ACCSCIENCE PUBLISHING

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RESEARCH ARTICLE

3D-bioprinted placenta-on-a-chip platform for modeling the human maternal–fetal barrier

Supplementary file

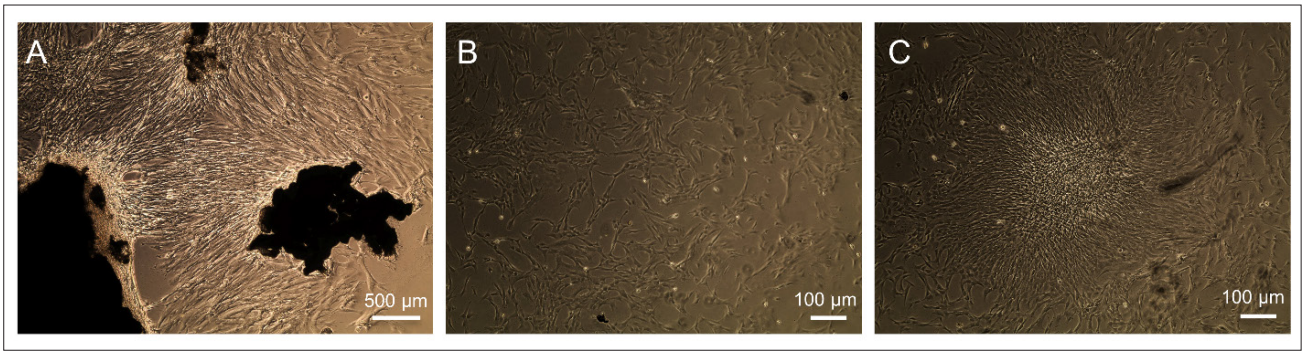

Figure S1. Isolation and expansion of placenta-derived stromal fibroblasts (PDSF). (A) Human PDSF migrating out of a placental villus explant after 10 days of culture. (B) PDSFs sub-cultured to passage 1. (C) PDSF confluence, ready for subculturing to passage 2. Scale bars: 500 μm (A); 100 μm (B and C).

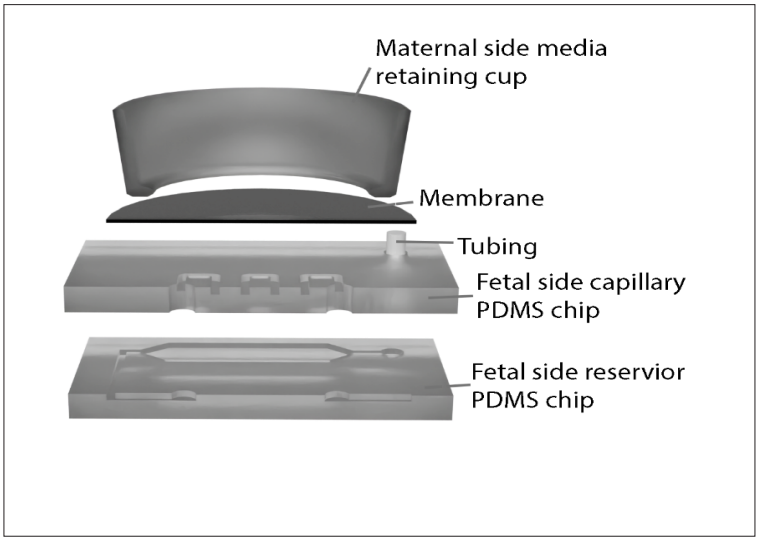

Figure S2. Schematic cross-section of the human placenta-on-a-chip (hPOC) device. Abbreviations: hPOC, human placenta-on-a-chip; PDMS, polydimethylsiloxane.

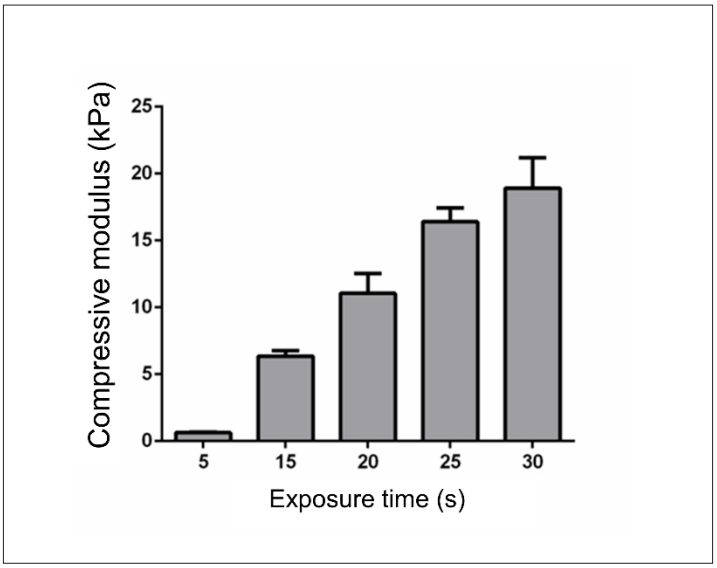

Figure S3. Compressive modulus of the methacylated gelatin (GelMA) slab under different exposure times (n = 3).

