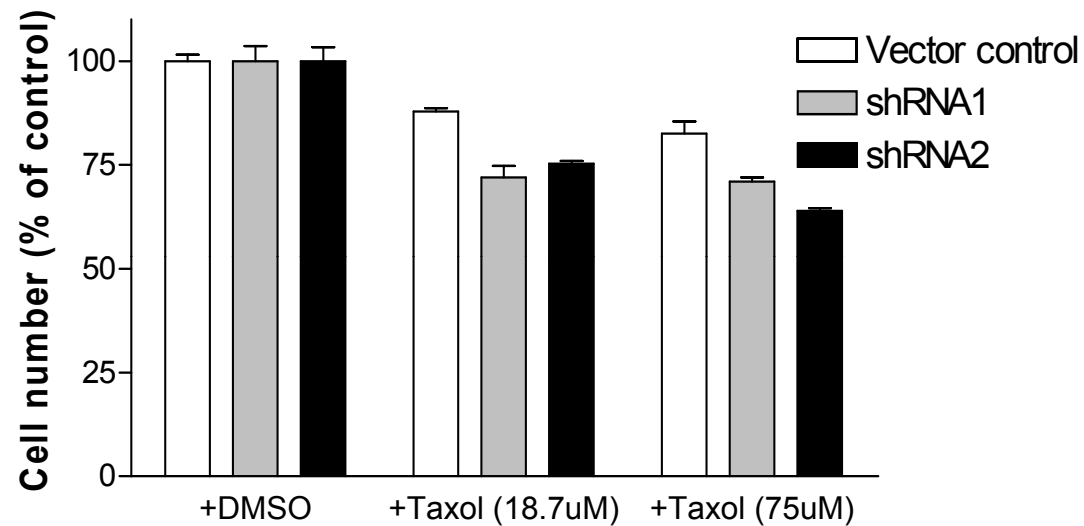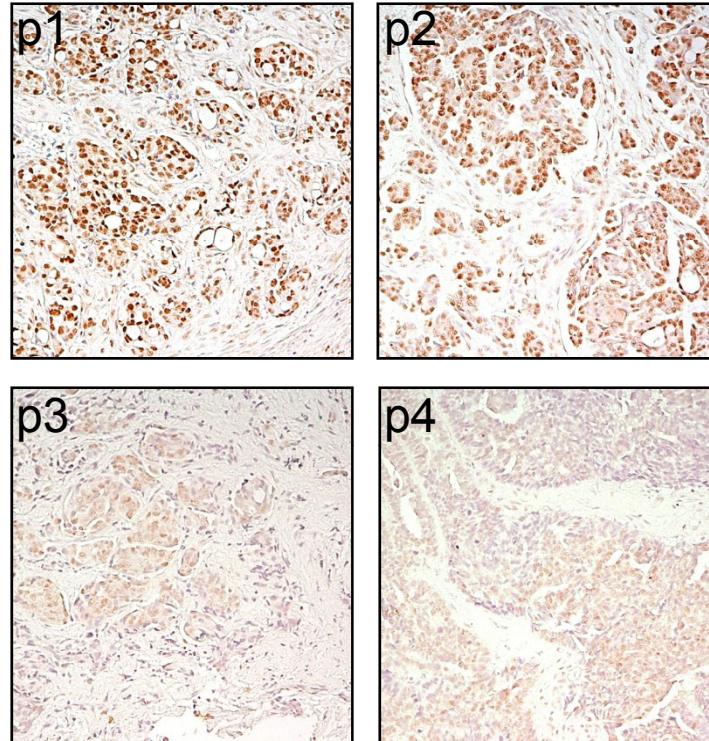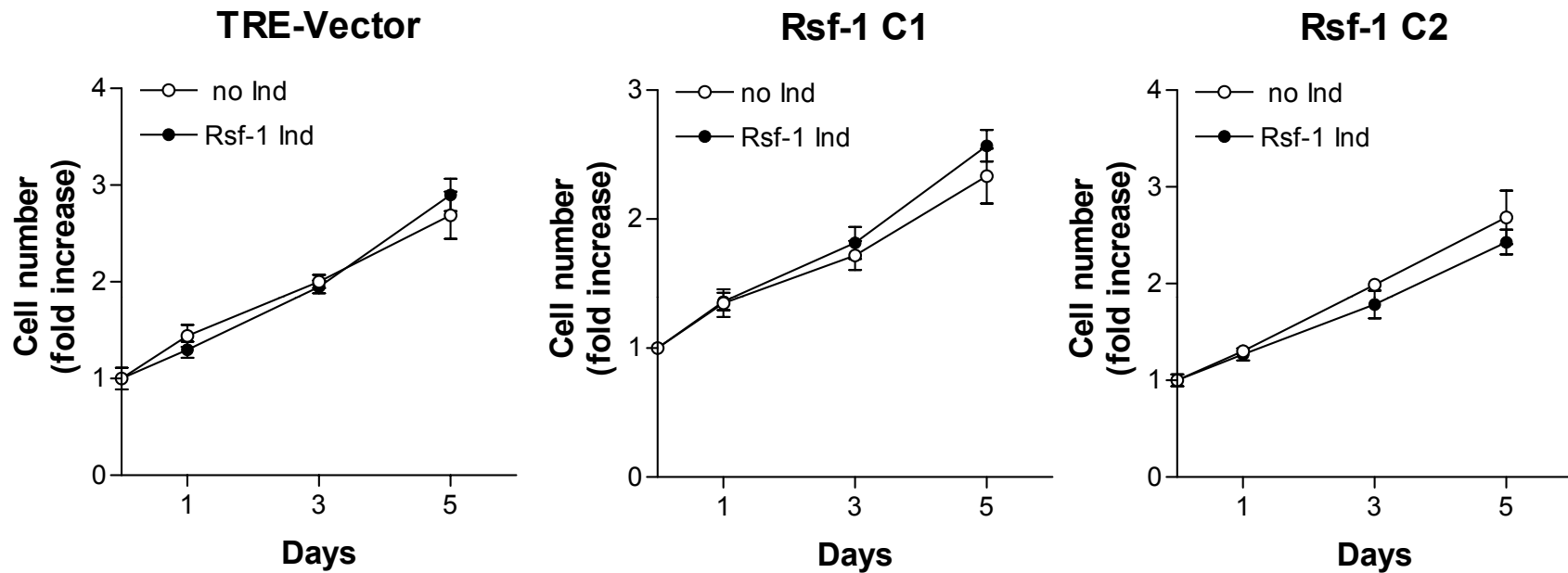**Supplementary Fig. 1**. Effect of gene knockdown in Pak1, ALG8, Gab2, CLNS1A, INT, and Rsf-1 on cell growth in OVCAR3 cells. Cell number was measured at both day 1 and day 4 after shRNA transfection. Both shRNAs targeting Rsf-1 show the most remarkable growth inhibitory effects.
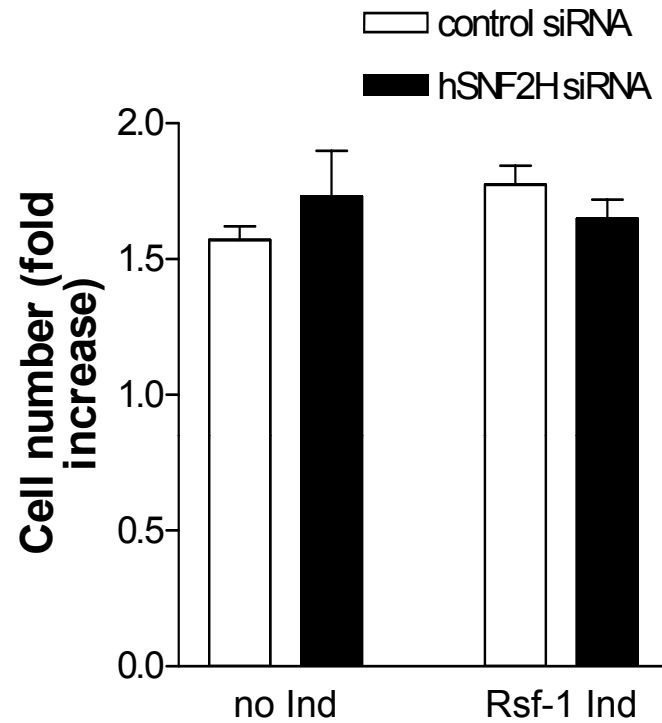
Supplementary Fig. 2. Effect of Rsf-1 shRNAs on paclitaxel sensitivity in paclitaxel-resistant SKOV3[TR] cells. The data (cell number) in paclitaxel treated groups was expressed as the percentage of control cells in medium containing DMSO (without paclitaxel).

Supplementary Fig. 3. Intense Rsf-1 immunoreactivity is detected in two representative ovarian carcinoma tissues from patient 1 (p1) and patient 2 (p2) whose tumors showed extreme drug resistance to paclitaxel. In contrast, weak Rsf-1 immunointensity is observed in two representative tumors from the patient 3 (p3) and patient 4 (p4) whose tumors showed low drug resistance to paclitaxel.

Supplementary Fig. 4. Effect of Rsf-1 expression on cell growth. The TRE-vector only control cells demonstrate a similar growth rate between mock induction (without doxycycline) group and non-induction (with doxycycline) group. Similarly, the growth curves between Rsf-1 induced and non-induced SKOV3 clones (C1 and C2) are close to each other and the two groups of cells show no statistically significant difference in cell proliferation.

Supplementary Fig. 5. Effect of hSNF2H siRNA on cell growth in SKOV3 cells. hSNF2H siRNA does not have a significant effect on cell proliferation in either Rsf-1 induced or non-induced control SKOV3 cells.