|  |
| --- |
| **Patient Data** |
| **Patient** |
| **Birthdate** |
| **Diagnosis** |

|  |  |
| --- | --- |
| Mutation load | Number of non-synonymous SNVs 131 |
| Number of oncogenes 6 | |
| Number of tumor suppressor genes 7 | |
| Additional information | |

| **Somatic Mutations in Known Driver Genes** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| List of cancer driver genes along with the mutations observed in the patient. Confidence column shows the number of the driver gene sources that catalogued the corresponding gene as driver and Reference column gives the list of those sources. | | | | | | |
| **Gene** | **Mutation** | **Consequence** | **Driver Type** | **Tumor Type** | **VAF** | **References** |
| BRAF | V600E | missense\_variant | Oncogene | BLCA|BRCA|CM|COREAD|GBM|HNSCC|LUAD|MM|OV|PRAD|STAD|THCA|UCEC|MEL|colorectal|papillary thyroid|borderline ovarian|NSCLC|CHOL|PAST|Spitzoid tumour|pancreas acinar carcinoma|melanocytic nevus|PROSTATE|gastric|Cancer|Colorectal cancer|Lung cancer|Familial non-Hodgkin lymphoma|Noonan syndrome 7 | 0.74 | 1,2,3,4 |
| SF3B1 | P718L | missense\_variant | Oncogene | BLCA|BRCA|CLL|CM|COREAD|ESCA|GBM|HC|HNSCC|LUAD|LUSC|MM|PAAD|STAD|myelodysplastic syndrome | 0.56 | 1,2,3 |
| DLEC1 | D215N | missense\_variant | TSG | Renal cancer|Lung cancer|Esophageal cancer|Cancer | 0.52 | 4,5 |
| RPS6KA2 | E319K | missense\_variant | TSG |  | 0.48 | 4,5 |
| MUC4 | P1056H | missense\_variant | Oncogene | HNSCC | 0.29 | 1 |
| ARHGAP5 | T437I | missense\_variant | Oncogene | colon cancer|glioma | 1.00 | 1 |
| PRC1 | G507E | missense\_variant | Oncogene |  | 0.36 | 4 |
| MUC16 | M2821I | missense\_variant | Oncogene | HNSCC|MEL | 0.29 | 1 |
| MUC16 | L2819M | missense\_variant | Oncogene | HNSCC|MEL | 0.09 | 1 |
| MUC16 | L1434I | missense\_variant | Oncogene | HNSCC|MEL | 0.09 | 1 |
| FAM46C | T209N | missense\_variant | TSG | MM | 0.39 | 1 |
| EPHB4 | P346L | missense\_variant | TSG |  | 0.50 | 5 |
| ACHE | T95I | missense\_variant | TSG |  | 0.53 | 5 |
| MADD | S1620F | missense\_variant | TSG |  | 1.00 | 5 |
| GLI1 | S1094F | missense\_variant | TSG |  | 0.69 | 5 |
| TNPO1 | Q38H | missense\_variant | Unknown | BLCA|BRCA|CM|LUAD|LUSC|STAD | 1.00 | 2 |
| PCSK5 | C747Y | missense\_variant | Unknown | STAD | 0.66 | 2 |
| PABPC3 | G234R | missense\_variant | Unknown | HNSCC | 0.40 | 2 |

| **Somatic Mutations with Known Pharmacogenetic Effect** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| List of drugs with the evidence of targeting the observed variant of the mutated gene regardless of the cancer type. The information is obtained from CIViC, CGI and DrugBank. | | | | | | | |
| **Gene** | **Mutation** | **Therapy** | **Effect** | **Disease** | | **Evidence[[1]](#footnote-1)** | **References** |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Skin Melanoma | A-1 | | 19 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Non-small cell lung|Lagerhans cell histiocytosis|Erdheim-Chester histiocytosis | A-1 | | 47 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | Lung Non-small Cell Carcinoma | A-1 | | 34 |
| BRAF | V600E | dabrafenib | Sensitivity/Response | Non-small cell lung | A-1 | | 74 |
| BRAF | V600E | vemurafenib|cobimetinib (Combination) | Sensitivity/Response | CM | A or B-1 | | 74 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | CM | A or B-1 | | 74 |
| BRAF | V600E | dabrafenib | Sensitivity/Response | CM | A or B-1 | | 74 |
| BRAF | V600E | trametinib | Sensitivity/Response | CM | A or B-1 | | 74 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | CM | A or B-1 | | 74 |
| BRAF | V600E | cetuximab | Resistance | Colorectal Cancer | B-1 | | 13,35 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | MEL | B-1 | | 17,29,36,37,38 |
| BRAF | V600E | trametinib|dabrafenib (Combination) | Sensitivity/Response | Skin Melanoma | B-1 | | 39 |
| BRAF | V600E | dabrafenib | Sensitivity/Response | LUAD|THYROID | B-1 | | 8,29,61,69,70,71,72 |
| BRAF | V600E | Pan-RAF inhibitors | Sensitivity/Response | CM | B-1 | | 66,67,68 |
