

515 **SUPPLEMENTARY TABLES**

Supplementary Table 1. Serum β -hCG and ultrasound findings in the EPL cohort.

Note: Parentheses represent time of ultrasound and β -hCG relative to time of ECS, with minus

520 (-) representing time before ECS and positive (+) representing time after ECS.

Abbreviations: ECS=endocervical sample, FH=fetal heart tone, FP=fetal pole, GS=gestational sac, USG=ultrasound, w=weeks, d=days.

Supplementary Table 2. Sources of antibodies used in this study.

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SUPPLEMENTARY FIGURES

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Supplementary Figure 1. Antibody Titration. Titration was implemented by serial dilution of antibodies in order to calculate the optimal concentration and to ensure the linearity of fluorescence signals. 5 μ g/ml was determined as the optimal concentration of all antibodies.

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Supplementary Figure 2. Expression of β -hCG in cells isolated by TRIC. Cells labeled with anti- β -hCG were examined by immunofluorescence microscopy. (A) β -hCG visualize using secondary antibody conjugated with to FITC (green). (B) Matching field of nuclei counterstained with DAPI (blue). (C) Overlay of FITC and DAPI. Size bar is 100 μ m.

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| EPL Patient | GA at time of ECS | EPL known at time of ECS | USG findings | β-hCG |
|--------------------|--------------------------|---------------------------------|---------------------|------------------|
| A | 5w6d | Yes | + FP, -FH (-1d) | 7,925 (-1d) |
| B | 8w | Yes | Empty GS (-1d) | 66,290 (-1d) |
| C | 6w5d | Yes | Empty GS (-1d) | 27,970 (-1d) |
| D | 7w4d | Yes | Empty GS (-7d) | 20,383 (-7d) |
| E | 7w2d | Yes | + FP, - FH (-1d) | N/A |
| F | 7w5d | Yes | Empty GS (-7d) | 16 (0) |
| G | 7w5d | Yes | Empty GS (-2d) | 44,753 (-2d) |
| H | 8w | Yes | + FP, -FH (-1d) | 17,024 (-4d) |
| I | 5w | No | +FP, -FH (+7d) | 4,972 (+7d) |
| J | 7w3d | No | + FP, -FH (+14d) | 16,775 (+14d) |

| Antigen | Clone | Species | Company |
|---|--------------|----------------|-------------------------|
| β -hCG | 5H4-E2 | Mouse | Pierce Biotechnology |
| Endoglin (ENG) | 2022 | Goat | R&D Systems |
| Fms-like tyrosine kinase- 1 (FLT-1) | 2321 | Goat | R&D Systems |
| Alpha-fetoprotein (AFP) | 189506 | Mouse | R&D Systems |
| Pregnancy-associated plasma protein-A (PAPP- A) | 5069 | Goat | R&D Systems |
| Galectin-13 (LGALS13) | EPR2898(2) | Rabbit | Ambion |
| Galectin-14 (LGALS14) | 511124 | Mouse | R&D Systems |
| Placental growth factor (PGF) | 358905 | Rat | R&D Systems |



