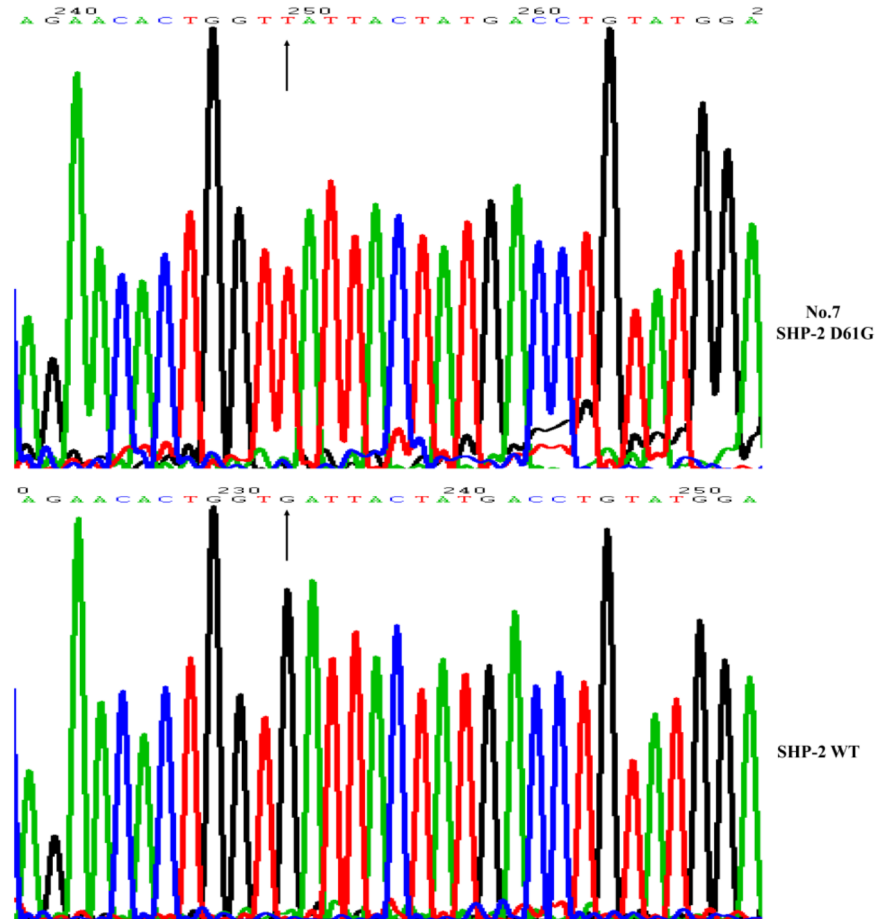
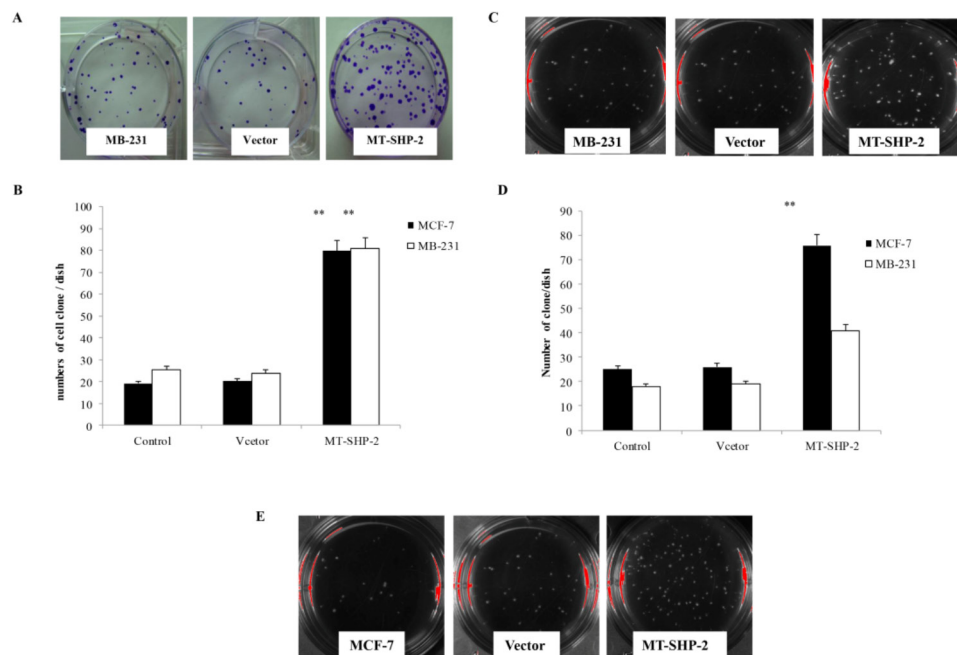