| BRAF | V600E | panitumumab | Resistance | COREAD | B-1 | | 13,85,86 |
| BRAF | V600E | ERK inhibitors | Sensitivity/Response | LUAD | B-1 | | 63 |
| BRAF | V600E | trametinib | Sensitivity/Response | MEL | B-1 | | 33 |
| BRAF | V600E | cetuximab | Resistance | COREAD | B-1 | | 13,85,86 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Lung Non-small Cell Carcinoma | B-1 | | 46 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Ovarian Cancer | B-1 | | 46 |
| BRAF | V600E | BRAF inhibitor + MEK inhibitors | Sensitivity/Response | THYROID | B-1 | | 56 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Anaplastic Thyroid Carcinoma | B-1 | | 47 |
| BRAF | V600E | panitumumab|trametinib|dabrafenib (Combination) | Sensitivity/Response | Colorectal Cancer | B-1 | | 48 |
| BRAF | V600E | trametinib|dabrafenib (Combination) | Sensitivity/Response | MEL | B-1 | | 9,49,50 |
| BRAF | V600E | MEK inhibitors | Sensitivity/Response | THYROID | B-1 | | 64 |
| BRAF | V600E | bevacizumab | Resistance | Colorectal Cancer | B-1 | | 32 |
| BRAF | V600E | panitumumab|cetuximab (Substitutes) | Resistance | Colorectal Cancer | B-1 | | 6 |
| BRAF | V600E | oxaliplatin | Resistance | Colorectal Cancer | B-1 | | 31 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Thyroid carcinoma | B-1 | | 29,61,71 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Malignant astrocytoma | B-1 | | 60 |
| BRAF | V600E | selumetinib | Sensitivity/Response | Pediatric glioma | B-1 | | 81 |
| BRAF | V600E | panitumumab|dabrafenib|trametinib (Combination) | Sensitivity/Response | COREAD | B-1 | | 78,79 |
| BRAF | V600E | irinotecan | Resistance | Colorectal Cancer | B-1 | | 31 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Skin Melanoma | B-1 | | 20 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | COREAD | B-1 | | 76,77 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | HCL | B-1 | | 25 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Thyroid Gland Papillary Carcinoma | B-1 | | 27 |
| BRAF | V600E | vemurafenib|irinotecan|cetuximab (Combination) | Sensitivity/Response | Colorectal Cancer | B-1 | | 30 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | MEL | B-1 | | 51 |
| BRAF | V600E | cobimetinib|vemurafenib (Combination) | Sensitivity/Response | MEL | B-1 | | 22 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | Anaplastic Thyroid Carcinoma | B-1 | | 52 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | LUAD | B or C-1 | | 34 |
| BRAF | V600E | dabrafenib|trametinib (Combination) | Sensitivity/Response | Neuroendocrine | C-1 | | 24 |
| BRAF | V600E | dabrafenib | Sensitivity/Response | GIST | C-1 | | 61,75 |
| BRAF | V600E | BRAF inhibitors | Sensitivity/Response | Ovary | C-1 | | 61 |
| BRAF | V600E | EGFR TK inhibitors | Resistance | LUAD | C-1 | | 53 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | LUAD|HCL|MNM | C-1 | | 82,83,84 |
| BRAF | V600E | irinotecan|vemurafenib|panitumumab (Combination) | Sensitivity/Response | CHOL | C-1 | | 45 |
| BRAF | V600E | trametinib|dabrafenib|vemurafenib (Combination) | Sensitivity/Response | Gastrointestinal Neuroendocrine Tumor | C-1 | | 24 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Thyroid Gland Papillary Carcinoma | C-1 | | 21 |
| BRAF | V600E | pertuzumab|vemurafenib (Combination) | Sensitivity/Response | Anaplastic Thyroid Carcinoma | C-1 | | 46 |
| BRAF | V600E | dabrafenib | Resistance | Lung Non-small Cell Carcinoma | C-1 | | 8 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Colorectal Cancer | C-1 | | 46 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Laryngeal Squamous Cell Carcinoma | C-1 | | 46 |
| BRAF | V600E | trametinib dimethyl sulfoxide|dabrafenib (Combination) | Sensitivity/Response | CHOL | C-1 | | 43,44 |
| BRAF | V600E | pictilisib | Sensitivity/Response | MEL | C-1 | | 14 |
| BRAF | V600E | dabrafenib|trametinib dimethyl sulfoxide (Combination) | Sensitivity/Response | CHOL | C-1 | | 42 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Ovarian Cystadenocarcinoma | C-1 | | 41 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | GNG | C-1 | | 40 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | MM | C-1 | | 28 |
