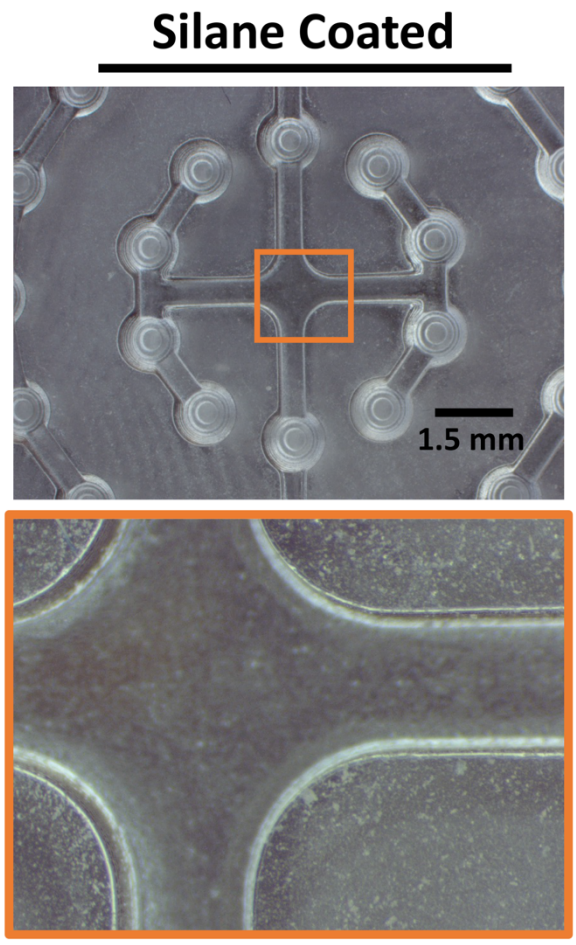
Electronic Supplementary Material (ESI) for Lab on a Chip.