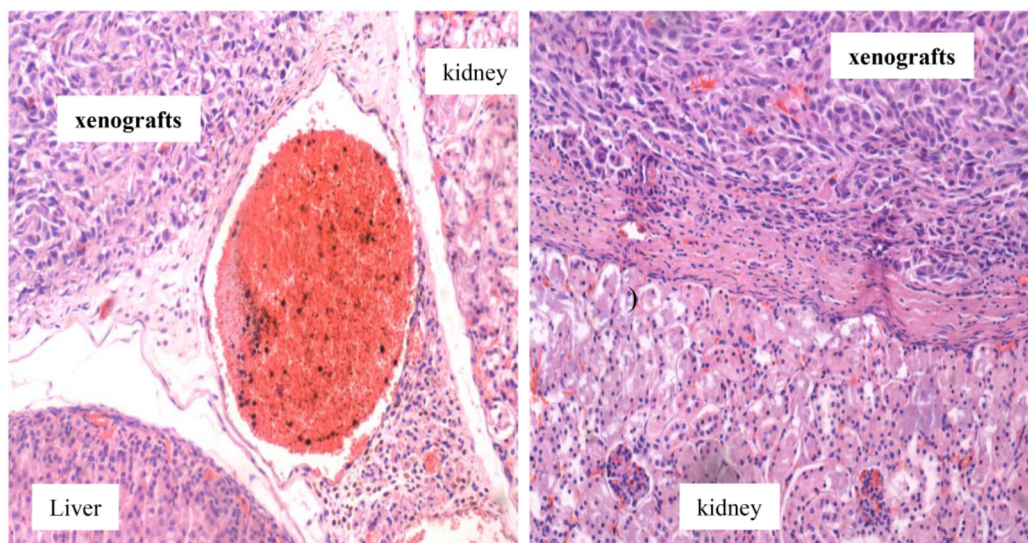
SUPPLEMENTARY FIGURES



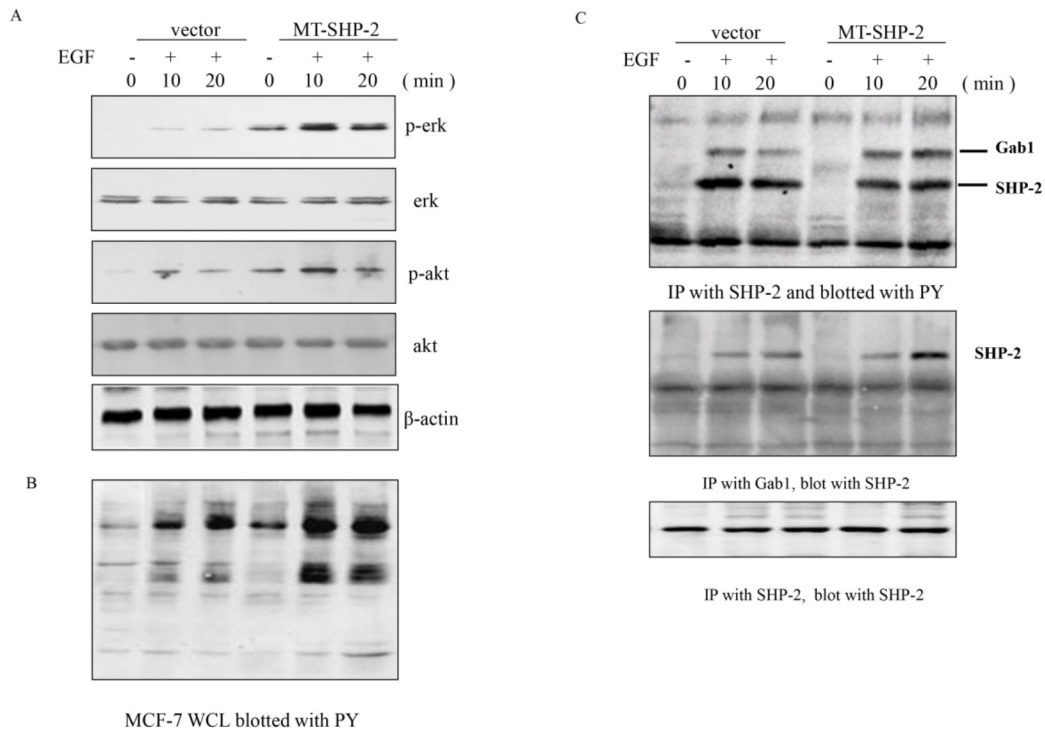
**Supplementary Figure S1: Sequencing of SHP2 expression in MB-23 cell line.** Transfection was confirmed by the DNA sequencing of selected clones (upper panel) and a comparison of their sequences with that of SHP2 in the wild-type control (lower panel).



**Supplementary Figure S2: PTPN11 mutation enhances colony formation and growth in soft agar of breast cancer cells.** **A.** Colony formation assay of normal, vector control, and SHP2 D61G mutant MB231 cells. **B.** Positive clone counts for MB-231 and MCF-7 cells, respectively. **C.** and **E.** Anchorage-independent growth of MB-231 (**C**) and MCF-7 cells in soft agar was measured by colony growth assay (**E**). (**C**) The counting of clones of both MCF-7 and MB-231 (**D**) cells. The data are presented as the mean  $\pm$  SD of triplicate samples. All experiments were performed three times independently,  $*p < 0.05$ .



**Supplementary Figure S3: Histological evaluation of the metastasis of breast tumours formed in abdominal cavity.** The microphotograph shows metastatic carcinoma nodes in the kidneys, livers, and abdominal cavities of mice implanted with SHP2 D61G-MB231 cells.



**Supplementary Figure S4: PTPN11 mutation increases the binding between Gab1 and SHP2 in MCF-7 cells.** **A.** The activation of p-Erk and p-Akt was compared between normal and mutant MCF-7 cells by western blotting. PY activation was detected using WCLs from SHP2 mutant cells. **B.** and **C.** Immunoprecipitation assay was performed to assess the interaction between Gab1 and SHP2. The data are presented as the mean  $\pm$  SEM ( $n = 6/\text{group}$ )  $*p < 0.05$ .