**PLCH1 overexpression promotes breast cancer progression and predicts poor prognosis through the ERK1/2-EGR1 axis**

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#Equal contribution

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Figure-S1

**Figure S1. PLCH1 knockdown induces cell cycle arrest in breast cancer cells. (A)**. Flow cytometric analysis of cell cycle distribution in BT-474 breast cancer cells treated with control siRNA (Control) or PLCH1-specific siRNAs (si-PLCH1#1 and si-PLCH1#3). **(B)** Quantification of the cell cycle distribution in the G0/G1, S, and G2/M phases.\*, P < 0.05.

Figure S2

**Figure S2. PLCH1 overexpression activates the ERK/EGR1 signaling axis, inhibiting apoptosis and promoting cell cycle progression in breast cancer cells. (A)**. Western blot analysis of PLCH1, Cyclin B1, and CDK1 protein levels in BT-474 breast cancer cells transfected with either the vector (Vector) or the PLCH1 overexpression vector (OE). **(B)** Quantification of PLCH1, EGR1, p-ERK/ERK, Bcl-2/BAX, CDK1, and cyclin B1 protein levels based on Western blot results. \*, P < 0.05. \*\*, P < 0.01. \*\*\*, P < 0.001.

**Figure S3Figure S3. (A)**. Western blot analysis of PLCH1, and E-cadherin protein levels in BT-474 breast cancer cells treated with control siRNA (Control) or PLCH1-specific siRNAs (si-PLCH1#1 and si-PLCH1#3). **(B)** Quantification of PLCH1, and E-cadherin protein levels based on Western blot results. ns, difference is not significant.

Figure-S4

**Figure S4. PLCH1 knockdown does not affect the migration and invasion abilities of breast cancer cells. (A and C)**. Wound scratch assay and Transwell invasion assay were employed to assess the effect of PLCH1 knockdown on the migration and invasion capabilities of BT-474 cells. **(B and D)** Quantification of cell scratch closure rate and the number of invading cells. ns, difference is not significant. \*, P < 0.05. \*\*, P < 0.01. \*\*\*, P < 0.001.

Figure S5

**Figure S5. PLCH1 knockdown enhances the sensitivity of breast cancer cells to cisplatin.** CCK-8 assay was performed to evaluate the impact of PLCH1 knockdown on the sensitivity of BT-474 cells to cisplatin (CDDP). \* P < 0.05, \*\* P < 0.01, \*\*\*\* P < 0.001.