| BRAF | V600E | panitumumab|vemurafenib (Combination) | Sensitivity/Response | Colorectal Cancer | C-1 | | 26 |
| BRAF | V600E | vemurafenib | Sensitivity/Response | Colorectal Cancer | D-1 | | 12 |
| BRAF | V600E | capecitabine|bevacizumab|vemurafenib (Combination) | Sensitivity/Response | Colorectal Cancer | D-1 | | 12 |
| BRAF | V600E | pi3k inhibitor gdc-0941 bismesylate|plx4720 (Combination) | Sensitivity/Response | Colorectal Cancer | D-1 | | 10 |
| BRAF | V600E | vemurafenib | Resistance | MEL | D-1 | | 7 |
| BRAF | V600E | plx4720|nutlin-3 (Combination) | Sensitivity/Response | Colorectal Cancer | D-1 | | 11 |
| BRAF | V600E | dactolisib|selumetinib (Combination) | Sensitivity/Response | MEL | D-1 | | 15 |
| BRAF | V600E | BRAF inhibitor + CDK2/4 inhibitors | Sensitivity/Response | CM | D-1 | | 54 |
| BRAF | V600E | cobimetinib | Sensitivity/Response | Cancer | D-1 | | 16 |
| BRAF | V600E | cetuximab|gefitinib|vemurafenib (Combination) | Sensitivity/Response | Colorectal Cancer | D-1 | | 18 |
| BRAF | V600E | gdc-0879|dactolisib (Combination) | Sensitivity/Response | Colorectal Cancer | D-1 | | 23 |
| BRAF | V600E | MEK inhibitors | Sensitivity/Response | Ovary | D-1 | | 65 |
| BRAF | V600E | ERK inhibitors | Sensitivity/Response | CM | D-1 | | 54,62 |
| BRAF | V600E | BRAF inhibitors | Sensitivity/Response | Glioma | D-1 | | 59,60 |
| BRAF | V600E | BRAF inhibitor + PI3K pathway inhibitors | Sensitivity/Response | CM | D-1 | | 57,58 |
| BRAF | V600E | BRAF inhibitor + HSP90 inhibitors | Sensitivity/Response | CM | D-1 | | 55 |
| BRAF | V600E | plx4720 | Sensitivity/Response | Malignant astrocytoma | D-1 | | 80 |
| BRAF | V600E | panitumumab|sorafenib (Combination) | Sensitivity/Response | Colorectal Cancer | D-1 | | 6 |

| **Somatic Mutations in Pharmaceutical Target proteins** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Pharmacogenomics Summary of Drugs Targeting Affected Genes** | | | | | | |
| Therapies that have evidence of targeting the affected gene. The information is obtained from CIViC, CGI and DrugBank. Results are filtered according to cancer type, if it is provided in metadata. | | | | | | |
| **Gene** | **Mutation** | **Therapy** | **Effect** | **Disease** | **Evidence[[2]](#footnote-2)** | **References** |
| BRAF | V600G | vemurafenib | Sensitivity/Response | CM | A-2 | 74 |
| BRAF | V600D | vemurafenib | Sensitivity/Response | CM | A-2 | 74 |
| BRAF | V600R | vemurafenib | Sensitivity/Response | Non-small cell lung|Lagerhans cell histiocytosis|Erdheim-Chester histiocytosis | A-2 | 47 |
| BRAF | V600R | vemurafenib | Sensitivity/Response | CM | A-2 | 74 |
| BRAF | V600D | vemurafenib | Sensitivity/Response | Non-small cell lung|Lagerhans cell histiocytosis|Erdheim-Chester histiocytosis | A-2 | 47 |
| BRAF | V600M | vemurafenib | Sensitivity/Response | Non-small cell lung|Lagerhans cell histiocytosis|Erdheim-Chester histiocytosis | A-2 | 47 |
| BRAF | V600M | vemurafenib | Sensitivity/Response | CM | A-2 | 74 |
| BRAF | V600G | vemurafenib | Sensitivity/Response | Non-small cell lung|Lagerhans cell histiocytosis|Erdheim-Chester histiocytosis | A-2 | 47 |
| BRAF | V600K | vemurafenib | Sensitivity/Response | Non-small cell lung|Lagerhans cell histiocytosis|Erdheim-Chester histiocytosis | A-2 | 47 |
| BRAF | V600K | vemurafenib | Sensitivity/Response | CM | A-2 | 74 |
| BRAF | V600 | vemurafenib|cobimetinib (Combination) | Sensitivity/Response | MEL | A-3 | 108 |
| BRAF | V600 | trametinib|dabrafenib (Combination) | Sensitivity/Response | Skin Melanoma | A-3 | 39 |
| BRAF | V600K | dabrafenib|trametinib (Combination) | Sensitivity/Response | CM | A or B-2 | 74 |
| BRAF | V600K | trametinib | Sensitivity/Response | CM | A or B-2 | 74 |
| BRAF | V600K | vemurafenib|cobimetinib (Combination) | Sensitivity/Response | CM | A or B-2 | 74 |
| BRAF | V600D | dabrafenib | Sensitivity/Response | MEL | B-2 | 112 |
| BRAF | L505H | vemurafenib | Resistance | MEL | B-2 | 101 |
