Variantyx

OncoAlly™ Solid Tumor Analysis Addendum

Patient Name	
Date of Birth	

Affix barcode label of Patient's sample here

OncoAlly™ - Addendum

OncoAlly Solid Tumor analysis list of genes

ABL1, ABL2, ABRAXAS1, ACVR1, AJUBA, AKT1, AKT2, AKT3, ALK, AMER1, APC, AR, ARAF, ARID1A, ARID2, ASXL1, ATM, ATR, ATRX, AURKA, AURKB, AURKC, AXIN2, AXL, B2M, BAP1, BARD1, BCL10, BCL11A, BCL2, BCL2A1, BCL2L1, BCL2L11, BCL3, BCL6, BCOR, BCORL1, BIRC2, BIRC3, BLM, BMPR1A, BRAF, BRCA1, BRCA2, BRD1, BRD2, BRD4, BRIP1, BTG1, BTG2, BTK, CAD, CALR, CARD11, CBFB, CBL, CCDC6, CDC73, CCND1, CCND2, CCND3, CCNE1, CD274, CDH1, CDK12, CDK2, CDK4, CDK6, CDK7, CDK8, CDK9, CDKN1A, CDKN1B, CDKN2A, CDKN2B, CDKN2C, CEBPA, CHD2, CHEK1, CHEK2, CIC, CIITA, CREBBP, CRKL, CSF1R, CSF3R, CTCF, CTLA4, CTNNA1, CTNNB1, CUL3, CXCR4, CYLD, DAXX, DDIT3, DDR1, DDR2, DDX41, DICER1, DNMT3A, DRD2, EBF1, ECT2, ECT2L, EED, EGFR, EIF1AX, ELF3, ELOC (TCEB1), EML4, EMSY, EP300, EPCAM, EPHA2, ERBB2, ERBB3, ERBB4, ERCC2, ERCC3, ERCC4, ERCC5, ERG, ERRFI1, ESR1, ETV1, ETV4, ETV5, ETV6, EWSR1, EZH2, FANCA, FANCC, FANCD2, FAS, FAT1, FBXO11, FBXW7, FGF10, FGF19, FGF23, FGF3, FGF4, FGF6, FGFR1, FGFR2, FGFR3, FGFR4, FH, FLCN, FLT1, FLT3, FLT4, FOLR1, FOXA1, FOXA2, FOXL2, FOXO1, FOXP1, FRS2, FUBP1, GALNT12, GATA1, GATA2, GATA3, GATA4, GATA6, GLI1, GNA11, GNA13, GNAQ, GNAS, GRIN2A, GSK3B, H3F3A, H3F3B, HDAC1, HDAC2, HDAC3, HDAC6, HIF1A, HIST1H3B, HIST1H3C, HNF1A, HOXB13, HRAS, ID3, IDH1, IDH2, IGF1R, IGF2, IKBKE, IKZF1, IKZF2, IKZF3, IL7R, INPP4B, INSR, IRF1, IRF4, IRS2, ITK, JAK1, JAK2, JAK3,JARID2, JUN, KDM5A, KDM5C, KDM6A, KDR, KEAP1, KIT, KLF5, KLHL6, KMT2A, KMT2B, KMT2C, KMT2D, KRAS, LCK, LMO1, LYN, LZTR1, MALT1, MAML2, MAP2K1, MAP2K2, MAP2K4, MAP3K1, MAP3K14, MAP3K7, MAPK1, MAPK3, MAPK4, MAPK7, MAX, MCL1, MDM2, MDM4, MECOM, MED12, MEF2B, MEF2C, MEN1, MERTK, MET, MGMT, MITF, MLH1, MSH2, MSH3, MSH6, MLLT3, MPL, MRE11, MST1R, MTAP, MTOR, MUTYH, MYC, MYCL, MYCN, MYD88, NBN, NCOA1, NCOA2, NCOR1, NF1, NF2, NFE2L2, NFKBIA, NOTCH1, NOTCH2, NOTCH3, NRAS, NSD1, NT5C2, NTHL1, NTRK1, NTRK2, NTRK3, NUP214, NUP98, P2RY8, PALB2, PAX3, PAX7, PBRM1, PDCD1, PDGFRA, PDGFRB, PHF1, PHF6, PHOX2B, PIK3CA, PIK3CB, PIK3CD, PIK3CG, PIK3R1, PIK3R2, PIM1, PLAG1, PLCG1, PLCG2, PLK1, PMS2, POLD1, POLE, POT1, PPARG, PPP2R1A, PRKAR1A, PRKG1, PRKDC, PTCH1, PTEN, PTK2, PTK6, PTPN6, PTPN11, PTPRD, PTPRO, PTPRT, RAC1, RAD21, RAD50, RAD51, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RARA, RASGEF1A, RB1, RBM10, RECQL4, REL, RELN, RET, RHOA, RICTOR, RIT1, RNF43, ROS1, RPL5, RPS6KB2, RPTOR, RUNX1, RUNX1T1, SDHA, SDHAF2, SDHB, SDHC, SDHD, SEC23B, SETBP1, SETD2, SF3B1, SGK1, SH2B3, SH2D1A, SIK1, SLX4, SIN3A, SLAMF7, SMARCB1, SMAD2, SMAD3, SMAD4, SMARCA1, SMARCA4, SMC3, SMO, SOCS1, SOX2, SOX9, SPEN, SPOP, SPRED1, SRC, SRSF2, STAG2, STAT3, STAT5A, STAT5B, STAT6, STK11, SUFU, SUZ12, SYK, TAF1, TBL1XR1, TCF3, TEK, TENT5C, TERT, TET1, TET2, TGFBR2, TLR4, TMEM127, TMEM30A, TMPRSS2, TNFAIP3, TNFRSF14, TNFRSF17, TNFSF11, TOP1, TP53, TP53BP1, TP63, TRAF3, TRAF7, TSC1, TSC2, TSHR, TYRO3, U2AF1, U2AF2, USP9X, VEZF1, VHL, WEE1, WRN, WT1, XBP1, XPO1, ZNF217, ZNF423, ZRSR2, ZNF521, ZNF703, TERT promoter region, *BRCA1* intronic region, *BRCA2* intronic regions, *MET* introns *13* and *14*

