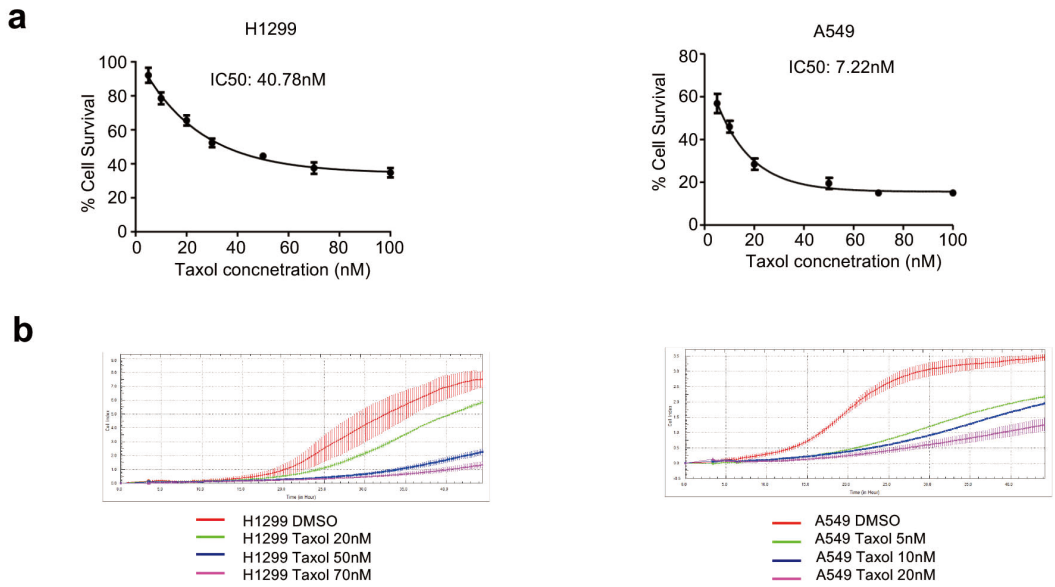
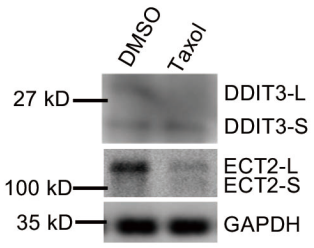