| BRAF | V600K | vemurafenib | Sensitivity/Response | MEL | B-2 | 17,38 |
| BRAF | V600R | dabrafenib | Sensitivity/Response | CM | B-2 | 116 |
| BRAF | V600K | trametinib | Sensitivity/Response | MEL | B-2 | 33 |
| BRAF | V600K | dabrafenib|trametinib (Combination) | Sensitivity/Response | Skin Melanoma | B-2 | 39 |
| BRAF | V600K | dabrafenib|trametinib (Combination) | Sensitivity/Response | MEL | B-2 | 22,49 |
| BRAF | V600K | dabrafenib | Sensitivity/Response | MEL | B-2 | 115 |
| BRAF | null | panitumumab|dabrafenib|byl719 (Combination) | Sensitivity/Response | COREAD | B-3 | 117 |
| BRAF | V600 | trametinib | Sensitivity/Response | MEL | B-3 | 33 |
| BRAF | V600 | dabrafenib|trametinib (Combination) | Sensitivity/Response | Colorectal Cancer | B-3 | 76 |
| BRAF | V600 | cobimetinib|vemurafenib (Combination) | Sensitivity/Response | MEL | B-3 | 22 |
| BRAF | V600 | vemurafenib | Sensitivity/Response | Lung Non-small Cell Carcinoma | B-3 | 47 |
| BRAF | V600 | vemurafenib | Sensitivity/Response | Langerhans-Cell Histiocytosis | B-3 | 47 |
| BRAF | V600 | vemurafenib | Resistance | Colorectal Cancer | B-3 | 47 |
| BRAF | V600 | vemurafenib | Sensitivity/Response | CHOL | B-3 | 47 |
| BRAF | V600 | vemurafenib|cobimetinib (Combination) | Sensitivity/Response | MEL | B-3 | 110 |
| BRAF | V600 | cetuximab|encorafenib (Combination) | Sensitivity/Response | Colorectal Cancer | B-3 | 109 |
| BRAF | V600 | encorafenib|alpelisib|cetuximab (Combination) | Sensitivity/Response | Colorectal Cancer | B-3 | 109 |
| BRAF | V600 | trametinib|dabrafenib (Combination) | Sensitivity/Response | MEL | B-3 | 49,51 |
| BRAF | V600 | dabrafenib|trametinib (Combination) | Sensitivity/Response | MEL | B-3 | 50 |
| BRAF | V600 | vemurafenib|irinotecan|cetuximab (Combination) | Sensitivity/Response | Colorectal Cancer | B-3 | 111 |
| BRAF | null | BRAF inhibitor + EGFR mAb inhibitor +/- PI3K inhibitors | Sensitivity/Response | COREAD | B-3 | 109 |
| BRAF | V600 | dabrafenib | Sensitivity/Response | MEL | B-3 | 61 |
| BRAF | null | irinotecan|vemurafenib|cetuximab (Combination) | Sensitivity/Response | COREAD | B-3 | 30 |
| BRAF | V600 | mek inhibitor ro4987655 | Sensitivity/Response | MEL | B-3 | 106 |
| BRAF | null | vemurafenib | Not Responsive | COREAD | B-3 | 47 |
| BRAF | V600 | panitumumab | Resistance | Colorectal Cancer | B-3 | 86 |
| BRAF | MUTATION | cetuximab | Resistance | Colorectal Cancer | B-3 | 31 |
| BRAF | MUTATION | bevacizumab | Resistance | Colorectal Cancer | B-3 | 31 |
| BRAF | MUTATION | irinotecan | Resistance | Colorectal Cancer | B-3 | 31 |
| BRAF | MUTATION | oxaliplatin | Resistance | Colorectal Cancer | B-3 | 31 |
| BRAF | V600K | vemurafenib | Sensitivity/Response | MEL | C-2 | 114 |
| BRAF | K601R | trametinib | Sensitivity/Response | CM | C-2 | 98,99 |
| BRAF | L597R | vemurafenib | Sensitivity/Response | MEL | C-2 | 102 |
| BRAF | L597R | BRAF inhibitors | Sensitivity/Response | CM | C-2 | 102 |
| BRAF | L597R | trametinib | Sensitivity/Response | CM | C-2 | 98,99 |
| BRAF | G469A | ERK inhibitors | Sensitivity/Response | HNSCC | C-2 | 63 |
| BRAF | G469A | EGFR TK inhibitors | Resistance | LUAD | C-2 | 53 |
| BRAF | L597V | trametinib | Sensitivity/Response | Skin Melanoma | C-2 | 99 |
| BRAF | V600E+V600M | dabrafenib | Sensitivity/Response | MEL | C-2 | 113 |
| BRAF | V600R | trametinib | Sensitivity/Response | CM | C-2 | 98,99 |
| BRAF | D594G | irinotecan|cetuximab (Combination) | Resistance | Colorectal Cancer | C-2 | 91 |
| BRAF | Y472C | dasatinib | Sensitivity/Response | LUAD | C-2 | 95 |
| BRAF | L597S | mek inhibitor tak-733 | Sensitivity/Response | Skin Melanoma | C-2 | 97 |
| BRAF | L485W | ERK inhibitors | Sensitivity/Response | Billiary tract | C-2 | 63 |
| BRAF | V600 | refametinib | Resistance | MEL | C-3 | 107 |
| BRAF | L597Q | vemurafenib|trametinib (Substitutes) | Sensitivity/Response | Skin Melanoma | D-2 | 97 |
| SF3B1 | K666N | Spliceosome inhibitors | Sensitivity/Response | Any cancer type | D-2 | 87,88,89 |
| SF3B1 | K700E | spliceostatin a | Sensitivity/Response | Breast Cancer | D-2 | 87 |
