**Supplementary Table 1. Several founded mutations in different solid tumor types**

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| **TUMOR TYPE** | **GENE** | **MUTATION** |
| BREAST | *ABL1* | (G269R) |
|  | *JACK2* | (V617F) |
|  | *AKT1* | (E17K) |
|  | *TP53* | (Y205S) (Y220C) (S241P) (Q38\*) (H179R) (E285K) (G244D) (F134C) (c.919 + 1G > T) (R248Q) (I232F) (Y220C) (R248Q) (R273H) (V216M) |
|  | *CDKN2A* | (D108N) |
|  | *PTEN* | (N323fs) |
|  | *BRCA2* | (Q969\*) |
|  | *GNAQ* | (Q209R) |
|  | *MSH6* | (E1187\*) |
|  | *SF3B1* | (K700E) |
|  | *ROS1* | (R2039C) |
| LUNG | *NF2* | (c.1737 + 3A > G) |
|  | *JACK2* | (V617F) |
|  | *CTNNB2* | (S33F) |
|  | *BRAF* | (V600E) |
|  | *KRAS* | (G13C) (G12V) |
|  | *TP53* | (M246R) (R273C) (P151A) (V157F) (R158L) (R273C) |
|  | *SMAD4* | (R361C) |
|  | *GNAS* | (R201H) |
| OVARIAN | *MAP2K1* | (F129L) |
|  | *KRAS* | (G12A) |
|  | *TP53* | (S183\*) (R273C) (T125M) (V272M) (H193D) (P151H) (R175H) (N235D) (R248Q) |
|  | *ESR1* | (Y537S) (D538G) |
|  | *BRCA2* | (Q969\*) |
| COLORECTAL | *APC* | (E1309fs) |
|  | *BRAF* | (V600E) |
|  | *KRAS* | (G12V) |
|  | *AKT1* | (E17K) |
|  | *TP53* | (Y234\*) |
|  | *GNAS* | (R201H) |
| PANCREATIC | *IDH2* | (R140Q) |
|  | *KRAS* | (G12V) (G12D) |
|  | *TP53* | (R273C) (I255T) (G245S) (R175C) (R248Q) |
| PROSTATIC | *NF2* | (A464V) |
|  | *NFE2L2* | (E79K) |
|  | *AR* | (L702H) (H875Y) |
|  | *PIK3CA* | (E542K) |
|  | *TP53* | (R248Q) (C238F) |
|  | *BRCA2* | (Q969\*) |
|  | *PMS2* | (N775S) |
|  | *ROS1* | (Y2092C) |
| UTERINE | *CTNNB1* | (S33C) |
|  | *PIK3CA* | (R88Q) |
|  | *TP53* | (Q331fs) (L35fs) (R273C) |
| RETINOBLASTOMA | *PTEN* | (F341L) |
|  | *SMAD4* | (R361C) |
| CHOLANGIOCARCINOMA | *TP53* | (T150fs) (E285K) (E271Q) |
| GASTRIC | *TP53* | (V216fs) (H356R) (R175H) |
| SARCOMA | *NRAS* | (G12S) |
|  | *PIK3CA* | (R93W) |
|  | *TP53* | (C277R) (R273C) (R175H) |
|  | *MLH1* | (R385H) |
| ORAL | *TP53* | (R273C) |
|  | *KEAP1* | (R116W) |
| PHARYNX | *KEAP1*  *TP53* | (R116W)  (V203L) |
| LARYNX | *TP53* | (P152L) |
| WILMS | *TP53* | (c.559 + 1G > A) |
|  | *PTEN* | (N323fs) |
|  | *ESR1* | (V392I) |
| GLIOBLASTOMA | *PIK3CA* | (E545A) |

The asterisk is used in the gene nomenclature to indicate a stop mutation.