Onco-pharmacogenomics list of genes

CYP2C8, CYP2D6, CYP3A5, DPYD, GSTP1, NUDT15, SLCO1B1, TPMT, and *UGT1A1*

Onco-pharmacogenomics list of star alleles:

CYP2C8	*3
CYP2D6	*4, *5, *10, *17, *29, *41
CYP3A5	*1, *3
DPYD	*2A, HapB3, D949V
GSTP1	*B
NUDT15	*2, *3, *9
SLCO1B1	*5, *14, *15, *37
TPMT	*2, *3A, *3B, *3C
UGT1A1	*6, *28

OncoAlly™ Cancer Predisposition list of genes

APC, ATM, AXIN2, BAP1, BARD1, BLM, BMPR1A, BRCA1, BRCA2, BRIP1, CDC73, CDH1, CDK4, CDKN1B, CDKN2A, CEBPA, CHEK2, CTNNA1, CTNNB1, DDX41, DICER1, EPCAM, FH, FLCN, GATA2, GREM1, HOXB13, HRAS, KIT, MAX, MBD4, MEN1, MET, MITF, MLH1, MSH2, MSH3, MSH6, MUTYH, NBN, NF1, NF2, NTHL1, PALB2, PAX5, PDGFRA, PHOX2B, PMS2, POLD1, POLE, POT1, PRKAR1A, PTCH1, PTEN, PTPN11, RAD51C, RAD51D, RB1, RECQL4, RET, RNASEL, RPL5, RUNX1, SAMD9, SAMD9L, SDHA, SDHAF2, SDHB, SDHC, SDHD, SMAD4, SMARCA4, SMARCB1, SMARCE1, SOS1, SRP72, STK11, SUFU, TERC, TERT, TMEM127, TP53, TSC1, TSC2, VHL, WT1, WRN

Limitations for the above genes

The following genes are not fully covered: *SOS1, PTCH1, STK11, CEBPA*. Therefore there may be variants in certain regions of these genes that are not identified with this test. The following genes have regions that are not unique: *SDHA, PMS2*. Therefore there may be variants in these genes that cannot be assigned to the correct location and limit the interpretation.

Genomic Unity® Pharmacogenomics Analysis list of genes

CYP2B6, CYP2C9, CYP2C19, CYP2D6, CYP3A5, CYP4F2, DPYD, NAT2, NUDT15, TPMT, UGT1A1, VKORC1, SLCO1B1

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Genomic Unity® Pharmacogenomics Analysis list of star alleles

