**Supplementary Table S2.** Gene list of the customized NGS panel

| Gene   | Gene   | Gene   | Gene   | Gene   | Gene   | Gene   | Gene   | Gene   | Gene   |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ABL1   | BRAF  | CSF1R  | ETV4   | FGFR4  | JAK2   | MTOR   | PIK3CA | RET    |        |
| AKT1   | BRCA1 | CTNNB1 | ETV5   | FLT3   | JAK3   | MYC    | PIK3CB | ROS1   |        |
| AKT3   | BRCA2 | DDR2   | EZH2   | FOXL2  | KDR    | MYCN   | PIK3R1 | RUNX1  |        |
| ALK    | CCND1 | EGFR   | FANCA  | GNA11  | KIT    | NOTCH1 | POLD1  | SMAD4  |        |
| APC    | CDH1  | EMSY   | FANCC  | GNAQ   | KRAS   | NPM1   | POLE   | SMARCB1|        |
| AR     | CDK4  | ERBB2  | FANCF  | GNAS   | MAP2K1 | NRAS   | PPARG  | SMO    |        |
| ATM    | CDK6  | ERBB3  | FANCG  | HNF1A  | MAP2K2 | NTRK1  | PTEN   | SRC    |        |
| ATR    | CDKN2A| ERBB4  | FBXW7  | HRAS   | MAP2K4 | NTRK2  | PTPN11 | STK11  |        |
| AXL    | CEBPA | ERG    | FGFR1  | IDH1   | MET    | NTRK3  | RAD51C | TP53   |        |
| BAP1   | CHEK1 | ESR1   | FGFR2  | IDH2   | MLH1   | PALB2  | RAF1   | VHL    |        |
| BARD1  | CHEK2 | ETV1   | FGFR3  | JAK1   | MPL    | PDGFRA | RB1    | WT1    |        |
|        |       |        |        |        |        |        |        |       | (Translocation) |

NGS, next-generation sequencing.