  |
| --- | --- | --- | --- |
| **Gene** | **Mutation** | **Confidence** | **References** |
| BRAF | p.Val600Glu | 4 | 1,2,3,4 |
| ETS2 | p.Ala64Thr | 2 | 3,5 |
| ETS2 | p.Gly216Ser | 2 | 3,5 |
| ETS2 | p.Val249Ile | 2 | 3,5 |
| PDGFB | p.Gln145Arg | 2 | 1,3 |
| PDGFB | p.Ile88Val | 2 | 1,3 |
| HIRA | p.Ser425Thr | 1 | 5 |
| SUSD2 | p.Arg165Gly | 1 | 3 |
| SUSD2 | p.Arg499Cys | 1 | 3 |
| SUSD2 | p.Arg499His | 1 | 3 |
| SUSD2 | p.Asn436Ser | 1 | 3 |
| SUSD2 | p.Asn466Ser | 1 | 3 |
| SUSD2 | p.Ser110Thr | 1 | 3 |
| SUSD2 | p.Val633Met | 1 | 3 |

Direct Association (Mutation in drug target)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Gene** | **Mutation** | **Therapy** | **Confidence** | **References** |
| BRAF | p.Val600Glu | sorafenib | 9 | 6,7,8,9,10,11,12,13,14 |
| BRAF | p.Val600Glu | dabrafenib | 4 | 12,14,15 |
| BRAF | p.Val600Glu | vemurafenib | 4 | 12,14,16,17 |
| BRAF | p.Val600Glu | regorafenib | 3 | 12,18 |
| BRAF | p.Val600Glu | gsk2118436 | 1 | 14 |
| BRAF | p.Val600Glu | r7204 | 1 | 14 |

Indirect Association (other Mutations with known effect on drug)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Gene** | **Mutation** | **Therapy** | **Disease** | **Evidence** | **References** |
| BRAF | AGK-BRAF | Sorafenib | Melanoma | C | 27 |
| BRAF | AGK-BRAF | Vemurafenib | Melanoma | D | 27 |
| BRAF | L597R | Vemurafenib | Melanoma | C | 28 |
| BRAF | MUTATION | Trametinib | Cancer | D | 37 |
| BRAF | PAPSS1-BRAF | Trametinib | Melanoma | D | 36 |
| BRAF | PAPSS1-BRAF | Vemurafenib | Melanoma | D | 36 |
| BRAF | TRIM24-BRAF | Trametinib | Melanoma | D | 36 |
| BRAF | V600 | BAY 86-9766 | Melanoma | C | 30 |
| BRAF | V600 | Dabrafenib,Trametinib | Melanoma | B | 20 |
| BRAF | V600 | Panitumumab | Colorectal Cancer | B | 19 |
| BRAF | V600 | RO4987655 | Melanoma | B | 24 |
| BRAF | V600D | Dabrafenib | Melanoma | B | 21 |
| BRAF | V600E | BEZ235 (NVP-BEZ235, Dactolisib),Selumetinib (AZD6244) | Melanoma | D | 38 |
| BRAF | V600E | Capecitabine,Vemurafenib,Bevacizumab | Colorectal Cancer | D | 35 |
| BRAF | V600E | Cetuximab | Colorectal Cancer | B | 23 |
| BRAF | V600E | Cobimetinib | Cancer | D | 39 |
| BRAF | V600E | Dabrafenib | Non-small Cell Lung Carcinoma | C | 26 |
| BRAF | V600E | Dabrafenib,Trametinib | Melanoma | B | 22 |
| BRAF | V600E | Pictilisib | Melanoma | C | 29 |
| BRAF | V600E | PLX4720,GDC0941 | Colorectal Cancer | D | 33 |
| BRAF | V600E | PLX4720,Nutlin-3 | Colorectal Cancer | D | 34 |
| BRAF | V600E | Sorafenib,Panitumumab | Colorectal Cancer | D | 31 |
| BRAF | V600E | Vemurafenib | Colorectal Cancer | D | 35 |
| BRAF | V600E | Vemurafenib | Melanoma | D | 32 |
| BRAF | V600E AMPLIFICATION | Selumetinib (AZD6244) | Colorectal Cancer | E | 40 |
| BRAF | V600E+V600M | Dabrafenib | Melanoma | C | 25 |

