Electronic Supplementary Material (ESI) for Lab on a Chip.

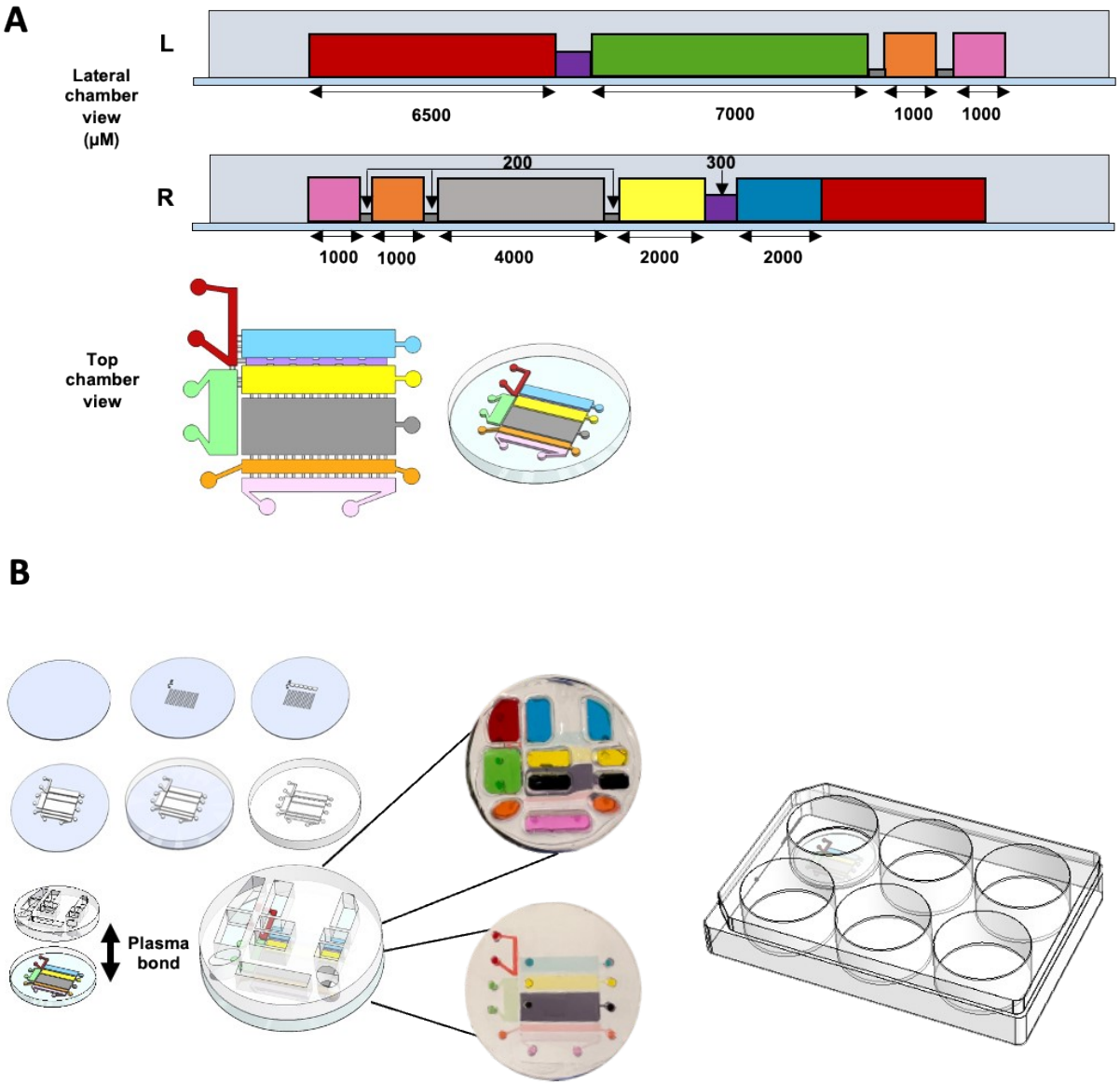

Figure S1. Fabrication of the chip. (A) Dimensions of the chip in lateral view, showing the different chamber lengths, as well as the final schematic as seen from the top and as a replica-molded block. (B) Two-step photolithography process and replica molding process for the chip. The final two PDMS parts, the reservoir block and the chamber block, are then plasma bonded to produce the final device. The chip can easily fit inside a 6-well plate.

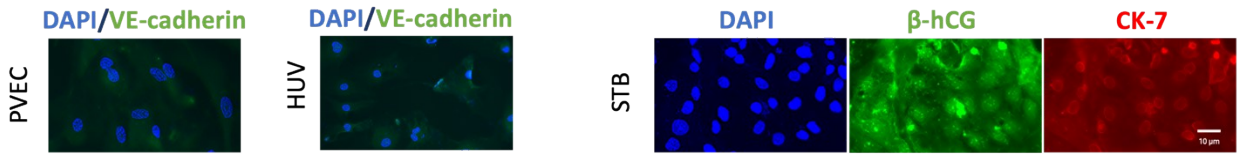

Figure S2. Supplementary immunocytochemistry stains for endothelial cells (PVEC, HUV) and syncytiotrophoblasts (STB). For PVECs and HUVs, cells were stained with VE-cadherin (green). For STBs, cells were stained with β-hCG (green) and CK-7 (red). Individual cell nuclei were visualized using DAPI (blue). All images are in 10X magnification.