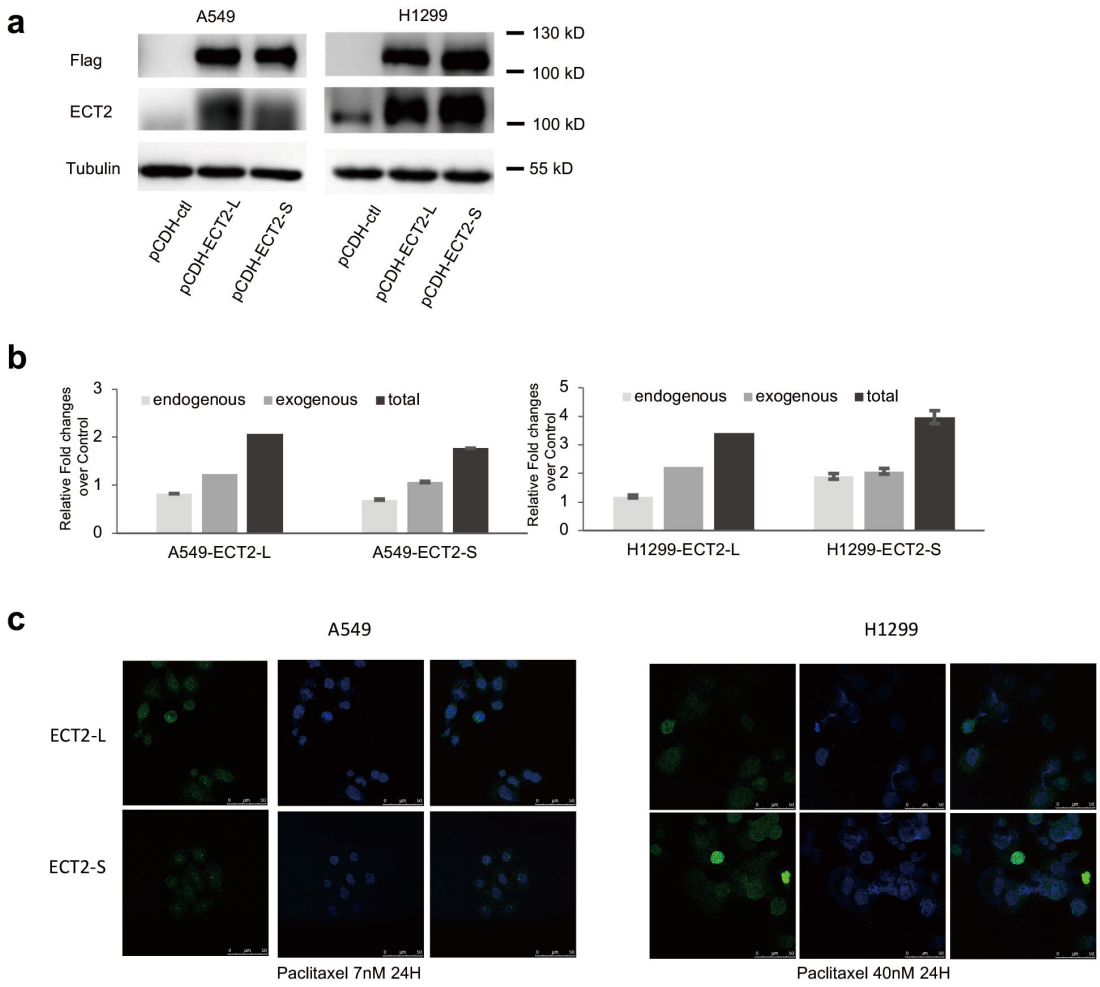
## Supplemental Figures and Table