Somatic Mutations with known pharmacogenetic effect

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Gene** | **Mutation** | **Therapy** | **Disease** | **Evidence** | **References** |
| BRAF | V600E | Cetuximab | Colorectal Cancer | B | 23 |
| BRAF | V600E | Dabrafenib,Trametinib | Melanoma | B | 22 |
| BRAF | V600E | Dabrafenib | Non-small Cell Lung Carcinoma | C | 26 |
| BRAF | V600E | Pictilisib | Melanoma | C | 29 |
| BRAF | V600E | BEZ235 (NVP-BEZ235, Dactolisib),Selumetinib (AZD6244) | Melanoma | D | 38 |
| BRAF | V600E | Capecitabine,Vemurafenib,Bevacizumab | Colorectal Cancer | D | 35 |
| BRAF | V600E | Cobimetinib | Cancer | D | 39 |
| BRAF | V600E | PLX4720,GDC0941 | Colorectal Cancer | D | 33 |
| BRAF | V600E | PLX4720,Nutlin-3 | Colorectal Cancer | D | 34 |
| BRAF | V600E | Sorafenib,Panitumumab | Colorectal Cancer | D | 31 |
| BRAF | V600E | Vemurafenib | Colorectal Cancer | D | 35 |
| BRAF | V600E | Vemurafenib | Melanoma | D | 32 |

