### Supplementary Table 3. List of genes tested. Hotspot genes (n = 87), Full length (exon only) (n=48), CNV (n=43), Fusion drivers (n=51; highlighted in blue) partners (n=348). Note: Genes can be present in more than one category but only counted once in 505 gene total count.

| Hotspot | Full length (exon only) | CNV | Fusions |
|---------|-------------------------|-----|---------|
| AKT1    | FGFR4, MED12, SRC       | AKT1, CNV, MDM2 | A2M, CREB5, LSM12, RB1, ASC2, ESR1, NACC2, SUMAP, BTA1, GABRR2, OPHN1, TMRPR55, CEL, KANK1, PPP4R3B, VOP1P |
| AKT2    | FLT3, MET, STA3         | AKT2, MDM4 | ABCB5, CTNBP1, LSM14A, RBM35, ATAD2, ESRR1, NAVI, SND1, BTBD1, GATM, OXR1, TNIP1, CEPR5L, KANK2, PRKACA, WASF2 |
| AKT3    | FOXL2, MTO, TERT        | AKT3, MET | ACACA, CUL1, LYN, RPMP5, ATAD5, ET1V, NCOAI, SNG8, BTF3L4, GFPT1, PAPF7, TNS52, CEPS9, KCCNQ5, PRKACB, WDR48 |
| ALK     | GATA2, MYC, TOP1, ATRX, POL2 | ALK, MYC, AR | ACADM, CLX1, MACF1, RELA, AT1P9, ET4V, NCOA4, SMX9, CL14OR95, GHR, RAPPS1, TP53, CHD9, KCDT1, PRKAR1A, KHSCL2 |
| AR      | GNA11, MYCN, U2AF1, BAP1, PTCH1 | AR, MYC, BRCa1, PTEN | ACDB5, DAB2, MDF2, ROR, CE1T, ET6V, TOX2E, C70F73, GT2, PARK2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| ARAF    | GNAQ, MYQ8D8, XPO1, BRCa1, PTEN | ARAF, GNAQ, MYCN | A3G5, D3T1, MCFD1, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| AXL     | GNAS, FE2L2, BRCa2, RAD50 | Axl, RAFN1, TERT | ADAM32, D3M, MCFD2, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| BRAF    | H3F3A, NRAS, CDK12, RA5D1, CCND1, NTRK2, CDKN1B, RAD51B, CDK2, PI3KCA | BRAF, NTRK1, CHK1 | ADAMTS5, PI3C2, MDM4, RNFL33, ATRNL1, FAM11, NFASC, ESPECL1, CAD, GNS, PHD4, TP4, AM4, CT, KDR, XPD, YWHA |
| BTK     | HSTI1H3B, NTRK1, CDK11B, RAD51B, RAD51C | BTK, CDK1 | AES, DYNAB1, MEMO1, ROS1, AXL, VAMP2, BICD2, SRC | AGPAP2, DYN2, B3RP2, MCD2, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| CBL     | HNF1A, NTRK2, CDK2A, RAD51C, CDKN3, DIFRA | CBL, CDK1 | AFA1, D1T1, MET, RP2, BAG1L3, FA1, RNFL33, ATRNL1, FAM11, NFASC, ESPECL1, CAD, GNS, PHD4, TP4, AM4, CT, KDR, XPD, YWHA |
| CCND1   | HRAS, NTRK3, CDKN2B, RAD51D, CDK2, PI3KCA | CCND1, PI3KCA | AFF3, DYM, MGEA5, RNFL33, ATRNL1, FAM11, NFASC, ESPECL1, CAD, GNS, PHD4, TP4, AM4, CT, KDR, XPD, YWHA |
| CDK4    | IDH1, PI3FRA, CHEK1, R81, CDK4, PI3KCA, CDK4, PI3KCA | CDK4, PI3KCA | AGP3, DYN2, B3RP2, MCD2, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| CDK6    | IDH2, PI3FRA, CREBBP, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| CHEK2   | JAK1, PI3KCA, FANCA, SETD2 | CHEK2 | AGP3, DYN2, B3RP2, MCD2, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| CSF1R   | JAK2, PI3KCA, FANCD2, SX4, EGF, RICTOR | CSF1R, JAK2, PI3KCA | AGK, EGF, RAFI, P3FRA, S3FRA, RNFL33, ATRNL1, FAM11, NFASC, ESPECL1, CAD, GNS, PHD4, TP4, AM4, CT, KDR, XPD, YWHA |
| CTNB1   | JAK3, PPP2R1A, FANCA, SMARCA4, C8orf34, GTF2I, BRCA1, BCR | C8orf34, GTF2I | AGTR1, RAFI, P3FRA, S3FRA, RNFL33, ATRNL1, FAM11, NFASC, ESPECL1, CAD, GNS, PHD4, TP4, AM4, CT, KDR, XPD, YWHA |
| DDR2    | KDR, PTPNL1, FBXW7, SMARCB1, ESR1 | DDR2, KDR, PTPNL1 | AHCV1L, ELAV3, MNS, SDCAG3, BCR, FGFR2, NRG1, TACCI, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |
| ERG     | KIT, RAC1, MAH1U, STK1 | ERG, KIT | AKAP12, EML4, MDFD1, SECON, 16B5, FGR, ENS16, BINS, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |
| ERBB2   | KSTRN, RAF1, MRE181A, TP53 | ERBB2 | AKAP13, EPHB2, MM1, SEC31A, BCC, FGR, NTM, TANK, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |
| ERBB3   | KRAS, RET, MSH2, TSC1 | ERBB3 | AKAP9, EP5L5, MYB, SEC61G, B2D2, FGR11, NT1K1, TAX1BP1, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |
| ERBB4   | MAGOH, PHEB, MSH6, TSC2 | ERBB4 | AKT2, ERBB2, MYB11, SHROOM, BEN2, FGFR15, NT1K2, TBX3R1, CCNY, MLA, PUN3, TWXNA |
| ERCC2   | MAPK1, RHOA, NBN | ERCC2 | ALK, ERBB4, MYH9, STNH, RB6, EGF, FL3, NTRK3, TNEM4, CDC6, HMG2A2, POL2, TMYK |
| ESR1    | MAPK2, ROS1, N1F, FGFR1, FL3 | ESR1 | AP3, ERC1, MYH9, SLCD27, RAF, FN1, NUB1, TERT2, CD47, HOMER1, PPARG, UBE2L3 |
| EZH2    | MAPK4, SF3B1, N2F | EZH2 | AR, ERYG, MYOA, SCC6, BRCA3, RNFL, 1ATP, 1ET6, TOX2E, TOX2E, C70F73, GT2, TP53BP2, CHTOP, KCDT7, PKRG2, WIPF2 |
| FGFR1   | MKP1, SMAD4, NOTCH1, GFR | FGFR1 | ARHG, ERLN2, MY5OA, SACC4, RA2B, FOPX1, NUP214, TFG, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |
| FGFR2   | MAX, SMO, NOTCH2, KIT | FGFR2 | ARG, MYOA, SW2, SACC4, RA2B, FOPX1, NUP214, TFG, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |
| FGFR3   | MDM4, SPDP, NOTCH3 | FGFR3 | AMAK, ERK3, LMT2, SACC4, RA2B, FOPX1, NUP214, TFG, CDC6, GTF32, POD1, TRP11, COX5A, LMNA, RAD18, ZNF703 |