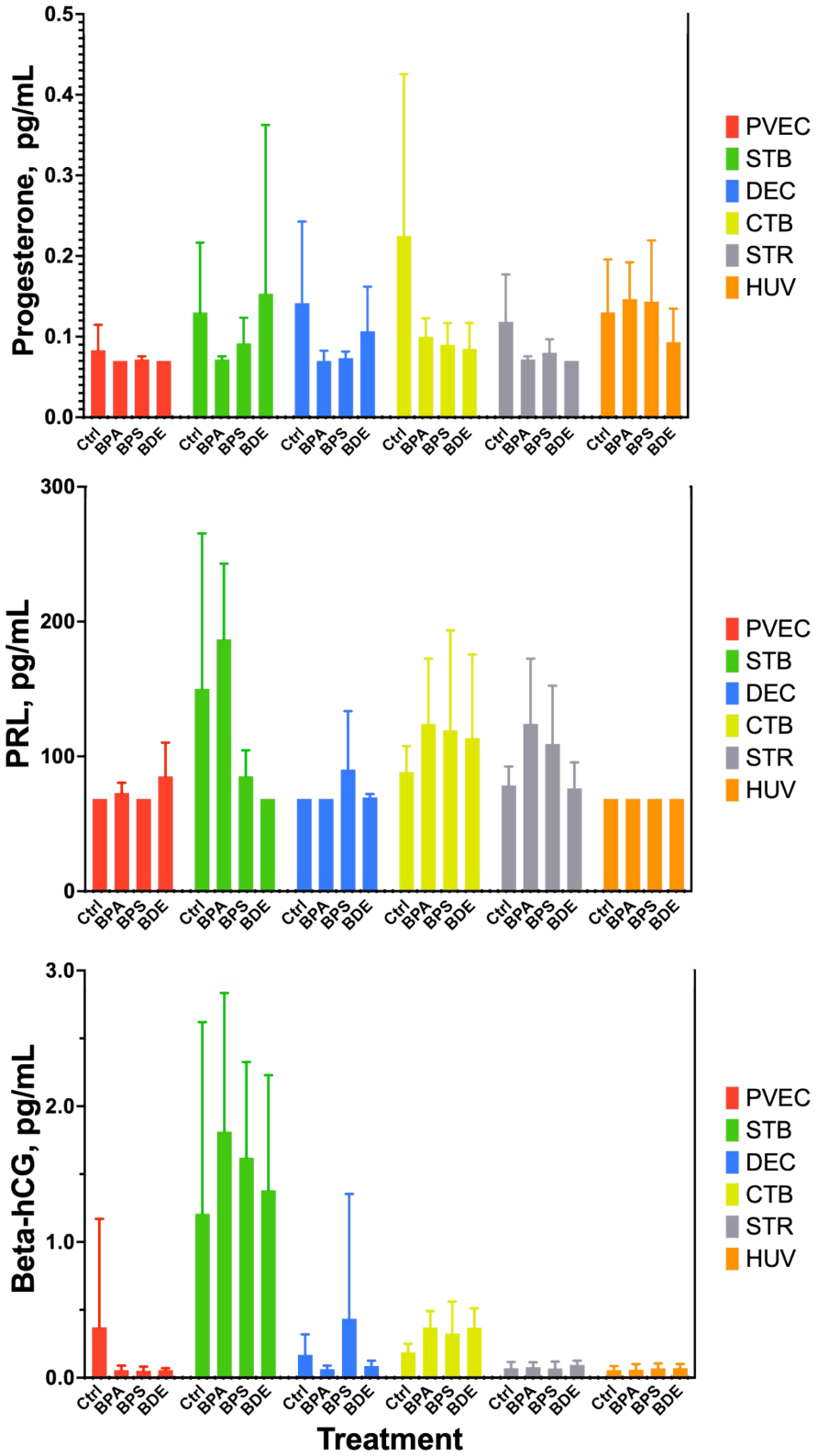
Progesterone, pg/mL
0.5
0.4
0.3
0.2
0.1
0.0
PRL, pg/mL
300
200
100
0
Beta-hCG, pg/mL
3.0
2.0
1.0
0.0
Ctrl
BPA
BPS
BDE
Treatment
PVEC
STB
DEC
CTB
STR
HUV

Figure S3. Hormone expression levels for progesterone, prolactin (PRL), and beta-hCG. Each treatment, as indicated in the bottom axes, were done for 72 hrs on chip, and media was collected per chamber. Expression levels were measured using a multiplex hormone kit, and were measured in pg/mL.