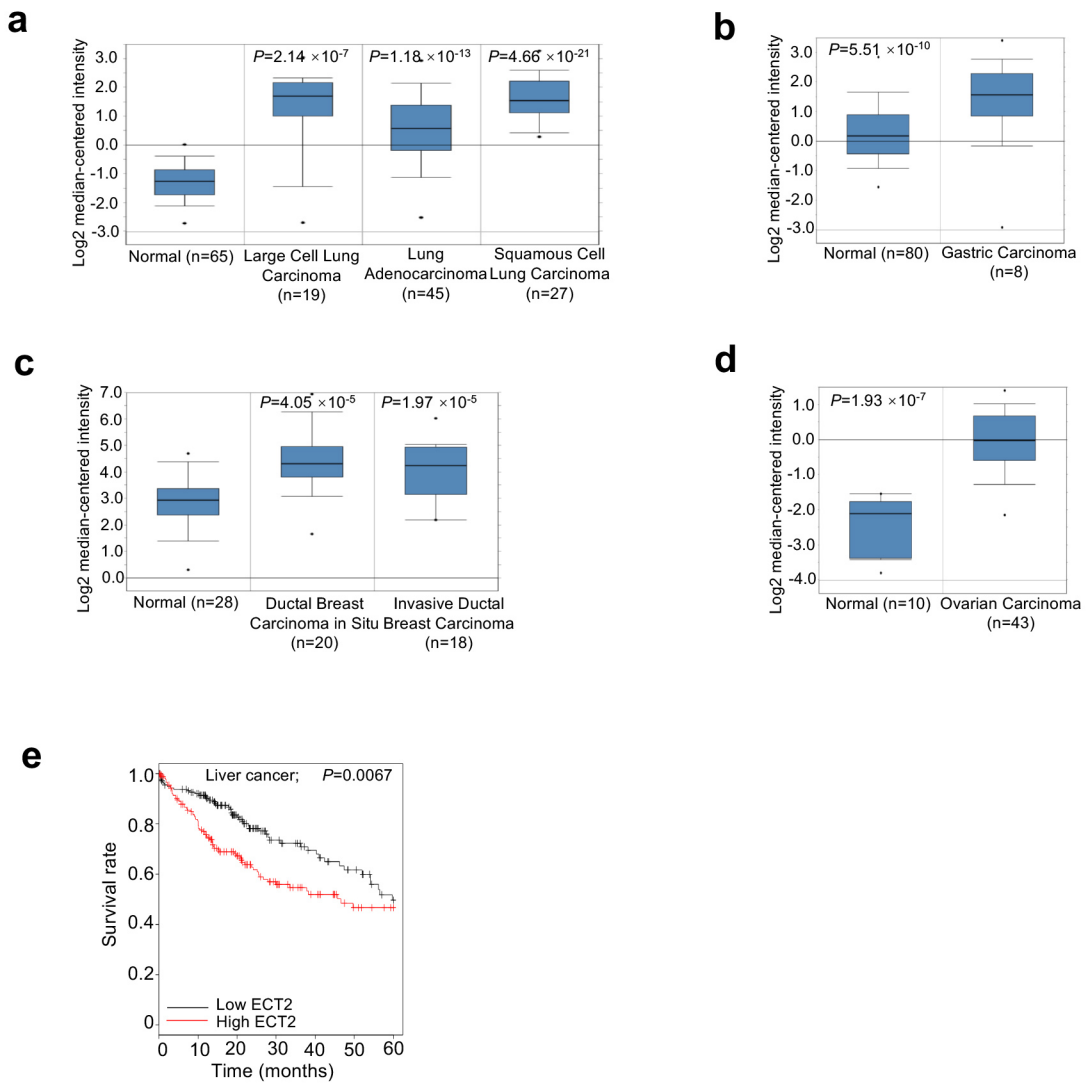

**Supplemental Figure 1. The effects of paclitaxel on lung cancer cell viability and migration.** (a) A549 and H1299 cells were treated with gradient concentration Paclitaxel at 0, 5, 10, 20, 50, 70, 100nM, and cell viability was tested by MTT assay 24,48h after treatment. The relative cell viability represents a ratio of Paclitaxel treatment versus control. IC50 were calculated using Graphpad Prism6. (b) Cell migration of A549 and H1299 cells was measured by RTCA assay after Paclitaxel (5, 10, 20nM) and (20, 50, 70nM) respectively for 24h.




**Supplemental Figure 2. The splicing changes of DDIT3 and ECT2 at protein levels.** When treated with DMSO control or taxol, the splicing changes of DDIT3 and ECT2 were determined by western blot using anti-DDIT3 and anti-ECT2 antibodies.




**Supplemental Figure 3. The localization of ECT2-L and ECT2-S.** (a) A549 and H1299 cells with stable expression of ECT2-L or ECT2-S were generated. Protein levels of exogenous and endogenous ECT2 were examined by western blot analysis using anti-Flag and anti-ECT2 antibodies. (b) Different primers were utilized for realtime PCR to show exogenous, and total expression levels of ECT2 in the cells. The endogenous level of ECT2 was calculated by subtracting exogenous from the total level of ECT2. The mean and SD of relative fold changes from triplicate experiments were plotted. (c) The localization of ECT2-L and ECT2-S was identified by Immunofluorescence with Flag antibody in Paclitaxel treated cells.




**Supplemental Figure 4. The expression level and survival correlation of ECT2-L in multiple cancers.** The expression levels of ECT2-L were analyzed in various large scale studies obtained from TCGA dataset, including lung (a), gastric (b), breast (c), and ovarian (d) cancers. (e) Kaplan-Meier curve showing overall survival of patients with liver cancer bearing high or low ECT2-L expression.