| SF3B1 | K700E | Spliceosome inhibitors | Sensitivity/Response | Any cancer type | D-2 | 87,88,89 |
| BRAF | D594G | sorafenib | Sensitivity/Response | Skin Melanoma | D-2 | 92 |
| BRAF | D594G | trametinib | Sensitivity/Response | Cancer | D-2 | 93 |
| BRAF | D594G | sorafenib | Sensitivity/Response | CM | D-2 | 92 |
| BRAF | L505H | vemurafenib | Resistance | MEL | D-2 | 100 |
| BRAF | G466V | irinotecan|panitumumab (Combination) | Sensitivity/Response | Colorectal Cancer | D-2 | 93 |
| BRAF | G466V | dasatinib | Sensitivity/Response | LUAD | D-2 | 95 |
| SF3B1 | K666N | spliceostatin a | Sensitivity/Response | Breast Cancer | D-2 | 87 |
| BRAF | L597S | trametinib|vemurafenib (Substitutes) | Sensitivity/Response | Skin Melanoma | D-2 | 97 |
| BRAF | G469E | sorafenib | Sensitivity/Response | Skin Melanoma | D-2 | 92 |
| BRAF | G469E | u0126 | null | Skin Melanoma | D-2 | 92 |
| BRAF | G469E | sorafenib | Sensitivity/Response | CM | D-2 | 92 |
| BRAF | G596C | dabrafenib|trametinib (Combination) | Sensitivity/Response | Lung Non-small Cell Carcinoma | D-2 | 96 |
| BRAF | L597R | trametinib|vemurafenib (Substitutes) | Sensitivity/Response | Skin Melanoma | D-2 | 97 |
| BRAF | K601E | trametinib|vemurafenib (Substitutes) | Sensitivity/Response | Skin Melanoma | D-2 | 97 |
| BRAF | DEL 485-490 | pan-raf inhibitor ly3009120 | Sensitivity/Response | Cancer | D-3 | 94 |
| BRAF | MUTATION | cetuximab | Resistance | Colorectal Cancer | D-3 | 104 |
| BRAF | PAPSS1-BRAF | vemurafenib | Resistance | MEL | D-3 | 105 |
| BRAF | MUTATION | trametinib | Sensitivity/Response | Cancer | D-3 | 103 |
| BRAF | PAPSS1-BRAF | trametinib | Sensitivity/Response | MEL | D-3 | 105 |
| BRAF | null | Pan-RAF inhibitors | Sensitivity/Response | Any cancer type | D-3 | 94 |
| BRAF | null | vemurafenib | Resistance | Any cancer type | D-3 | 94 |
| BRAF | D594A | mitogen-activated protein kinase kinase inhibitor|sorafenib (Substitutes) | Sensitivity/Response | Skin Melanoma | E-2 | 90 |
| BRAF | K483M | mitogen-activated protein kinase kinase inhibitor|sorafenib (Substitutes) | Sensitivity/Response | Skin Melanoma | E-2 | 90 |
| BRAF | D594V | trametinib|sorafenib (Substitutes) | Sensitivity/Response | Skin Melanoma | E-2 | 90 |

| **Summary of Cancer Drugs Targeting Affected Genes** | | | |
| --- | --- | --- | --- |
| List of cancer drugs targeting the mutated gene. Information is obtained from DrugBank, Therapeutic Target Database, IUPHAR, and Santos et al. | | | |
| **Gene** | **Status** | **Therapy** | **References** | |
| TNFRSF8 | approved|investigational | brentuximab vedotin | 118,119,120 | |
| BRAF | approved | regorafenib | 120,123,124 | |
| BRAF | approved|investigational | encorafenib | 125,126,127 | |
| EPHB4 | approved|investigational | dasatinib | 121 | |
| EPHB4 | approved | vandetanib | 120 | |
| ACHE | approved | tyrothricin | 122 | |

| **Adverse Effects** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| List of drugs with known adverse effects | | | | | | |
| **Gene** | **Mutation** | **Therapy** | **Effect** | **Variant Type** | **Evidence** | **References** |

| **References** | |
| --- | --- |
| The publications of the reference IDs given in the tables above. | |
| 1 | 14993899 |
| 2 | 25759023 |
| 3 | 23539594 |
| 4 | 14681372 |
| 5 | 23066107 |
| 6 | 19001320 |
| 7 | 24576830 |
| 8 | 23524406 |
| 9 | 24583796 |
| 10 | 23845441 |
| 11 | 23812671 |
| 12 | 22180495 |
| 13 | 20619739 |
| 14 | 25370471 |
| 15 | 26678033 |
| 16 | 23934108 |
| 17 | 24508103 |
| 18 | 22281684 |
| 19 | 21639808 |
| 20 | 22356324 |
| 21 | 24987354 |
| 22 | 25265494 |
| 23 | 23549875 |
| 24 | 27048246 |
| 25 | 26352686 |
| 26 | 27325282 |
| 27 | 27460442 |
| 28 | 24997557 |
| 29 | 20818844 |
| 30 | 27729313 |
| 31 | 19603024 |
| 32 | 19571295 |
| 33 | 22663011 |
| 34 | 27283860 |
| 35 | 25666295 |
| 36 | 23569304 |
| 37 | 26557775 |
| 38 | 25524477 |
| 39 | 25399551 |
| 40 | 25524464 |
| 41 | 26490654 |
| 42 | 28480077 |
| 43 | 28078132 |
| 44 | 25435907 |
| 45 | 26687137 |
