# Hereditary Cancer Panel (154 cancer-related genes)

**Genes:**

ABRAXAS1, AIP, AKT1, ALK, ANKRD26, APC, ATM, ATR, AXIN2, BAP1, BARD1, BLM, BMPR1A, BRCA1, BRCA2, BRIP1, BUB1B, CASR, CDC73, CDH1, CDK4, CDKN1B, CDKN1C, CDKN2A, CEBPA, CEP57, CHEK2, CTC1, CTNNA1, CTRC, CYLD, DDB2, DDX41, DICER1, DIS3L2, DKC1, EGFR, EGLN1, ELANE, ENG, EPCAM, ERCC1, ERCC2, ERCC3, ERCC4, ERCC5, EXO1, EXT1, EXT2, EZH2, FAN1, FANCA, FANCB, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, FH, FLCN, GALNT12, GATA2, GEN1, GPC3, GREM1, HOXB13, HRAS, IKZF1, KIF1B, KIT, LZTR1, MAX, MBD4, MEN1, MET, MITF, MLH1, MLH3, MRE11, MSH2, MSH3, MSH6, MUTYH, NBN, NF1, NF2, NHP2, NOP10, NTHL1, PALB2, PALLD, PAX5, PDGFRA, PHOX2B, PIK3CA, PMS2, POLD1, POLE, POLH, POT1, PRKAR1A, PRSS1, PTCH1, PTCH2, PTEN, RAD50, RAD51C, RAD51D, RB1, RECQL, RECQL4, REST, RET, RHBDF2, RNF43, RPS20, RUNX1, SAMD9L, SBDS, SDHA, SDHAF2, SDHB, SDHC, SDHD, SLC45A2, SLX4, SMAD4, SMARCA4, SMARCB1, SMARCE1, SPINK1, SRP72, STK11, SUFU, TERC, TERT, TGFBR1, TINF2, TMEM127, TP53, TRIP13, TSC1, TSC2, TYR, VHL, WRAP53, WRN, WT1, XPA, XPC, XRCC2 **( 154 genes )**

**Gene Specifics:**

| Gene | Notes |
|---|---|
| GALNT12 | Due to high GC content, copy-number variants located in exon 1 of the GALNT12 gene (NM_024642.4) cannot be reliably detected and will not be reported. |
| MSH2 | Inversion of MSH2 exons 1-7 ("Boland" inversion) is assessed for Lynch Syndrome, Colorectal, Endometrial, and all other hereditary cancer panel testing. |
| PIK3CA | Because the vast majority of PIK3CA pathogenic variants arise postzygotic and are thus mosaic, more than one tissue may need to be tested. Failure to detect a PIK3CA pathogenic variant does not exclude a clinical diagnosis of the PIK3CA-associated segmental overgrowth disorders in individuals with suggestive features (PubMed: 23946963). |