

**Supplementary Table 1**

<b>Subgroup</b>	<b>Genes</b>
Tyrosine Kinase Domain Receptors	<i>ABL1, ABL2, ALK, EPHA2, EGFR, ERBB2, ERBB4, FGFR1, FGFR2, FGFR4, FLT1, FLT3, IGF1R, KDR, KIT, MET, PDGFRA, PDGFRB, RET</i>
Tyrosine Kinase Domain Receptor Interacting Proteins	<i>SMAD1, SMAD2, SMAD3, SMAD4, SMAD5, SMAD8, SRC</i>
Hormone Receptor Related Proteins	<i>AR, ESR1, ESR2, PGR, THRA, THRB</i>
RAS pathway	<i>ARAF, BRAF, HRAS, RAF1, KRAS, MAP2K1, MAP2K2, MAP2K3, MAPK1, MAPK3, NRAS</i>
PI3K/AKT/mTOR pathway	<i>AKT1, AKT2, AKT3, INPP4A, INPP4B, MTOR, PIK3CA, PTEN, RAPTOR, RICTOR, STK11</i>
$\beta$ -catenin pathway	<i>APC, AXIN1, AXIN2, CTNNB1, NOTCH1, WNT</i>
Sonic/Hedgehog pathway	<i>DYRK1, GLI1, GLI2, GLI3, GSK3A, GSK3B, PRKACA, PRKACB, PTCH1, PTCH2, SHH, SMO, SUFU</i>
JAK pathway	<i>JAK1, JAK2, JAK3</i>
Drug import and metabolism	<i>DPYD, SLC28A1, SLC29A1, TYMS</i>

---

DNA Damage Repair	<i>ATM, BARD1, BRCA1, BRCA2, BRIP1, CHEK2, ERCC1, ERCC2, ERCC3, ERCC4, ERCC5, ERCC6, ERCC8, MLH1, MRE11, MSH2, MSH6, MUTYH, PALB2, PARP1, PARP2, POLE, POLD, PMS2, RAD50, RAD51C, UIMC1, XRCC1, XRCC2, XRCC3, XRCC4, XRCC5, XRCC6</i>
Cell Cycle	<i>ANAPC2, CCND1, CCNE1, CDC25A, CDC34, CDK4, CDKN1B, CDK5RAP1, CDK6, CDKN3, CUL1, CUL2, CUL3, E2F1, RB1, SKP2</i>
Others	<i>CDH1, EPCAM, LCK, MAP2K4, MYC, SPARC, TP53, YES1</i>

---