| 46 | 29320312 |
| 47 | 26287849 |
| 48 | 29431699 |
| 49 | 28891408 |
| 50 | 25265492 |
| 51 | 23020132 |
| 52 | 29072975 |
| 53 | 22773810 |
| 54 | 22997239 |
| 55 | 22351686 |
| 56 | ASCO 2013 (abstr 9029) |
| 57 | 22389471 |
| 58 | 21156289 |
| 59 | 22038996 |
| 60 | 22586120 |
| 61 | 22608338 |
| 62 | 23614898 |
| 63 | ASCO 2017 (abstr 2508) |
| 64 | 22241789 |
| 65 | 19018267 |
| 66 | ESMO 2015 (abstract 300) |
| 67 | AACR 2016 (abstr CT005) |
| 68 | AACR 2017 (abstr CT002) |
| 69 | ASCO 2013 (abstr 8009) |
| 70 | ESMO 2014 (abstr LBA38\_PR) |
| 71 | 23489023 |
| 72 | 27080216 |
| 73 | 29592813 |
| 74 | 29592813 |
| 75 | 23470635 |
| 76 | 26392102 |
| 77 | ASCO 2015 (abstr 8006) |
| 78 | ASCO 2014 (abstr 3515) |
| 79 | ASCO 2015 (abstr 103) |
| 80 | PMC3638050 |
| 81 | NCT01089101 |
| 82 | 22743296 |
| 83 | 22621641 |
| 84 | 23612012 |
| 85 | 21163703 |
| 86 | 23325582 |
| 87 | 25424858 |
| 88 | ENA 2014 (abstr 456) |
| 89 | ENA 2014 (abstr 575) |
| 90 | 20141835 |
| 91 | 26989027 |
| 92 | 18794803 |
| 93 | 28783719 |
| 94 | 26732095 |
| 95 | 22649091 |
| 96 | 27577079 |
| 97 | 22798288 |
| 98 | 23248257 |
| 99 | 22805292 |
| 100 | 24112705 |
| 101 | 25515853 |
| 102 | 23715574 |
| 103 | 22169769 |
| 104 | 22586653 |
| 105 | 24345920 |
| 106 | 24947927 |
| 107 | 23434733 |
| 108 | 27480103 |
| 109 | 28363909 |
| 110 | 25037139 |
| 111 | 147167 |
| 112 | 23463675 |
| 113 | 23031422 |
| 114 | 26989536 |
| 115 | 21343559 |
| 116 | 23237741 |
| 117 | ENA 2014 (abstr 11LBA) |
| 118 | 12714494 |
| 119 | 31691823 |
| 120 | 27910877 |
| 121 | 18180381 |
| 122 | 5257018 |
| 123 | 16381955 |
| 124 | 22222036 |
| 125 | 26586345 |
| 126 | 29356698 |
| 127 | 25769717 |

| **Appendix** | | | | | |
| --- | --- | --- | --- | --- | --- |
| All the somatic variants of the patient with their dbSNP and COSMIC IDs. | | | | | |
| **Gene** | **Mutation** | **Consequence** | **VAF** | **dbSNP** | **COSMIC** |
| TNFRSF8 | p.Pro215Ser | missense\_variant | 1.00 | rs267597959 | COSM14024 |
| FAM46C | p.Thr209Asn | missense\_variant | 0.39 |  |  |
| S100A7A | p.Gly98Trp | missense\_variant | 0.38 | rs267598049 | COSM36721 |
| PKLR | p.Gly251Ser | missense\_variant | 0.50 | rs267598065 | COSM36782 |
| MAEL | p.Ser431Cys | missense\_variant | 0.54 | rs267598149 | COSM36684 |
| ZBTB41 | p.Phe164Val | missense\_variant | 0.27 | rs267598277 | COSM36692 |
| SYT14 | p.Ser437Phe | missense\_variant | 1.00 | rs267598356 | COSM36786 |
| OR2T8 | p.Met197Arg | missense\_variant | 1.00 | rs4474294 |  |
| OR2T3 | p.Ala214Thr | missense\_variant | 1.00 | rs1770109 |  |
| SLC4A5 | p.Ser428Phe | missense\_variant | 0.70 | rs111392973 | COSM2999241,COSM2999242 |
| SLC4A5 | p.Ser428Thr | missense\_variant | 0.70 | rs267599454 |  |
| SNRNP200 | p.Arg1538Cys | missense\_variant | 0.75 | rs267599495 | COSM36589 |
| SEMA4C | p.Arg407Trp | missense\_variant | 0.71 | rs267599501 | COSM36666 |
| ANKRD36 | p.Ser1120Cys | missense\_variant | 0.49 | rs768768868 |  |
| KIAA1211L | p.Gly746Glu | missense\_variant | 0.66 | rs866719486 |  |
| DPP10 | p.Ile93Asn | missense\_variant | 0.26 |  |  |
| XIRP2 | p.Gly127Arg | missense\_variant | 0.28 | rs267598980 | COSM36673 |
| TTN | p.Pro10904Ser | missense\_variant | 0.69 | rs267599054 |  |
| TTN | p.Ala1347Thr | missense\_variant | 0.33 | rs267599092 | COSM2708938,COSM2708939,COSM2708940,COSM2708941,COSM2708942 |
| SF3B1 | p.Pro718Leu | missense\_variant | 0.56 | rs267599150 | COSM36655 |
| FZD7 | p.Pro285Ser | missense\_variant | 0.68 | rs267599158 | COSM24315 |
| ZDBF2 | p.Gly575Arg | missense\_variant | 0.33 |  |  |
| AGFG1 | p.Gly364Arg | missense\_variant | 0.40 | rs267599235 | COSM25632,COSM3364621,COSM3364622 |
| ARL4C | p.Gly71Ser | missense\_variant | 0.66 | rs61752230 | COSM21657 |
| KIF1A | p.Ser141Ala | missense\_variant | 0.39 |  |  |
| DLEC1 | p.Asp215Asn | missense\_variant | 0.52 | rs149190717 | COSM1566798,COSM36702 |
| VPRBP | p.Pro309Leu | missense\_variant | 0.48 | rs267599884 |  |
| TLR9 | p.Gly514Ser | missense\_variant | 0.48 | rs267599888 | COSM36649 |