CYP2B6	*1 (reference), *2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *13, *14, *15, *17, *18, *19, *20, *21, *22, *23, *24, *25, *26, *27, *28, *29 (CYP2B7-CYP2B6 hybrid), *30 (CYP2B6-CYP2B7 hybrid), *31, *32, *33, *34, *35, *36, *37, *38, and copy number variations.
CYP2C9	*1 (reference), *2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *13, *14, *15, *16, *17, *18, *19, *20, *21, *22, *23, *24, *25, *26, *27, *28, *29, *30, *31, *32, *33, *34, *35, *36, *37, *38, *39, *40, *41, *42, *43, *44, *45, *46, *47, *48, *49, *50, *51, *52, *53, *54, *55, *56, *57, *58, *59, *60, *61, *62, *63, *64, *65, *66, *67, *68, *69, *70, *71
CYP2C19	*1, *2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *13, *14, *15, *16, *17, *18, *19, *22, *23, *24, *25, *26, *28, *29, *30, *31, *32, *33, *34, *35, *36 (Whole gene deletion), *37 (Partial gene deletion), *38 (reference), *39
CYP2D6	*1 (reference), *2, *3, *4, *5 (Whole gene deletion), *6, *7, *8, *9, *10, *11, *12, *13 (CYP2D7-CYP2D6 hybrid), *14, *15, *17, *18, *19, *20, *21, *22, *23, *24, *25, *26, *28, *29, *30, *31, *33, *34, *35, *36 (CYP2D6-CYP2D7 hybrid), *37, *38, *39, *40, *41, *42, *43, *44, *45, *46, *47, *48, *49, *50, *51, *52, *53, *54, *55, *56, *57, *58, *59, *60, *61 (CYP2D6-CYP2D7 hybrid), *62, *63 (CYP2D6-CYP2D7 hybrid), *64, *65, *68 (CYP2D6-CYP2D7 hybrid), *69, *70, *71, *72, *73, *74, *75, *81, *82, *83, *84, *85, *86, *87, *88, *89, *90, *91, *92, *93, *94, *95, *96, *97, *98, *99, *100, *101, *102, *103, *104, *105, *106, *107, *108, *109, *110, *111, *112, *113, *114, *115, *116, *117, *118, *119, *120, *121, *123, *124, *125, *126, *128, *129, *130, *132, *133, *134, *135, *136, *137, *138, *140, *141, *142, *143, *144, *145, and copy number variations.
CYP3A5	*1 (reference), *3, *6, *7, *8, *9
CYP4F2	*1 (reference), *2, *3 (V433M)
DPYD	Reference, c.1905+1G>A (*2A), c.1898delC (*3), c.1601G>A (*4), c.1627A>G (*5), c.2194G>A (*6), c.295_298delTCAT (*7), c.703C>T (*8), c.85T>C (*9A), c.2657G>A (*9B), c.2983G>T (*10), c.1003G>T (*11), c.1156G>T (*12), c.1679T>G (*13), c.1129-5923C>G, c.1236G>A (HapB3), c.2846A>T, c.557A>G, c.62G>A, c.496A>G, c.1218G>A, c.1896T>C, c.46C>G, c.61C>T, c.313G>A, c.343A>G, c.451A>G, c.498G>A, c.601A>C, c.632A>G, c.775A>G, c.868A>G, c.929T>C, c.934C>T, c.967G>A, c.1024G>A, c.1057C>T, c.1108A>G, c.1181G>T, c.1180C>T, c.1260T>A, c.1278G>T, c.1294G>A, c.1314T>G, c.1349C>T, c.1358C>G, c.1403C>A, c.1475C>T, c.1484A>G, c.1519G>A, c.1543G>A, c.1577C>G, c.1615G>A, c.1682G>T, c.1775G>A, c.1774C>T, c.1777G>A, c.1796T>C, c.1905C>G, c.1906A>C, c.1990G>T, c.2021G>A, c.2161G>A, c.2186C>T, c.2195T>G, c.2279C>T, c.2303C>A, c.2336C>A, c.2482G>A, c.2582A>G, c.2623A>C, c.2639G>T, c.2656C>T, c.2872A>G, c.2915A>G, c.2921A>T, c.2933A>G, c.2978T>G, c.2977C>T, c.3049G>A, c.3061G>C, c.3067C>A, c.525G>A, c.1371C>T
NAT2	*4 (reference), *5, *6, *7, *10, *11, *12, *13, *14, *17, *18, *19, *20, *21, *22, *23, *24, *25
NUDT15	*1 (reference), *2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *13, *14, *15, *16, *17, *18, *19, *20
TPMT	*1 (reference), *2, *3A, *3B, *3C, *4, *5, *6, *7, *8, *9, *10, *11, *12, *13, *14, *15, *16, *17, *18, *19, *20, *21, *22, *23, *24, *25, *26, *27, *28, *29, *30, *31, *32, *33, *34, *35, *36, *37, *38, *39, *40, *41, *42, *43, *44
UGT1A1	*1 (reference), *6, *27, *28, *36, *37, *80, *80+*28, *80+*37
VKORC1	Reference, rs9923231 (-1639G>A)
SLCO1B1	*1 (*1A, reference), *37 (*1B), *2, *3, *4, *5 (521C), *6, *7, *8, *9, *10, *11, *12, *13, *14, *15 (521C), *16, *19, *20, *23, *24, *25, *26, *27, *28, *29, *30, *31, *32, *33, *34, *36

Limitations for the above genes

Orthogonal confirmation may be required for the *CYP2D6* gene if a tandem duplication is identified involving *36 and *10 alleles, and/or to verify phasing of variants in complex alleles (eg, *7 = *5+*6 in *CYP2D6*).