Appendix

|  |  |  |  |
| --- | --- | --- | --- |
| **Gene** | **Mutation** | **COSMIC** | **dbSNP** |
| BRAF | p.Val600Glu | ["COSM18443","COSM476","COSM6137"] | rs113488022 |
| MRPL39 | p.Thr334Met | [] | rs116645811 |
| MRPL39 | p.Asn84Ser | [] | rs75377686 |
| MRPL39 | p.Ser31Pro | [] | rs3989369 |
| SYNJ1 | p.Met1020Ile | ["COSM3799865","COSM3799866"] | rs115683257 |
| SYNJ1 | p.Ile905Thr | [] | rs114053718 |
| SYNJ1 | p.Ala383Thr | [] | rs114942253 |
| SYNJ1 | p.Lys334Arg | [] | rs2254562 |
| IFNGR2 | p.Thr58Arg | ["COSM3693766"] | rs4986958 |
| IFNGR2 | p.Gln64Arg | [] | rs9808753 |
| IFNGR2 | p.Lys182Glu | [] | rs17878711 |
| PIGP | p.Tyr118Cys | [] | rs16994704 |
| PIGP | p.Ile90Val | [] | rs73901833 |
| PIGP | p.Ala9Thr | [] | rs2507733 |
| PIGP | p.Pro3Ser | [] | rs73200245 |
| ETS2 | p.Ala64Thr | [] | rs34373350 |
| ETS2 | p.Gly216Ser | ["COSM94254"] | rs115908228 |
| ETS2 | p.Val249Ile | [] | rs116698978 |
| CECR1 | p.His335Arg | [] | rs2231495 |
| HIRA | p.Ser425Thr | [] | rs115157927 |
| ARVCF | p.Ala805Val | [] | rs115736959 |
| ARVCF | p.Val480Ile | [] | rs76496156 |
| ARVCF | p.Arg233Trp | [] | rs116398106 |
| ARVCF | p.Pro220Leu | [] | rs2073748 |
| ARVCF | p.Arg196Gln | [] | rs80068543 |
| ARVCF | p.Val175Ala | [] | rs2240717 |
| ARVCF | p.Arg34Trp | ["COSM3693942"] | rs116782322 |
| SDF2L1 | p.Asp141Asn | [] | rs61739341 |
| SDF2L1 | p.Arg161His | [] | rs73166641 |
| TOP3B | p.Leu439Pro | [] | rs114712273 |
| TOP3B | p.Asp365Asn | [] | rs9610728 |
| RAB36 | p.Ala85Val | [] | rs61747143 |
| RAB36 | p.Asn308Asp | [] | rs5759612 |
| SUSD2 | p.Ser110Thr | ["COSM1180456"] | rs9680526 |
| SUSD2 | p.Arg165Gly | [] | rs115180746 |
| SUSD2 | p.Asn436Ser | [] | rs116768581 |
| SUSD2 | p.Asn466Ser | [] | rs8141797 |
| SUSD2 | p.Arg499Cys | [] | rs115684319 |
| SUSD2 | p.Arg499His | [] | rs114116736 |
| SUSD2 | p.Val633Met | [] | rs116712499 |
| HSCB | p.Ile163Met | [] | rs17884212 |
| SEC14L3 | p.Arg364Cys | [] | rs35764129 |
| SEC14L3 | p.Asp335Glu | [] | rs2240345 |
| SEC14L3 | p.Val270Leu | [] | rs114917409 |
| SEC14L3 | p.Ile232Ser | [] | rs115111929 |
| SEC14L3 | p.Arg214His | [] | rs2269961 |
| SEC14L3 | p.Arg130His | [] | rs115812777 |
| SEC14L3 | p.Ile103Thr | ["COSM4002142","COSM4002143"] | rs4820853 |
| SEC14L3 | p.Arg45Trp | [] | rs115083767 |
| SEC14L3 | p.Arg40Cys | [] | rs116155456 |
| GAL3ST1 | p.Arg329His | [] | rs112976399 |
| GAL3ST1 | p.Arg244Gly | [] | rs114565111 |
| GAL3ST1 | p.Val29Met | [] | rs2267161 |
| SMTN | p.Pro237Leu | [] | rs113930388 |
| SMTN | p.Ala494Val | [] | rs11913728 |
| SMTN | p.Arg511His | [] | rs116593437 |
| SMTN | p.Ser531Asn | [] | rs114015937 |
| SMTN | p.Arg538Gln | [] | rs115143483 |
| SMTN | p.Ala547Pro | [] | rs3205187 |
| SMTN | p.Ala559Val | ["COSM4417233","COSM4417234","COSM4417235"] | rs5997872 |
| SMTN | p.Arg642Cys | [] | rs34292278 |
| LIMK2 | NA | [] | rs79923828 |
| LARGE | p.Arg650Gln | [] | rs73399520 |
| LARGE | p.Gln48Lys | [] | rs115801300 |
| JOSD1 | p.Arg53Trp | [] | rs114289284 |
| JOSD1 | p.Ser48Arg | [] | rs6001200 |
| PDGFB | p.Gln145Arg | [] | rs116555717 |
| PDGFB | p.Ile88Val | [] | rs17565 |
| ENTHD1 | p.Ile548Thr | [] | rs114948690 |
| ENTHD1 | p.Leu427Ser | [] | rs115673469 |
| ENTHD1 | p.Met422Thr | [] | rs115302874 |
| ENTHD1 | p.Arg292Thr | ["COSM3964335"] | rs111738363 |
| ENTHD1 | p.Leu239Pro | [] | rs115492335 |
| ENTHD1 | p.Leu205Phe | [] | rs114100360 |
| FAM83F | p.Thr214Ile | [] | rs115365592 |
| FAM83F | p.Arg245Ser | [] | rs12330063 |
| FAM83F | p.Asp252Gly | [] | rs116438980 |
| FAM83F | p.Ala427Val | [] | rs115818503 |
| FAM83F | p.Arg436Gly | [] | rs5995794 |
| PHF21B | p.Tyr328Cys | [] | rs115264708 |
| PHF21B | p.Gly127Ser | [] | rs8135982 |
| PHF21B | p.Ala41%3D | [] | rs114043304 |

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