| PRR23C | p.Glu262Lys | missense\_variant | 0.47 | rs759730911 | COSM36858 |
| CLSTN2 | p.Gln262His | missense\_variant | 0.28 | rs267599628 | COSM36631 |
| SAMD7 | p.Arg67Trp | missense\_variant | 0.56 | rs191885635 | COSM36663 |
| GNB4 | p.Pro107Leu | missense\_variant | 0.52 | rs267599699 | COSM13667 |
| ETV5 | p.Tyr445Cys | missense\_variant | 0.52 | rs267599722 | COSM23333 |
| LPP | p.Ala119Gly | missense\_variant | 0.04 |  |  |
| MUC4 | p.Pro1056His | missense\_variant | 0.29 | rs753583962 |  |
| EXOC1 | p.Pro774Ser | missense\_variant | 0.44 | rs267600192 | COSM36662 |
| REST | p.Pro752Thr | missense\_variant | 0.59 | rs267600197 | COSM24349 |
| SMR3B | p.Arg58Lys | missense\_variant | 0.53 | rs267600235 | COSM1310225,COSM36745 |
| ADAM29 | p.Gly589Glu | missense\_variant | 0.43 | rs267600094 | COSM26290 |
| CARD6 | p.Leu638Phe | missense\_variant | 1.00 | rs267600630 | COSM14006 |
| TNPO1 | p.Gln38His | missense\_variant | 1.00 | rs267600680 | COSM36775,COSM5648790 |
| F2RL2 | p.Leu141Phe | missense\_variant | 1.00 | rs267600693 | COSM27249,COSM36780 |
| VCAN | p.Asp203Asn | missense\_variant | 1.00 | rs267600718 | COSM36758 |
| EDIL3 | p.Gln187Lys | missense\_variant | 1.00 | rs267600722 | COSM26295 |
| PCDHB7 | p.Asp374His | missense\_variant | 0.29 |  |  |
| GRIA1 | p.Gly828Glu | missense\_variant | 0.99 | rs267600500 | COSM36714,COSM4854071,COSM4854072 |
| ADAM19 | p.Pro900Leu | missense\_variant | 1.00 | rs61757467 |  |
| MBOAT1 | p.Lys293Asn | missense\_variant | 0.35 |  |  |
| SPDEF | p.Asp283His | missense\_variant | 0.37 |  |  |
| SPDEF | p.Ser229Leu | missense\_variant | 0.41 | rs200344679 | COSM36760 |
| SCUBE3 | p.Gly702Glu | missense\_variant | 0.66 | rs267600995 | COSM36691 |
| BTBD9 | p.Arg46Cys | missense\_variant | 0.37 | rs267601008 | COSM36793 |
| GPR111 | p.Ile290Leu | missense\_variant | 0.63 | rs267601055 | COSM36619 |
| BAI3 | p.Asp755Asn | missense\_variant | 0.42 | rs267601102 | COSM22119 |
| KATNA1 | p.Pro241Leu | missense\_variant | 0.40 | rs267600852 |  |
| KATNA1 | p.Pro241Ser | missense\_variant | 0.39 | rs267600853 |  |
| RPS6KA2 | p.Glu319Lys | missense\_variant | 0.48 | rs267600891 | COSM21036,COSM3024932,COSM3024933 |
| ANLN | p.Gln649Arg | missense\_variant | 0.45 | rs267601502 | COSM36632 |
| ABCA13 | p.Gly4948Asp | missense\_variant | 0.52 | rs267601533 | COSM36817 |
| EPHB4 | p.Pro346Leu | missense\_variant | 0.50 | rs267601191 | COSM21032 |
| ACHE | p.Thr95Ile | missense\_variant | 0.53 | rs267601193 | COSM36706 |
| BRAF | p.Val600Glu | missense\_variant | 0.74 | rs113488022 | COSM18443,COSM476,COSM6137 |
| RP11-1220K2.2 | p.Asp1426Glu | missense\_variant | 0.16 |  |  |
| TRBV23-1 | p.Pro27Leu | missense\_variant | 0.73 |  | COSM36861 |
| ZNF862 | p.Gln583Lys | missense\_variant | 0.56 | rs267601404 | COSM36833 |
| NAT2 | p.Glu264Lys | missense\_variant | 0.48 | rs267601842 | COSM36677 |
| SCARA5 | p.Glu270Lys | missense\_variant | 0.52 | rs267601883 | COSM36713 |
| GPR124 | p.Glu863Lys | missense\_variant | 0.48 | rs267601912 | COSM36641 |
| REXO1L1P | p.Ser639Phe | missense\_variant | 0.06 |  |  |
| CNBD1 | p.Leu135Arg | missense\_variant | 0.74 |  |  |
| GRHL2 | p.Ser356Phe | missense\_variant | 0.71 | rs267601682 | COSM36601 |
| ZC3H3 | p.Ser879Phe | missense\_variant | 0.27 | rs267601811 | COSM36642 |
| ANKRD18A | p.Glu654Lys | missense\_variant | 0.45 | rs267602244 | COSM36859 |
| PCSK5 | p.Cys747Tyr | missense\_variant | 0.66 | rs267602276 | COSM36640 |
| NUTM2G | p.Gly36Asp | missense\_variant | 0.59 | rs267602327 | COSM36612 |
| OR1J1 | p.Leu157Phe | missense\_variant | 0.71 | rs267602118 | COSM36710 |
| GAPVD1 | p.Leu35Phe | missense\_variant | 0.65 | rs267602131 | COSM36617 |
| ADAMTS13 | p.Arg398His | missense\_variant | 0.61 | rs121908471 | COSM36777 |
| LHX3 | p.Gly92Glu | missense\_variant | 0.56 |  | COSM36599 |
| MADD | p.Ser1620Phe | missense\_variant | 1.00 | rs267602903 | COSM26934 |
| OR4S2 | p.Arg120Cys | missense\_variant | 1.00 | rs267602971 | COSM36685 |
| OR4D11 | p.Pro58Ala | missense\_variant | 1.00 | rs267603040 | COSM36624 |