Supplemental Table 1: List of primers used in the study.

| Primer# | Name | Sequence | Nots |
|---|---|---|---|
| 1 | FMNL3 AS Fwd | GTGGGTGCGGGAATTTCTGA | The primer pair used for testing SE of FMNL3 |
| 2 | FMNL3 AS Rev | CGTGGACGTCATCCTTCTGG | |
| 3 | ZMIZ2 AS Fwd | CAAGGAGGCCAGTATGCACC | The primer pair used for testing SE of ZMIZ2 |
| 4 | ZMIZ2 AS Rev | CAGTGGGGAACTGGGATAGC | |
| 5 | ECT2 AS Fwd | AGAGGAGTCGGCGTTTGAAG | The primer pair used for testing SE of ECT2 |
| 6 | ECT2 AS Rev | AGAGTCTGCCAAGCTAGTCC | |
| 7 | PLD2 AS Fwd | GATCGAGGACACAGAGACGG | The primer pair used for testing 5'ss usage of PLD2 |
| 8 | PLD2 AS Rev | CAGCCATGTCTTGCCACAAC | |
| 9 | ELF2 AS Fwd | TCTCCTACCTGCTTGAGGGA | The primer pair used for testing 3'ss usage of ELF2 |
| 10 | ELF2AS Rev | ACTCTTCAGTTGACACCTCCAC | |
| 11 | DDIT3 AS fwd | CATACATCACCACACCTGAAAGC | The primer pair used for testing 3'ss usage of DDIT3 |
| 12 | DDIT3 AS Rev | AGTGTCCCGAAGGAGAAAGG | |
| 13 | PLK1 Fwd | TGACTCAACACGCCTCATCC | The primer pair used for testing PLK1 |
| 14 | PLK1 Rev | GCTCGCTCATGTAATTGCGG | |
| 15 | SQSTM1 Fwd | TAGGAACCCGCTACAAGTGC | The primer pair used for testing SQSTM1 |
| 16 | SQSTM1 Rev | CTGGTGGACCCATTTCCCAT | |
| 17 | ATF3 Fwd | TTTTGCTAACCTGACGCCCT | The primer pair used for testing ATF3 |
| 18 | ATF3 Rev | TCTTGTTTCGGCACTTTGCAG | |
| 19 | IL1B Fwd | GGGCCTCAAGGAAAAGAATC | The primer pair used for testing IL1B |
| 20 | IL1B Rev | TTCTGCTTGAGAGGTGCTGA | |
| 21 | SAT1 Fwd | GCAGTGACATACTGCGGCTG | The primer pair used for testing SSAT1 |
| 22 | SAT1 Rev | CGGAGTCCAGTGCTCTTTCG | |
| 23 | SOD2 Fwd | GGCCTACGTGAACAACCTGA | The primer pair used for testing SOD2 |
| 24 | SOD2 Rev | GTTCTCCACCACCGTTAGGG | |
| 25 | AURKA Fwd | CTTCCCAGCGCATTCCTTTG | The primer pair used for testing AURKA |
| 26 | AURKA Rev | TTCCTTTACCCAGAGGGCGA | |
| 27 | CDCA8 Fwd | ACATCTCAGGGAATGGCAGC | The primer pair used for testing CDCA8 |
| 28 | CDCA8 Rev | TGGGCAATACTGTGCCTCTG | |
| 29 | GADD45A Fwd | GTCGGGGTGTACGAAGCG | The primer pair used for testing GADD45A |
| 30 | GADD45A Rev | TTCTCGCAGCAAAACGCCT | |
| 31 | CDKN1A Fwd | TCTTACAAACCGAACTTGGC | The primer pair used for testing CDKN1A |
| 32 | CDKN1ARev | GGCGGTACTGTGAAGACGTT | |
| 33 | FOXM1 Fwd | TGGGGAGGAAATGCCACACTTA | The primer pair used for testing FOXM1 |
| 34 | FOXM1 Rev | TAGGACTTCTTGGGTCTTGGGG | |
| 35 | ECT2 3*FLAG CDS Fwd | CCGGGATCCGCTGAAAATAGTG TATTAACATCC | The primer pair used for cloning ECT2 coding region into pCDH vector with 3* FLAG epitope |
| 36 | ECT2 CDS Rev | CCGGCGGCCGCTCATATCAAA TGAGTTGTAG | |
| 37 | HNRNPUL1 Fwd | AGATGAAGCAAGGAGCACCC | The primer pair used for testing hnRNPUL1 |
| 38 | HNRNPUL1 Rev | CTTGAAGTGGAGGTCGCAGT | |