

**Appendix S1**

**Next-generation sequencing: list of the 95 genes.**

AKT1, ALK, APC, ARID1A, ASXL1, ATM, BAP1, BBS9, BRAF, BRCA1, CARD11, CASP8, CCND1, CCND3, CCNE1, CDK4, CDKN2A, CIC, COBLL1, CTNNB1, CYLD, DCLK1, DCLRE1A, E2F3, EGFR, EIF2D, ERBB2, ERBB4, FAT1, FBXO21, FBXW7, FGFR2, FGFR3, FHIT, FUBP1, GATA3, GLI1, GLI2, GLI3, HRAS, JUB, KIT, KMT2C, KMT2D, KNSTRN, KRAS, LATS1, LATS2, LEF1, MAP2K1, MAP3K1, MET, MMP2, MSH2, MYCN, NF1, NFE2L2, NOTCH1, NOTCH2, NOTCH3, NOTCH4, NRAS, OPN3, PARD3, PDGFRA, PEG10, PIK3CA, PIK3CG, PPIAL4G, PPP6C, PRKACA, PTCH1, PTEN, PTPN14, RAC1, RASA1, RB1, RBM46, RIPK4, RPL22, SEC31A, SMAD4, SMAD9, SMO, SNX25, STAG2, STK19, SUFU, TERT, TGFBR1, TP53, TRAF7, TSC1, VEGFA, ZNF644