| SPTBN2 | p.Glu2047Lys | missense\_variant | 1.00 | rs201985455 | COSM36751,COSM4199893 |
| GRM5 | p.Glu941Lys | missense\_variant | 1.00 | rs267603229 |  |
| DCP1B | p.Pro98Ser | missense\_variant | 0.70 | rs267603408 | COSM36575 |
| CD163 | p.Pro310Leu | missense\_variant | 0.58 | rs267603681 | COSM36725 |
| GLI1 | p.Ser1094Phe | missense\_variant | 0.69 | rs267603606 | COSM24658 |
| TBC1D30 | p.Gly327Glu | missense\_variant | 0.32 | rs267603627 | COSM36841 |
| KCNC2 | p.Leu298Ser | missense\_variant | 0.65 | rs267603669 | COSM36754 |
| PABPC3 | p.Gly234Arg | missense\_variant | 0.40 | rs267603790 | COSM36646 |
| CPB2 | p.Phe409Ser | missense\_variant | 0.55 | rs267603833 | COSM36708 |
| CARKD | p.Pro205Ser | missense\_variant | 0.56 | rs267603758 | COSM36577 |
| NOVA1 | p.Ala256Asp | missense\_variant | 1.00 | rs267603974 | COSM1369439,COSM25331 |
| ARHGAP5 | p.Thr437Ile | missense\_variant | 1.00 | rs56259828 |  |
| SERPINA6 | p.Arg282Leu | missense\_variant | 1.00 | rs267604111 | COSM1265285,COSM26307,COSM267404 |
| NUDT14 | p.Thr44Pro | missense\_variant | 1.00 | rs267603899 | COSM36696 |
| IGHV1-18 | p.Gln20Lys | missense\_variant | 0.98 |  |  |
| TRPM1 | p.Glu1261Lys | missense\_variant | 1.00 | rs267604151 | COSM36625 |
| PLIN1 | p.Leu191Arg | missense\_variant | 0.44 |  | COSM36595 |
| PRC1 | p.Gly507Glu | missense\_variant | 0.36 | rs267604387 | COSM36743 |
| AMDHD2 | p.His587Arg | missense\_variant | 0.33 |  |  |
| NLRC3 | p.Gly454Arg | missense\_variant | 0.74 | rs267604538 | COSM36804 |
| TTLL6 | p.Arg280Lys | missense\_variant | 0.31 | rs267604932 | COSM36852 |
| USH1G | p.Leu379Ser | missense\_variant | 0.41 | rs267605044 | COSM36661 |
| PSMA8 | p.Gly36Glu | missense\_variant | 1.00 | rs267605136 | COSM36586 |
| MBD3 | p.Asp283Asn | missense\_variant | 0.38 | rs369581342 |  |
| GTF2F1 | p.Gly411Arg | missense\_variant | 0.37 |  |  |
| MUC16 | p.Met2821Ile | missense\_variant | 0.29 | rs267605807 | COSM2701120,COSM36853 |
| MUC16 | p.Leu2819Met | missense\_variant | 0.09 |  |  |
| MUC16 | p.Leu1434Ile | missense\_variant | 0.09 |  |  |
| OLFM2 | p.Arg58Gln | missense\_variant | 0.39 | rs267605828 | COSM36654 |
| PKN1 | p.Arg191Cys | missense\_variant | 0.68 | rs267605306 | COSM21035 |
| CYP4F2 | p.Arg149Gln | missense\_variant | 0.63 | rs140630977 | COSM1129961 |
| ZNF208 | p.His855Tyr | missense\_variant | 0.67 | rs267605385 |  |
| ARHGAP33 | p.Pro1068Leu | missense\_variant | 0.35 |  |  |
| NOSIP | p.Pro297Leu | missense\_variant | 0.22 |  |  |
| ZNF880 | p.Pro169Gln | missense\_variant | 0.36 | rs267605631 | COSM1234752 |
| ZSCAN5A | p.Ala179Thr | missense\_variant | 0.24 |  |  |
| FLRT3 | p.Ile532Asn | missense\_variant | 0.23 |  |  |
| DLGAP4 | p.Ala879Ser | missense\_variant | 0.46 | rs267605913 | COSM36648 |
| SPO11 | p.Gly88Ser | missense\_variant | 0.50 | rs267606012 | COSM36690 |
| TMEM50B | p.Ser113Phe | missense\_variant | 0.67 | rs267606110 | COSM36665 |
| CECR2 | p.Gly474Arg | missense\_variant | 0.48 | rs267606173 | COSM36851 |
| IGLV3-12 | p.Ala89Thr | missense\_variant | 0.50 | rs2073451 |  |
| IGLJ3 | p.Pro10Ala | missense\_variant | 0.35 | rs2009433 |  |
| MEI1 | p.Gly507Glu | missense\_variant | 0.54 | rs267606261 | COSM36800 |
| NHS | p.Arg373Gln | missense\_variant | 1.00 | rs267606412 | COSM1118631,COSM36761 |
| FGD1 | p.Arg636Trp | missense\_variant | 0.45 |  | COSM21850 |
| PJA1 | p.His586Tyr | missense\_variant | 1.00 | rs267606501 |  |
| OGT | p.Leu367Ser | missense\_variant | 0.58 |  |  |
| DCAF12L1 | p.Ser281Phe | missense\_variant | 1.00 | rs267606338 | COSM36778 |

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1. [CIViC evidence levels are used](https://civicdb.org/help/evidence/evidence-levels). A = Validated association, B = Clinical evidence, C = Case study, D = Preclinical evidence, E = Inferential association [↑](#footnote-ref-1)
2. [CIViC evidence levels are used](https://civicdb.org/help/evidence/evidence-levels). A = Validated association, B = Clinical evidence, C = Case study, D = Preclinical evidence, E = Inferential association [↑](#footnote-ref-2)