



Supplementary Figure S3. Characteristics of the *in silico* trophoblast (TE)-endometrial epithelial cell (EEC) interface. (A) Principal component analysis (PCA) of primary EEC transcriptomes from eight patients, four proliferative phase (receptive) samples (red) and four mid-secretory-phase (non-receptive) samples (blue) (Chi *et al.*, 2020). PCA calculated on differentially regulated genes (DEGs) ($n = 2131$, $P < 0.01$ to $8.53E-8$) between proliferative and mid-secretory samples. Genes that were downregulated in mid-secretory EEC were not omitted in order to prevent introducing directional bias to the gene networks identified downstream. **(B)** Molecular function gene ontologies for TE-EEC interface genes, presented as false discovery rate (FDR) relative to gene-molecular function enrichment ratio. **(C)** Partial least squares-discriminant analysis (PLS-DA) of polar and mural TE (Petropoulos *et al.*, 2016) performed on 331 whole TE transcriptomes ($n = 142780$), demonstrating separation of TE into polar and mural based on a small fraction of the transcriptomes (Petropoulos *et al.*, 2016; Lv *et al.*, 2019). **(D)** Violin plots of background levels of polar and mural TE gene connectivity, as measured by permuting 1000 hypernetworks of random genes within the transcriptomes. Median line and inter-quartile range are illustrated in each box while whiskers illustrate the range, with outliers as points. *** $P < 0.001$ Wilcoxon rank sum test.