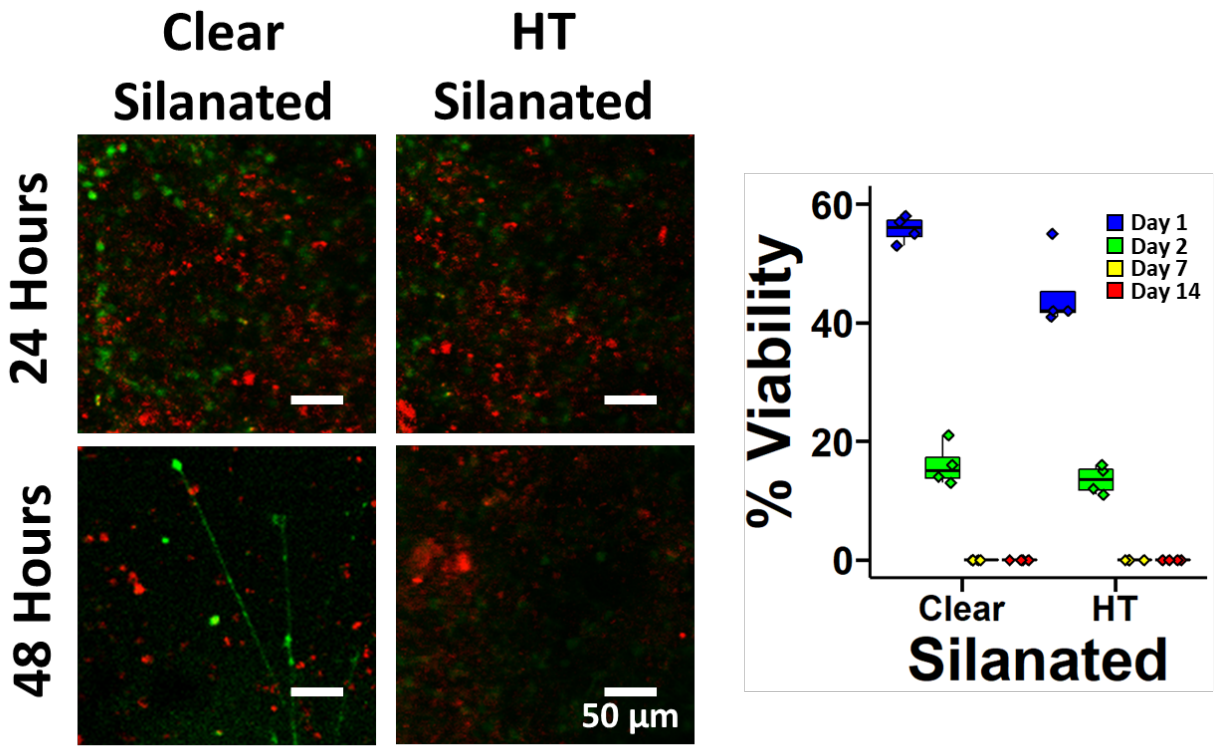
Supplementary Information

Rapid Prototyping of Cell Culture Microdevices Using Parylene-Coated 3D Prints

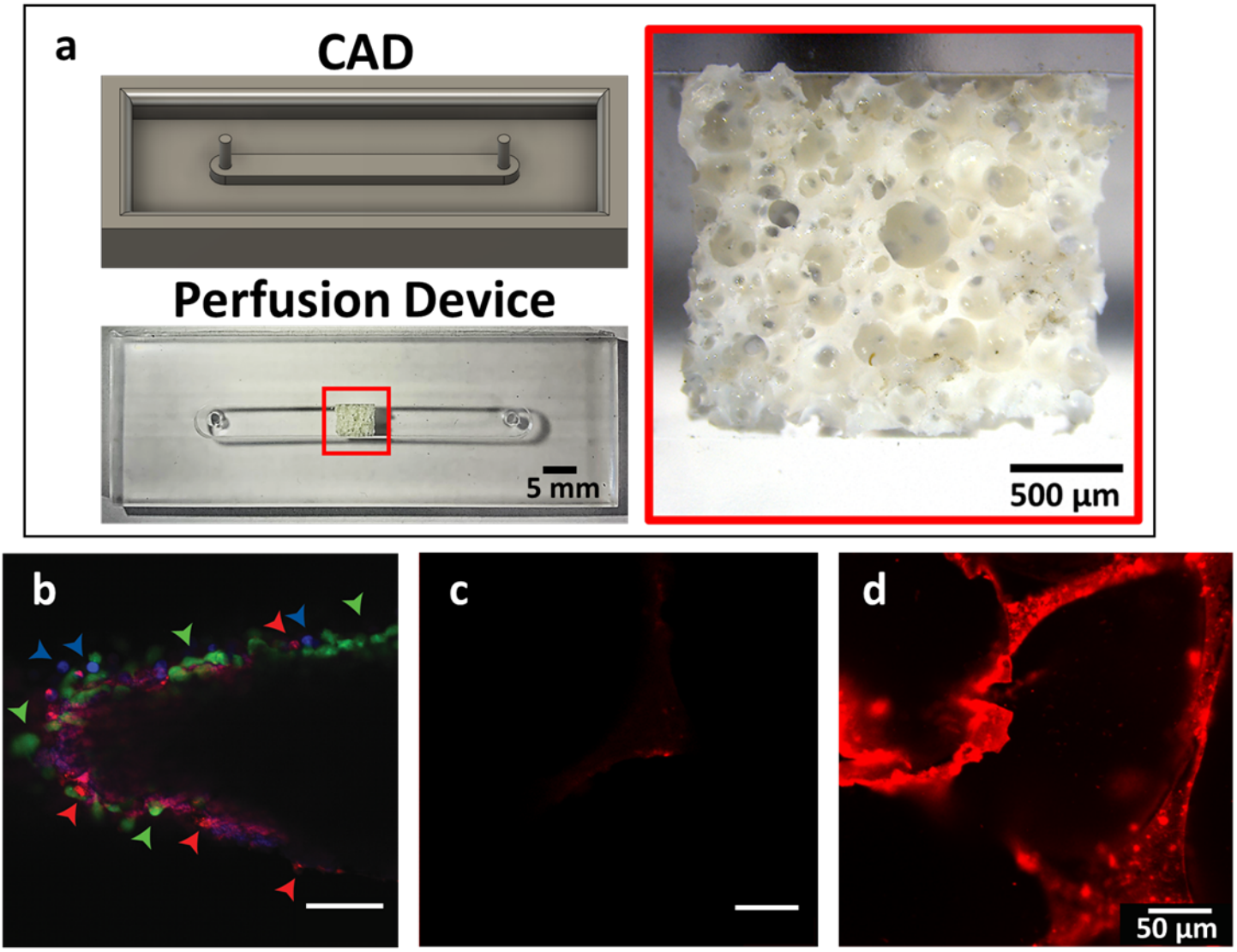
Brian J. O'Grady, Michael D. Geuy, Hyosung Kim, Kylie M. Balotin, Everett R. Allchin, David C. Florian, Neelansh N. Bute, Taylor E. Scott, Gregory B. Lowen, Colin M. Fricker, Scott A. Guelcher, John P. Wikswo, Leon M. Bellan, Ethan S. Lippmann



Supplementary Figure 1. PDMS device cast from a silanized 3D print. The print is the same one used in Figure 1C.



Supplementary Figure 2. Biocompatibility of silane-coated 3D prints. Representative images of iPSC-derived neurons labeled with Calcein (live cells) and propidium iodide (dead cells) after 24 and 48 hours of soluble contact with the 3D prints (clear and high-temp resins). Quantification of iPSC-derived neuron viability at different time points (percent of live cells versus total cells) is provided in the righthand panel. Each well was imaged in 3 different locations, and 4 independent wells were imaged per condition representing the individual data points.



Supplementary Figure 3. **Trabecular bone-on-chip perfusion model. a**) A trabecular-bone-on-a-chip device was generated by fitting a noncrystaline hydroxyapatite poly(ester urethane) (nHA-PEUR) foam inside of a custom perfusion channel. **b**) Images of human MSCs (red), PBMCs (blue), and MDA-MB-231 cells (green) labeled with fluorescent CellTracker™ membrane dyes, 7 days after seeding in the nHA-PEUR scaffold. **c-d**) After 21 days, perfused scaffolds lacking human MSCs exhibit no mineralization (panel c) whereas scaffolds containing human MSCs exhibit robust mineralization (red, panel d).