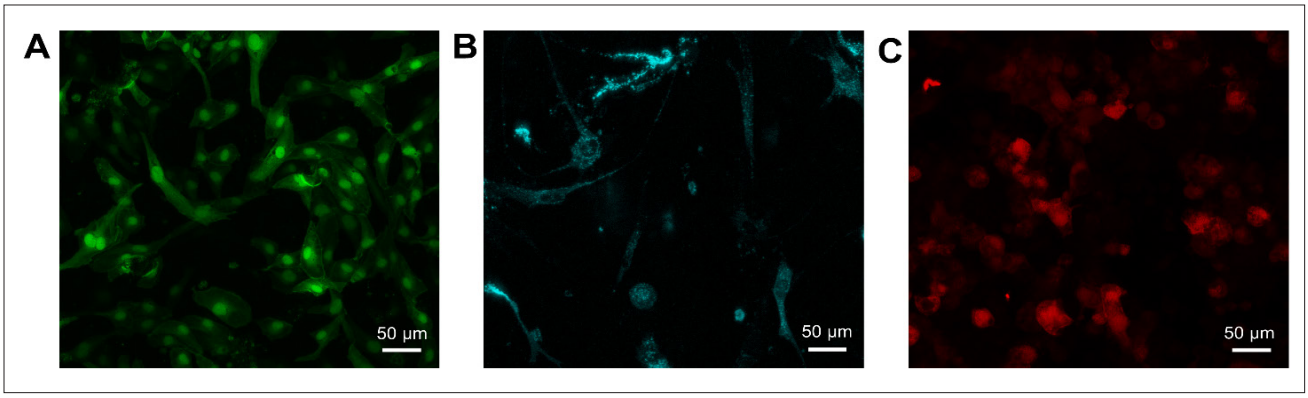

Figure S4. Confocal images of tri-coculture cells. (A) GFP-expressing HUVECs. (B) DiD-labeled PDSFs. (C) RFP-expressing STBs. Scale bars: 50 μm. Abbreviations: GFP, green fluorescent protein; HUVECs, human umbilical vein endothelial cells; PDSFs, placenta-derived stromal fibroblasts; RFP, red fluorescent protein; STBs, syncytiotrophoblast.

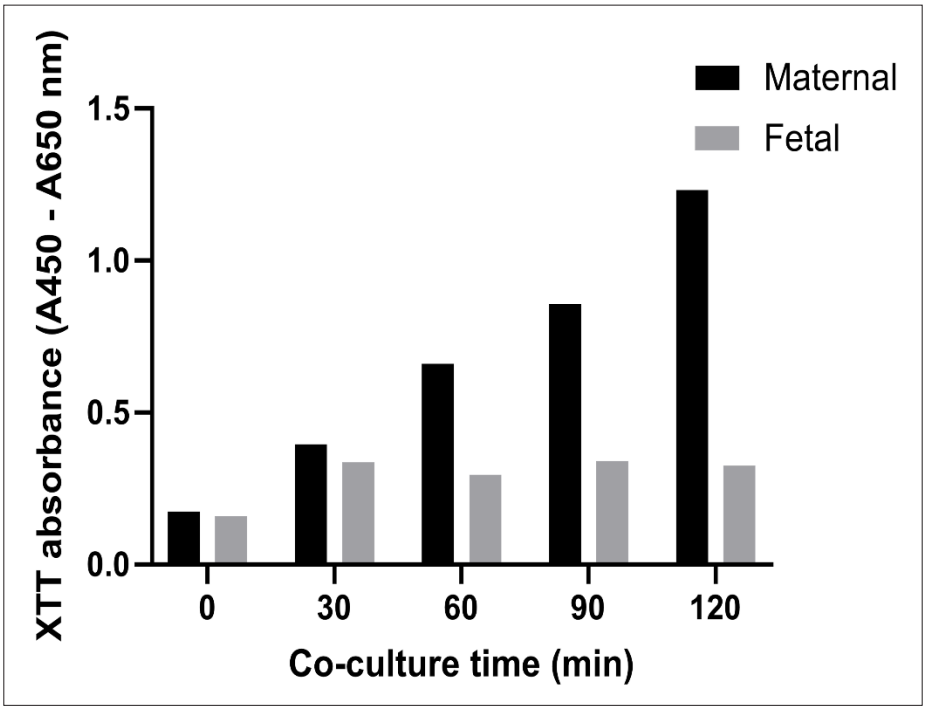

Figure S5. XTT absorbance of the human placenta-on-a-chip (hPOC) device over co-culture time.