Supplemental Materials

**Infection on a Chip: a microscale platform for simple and sensitive cell-based virus assays**

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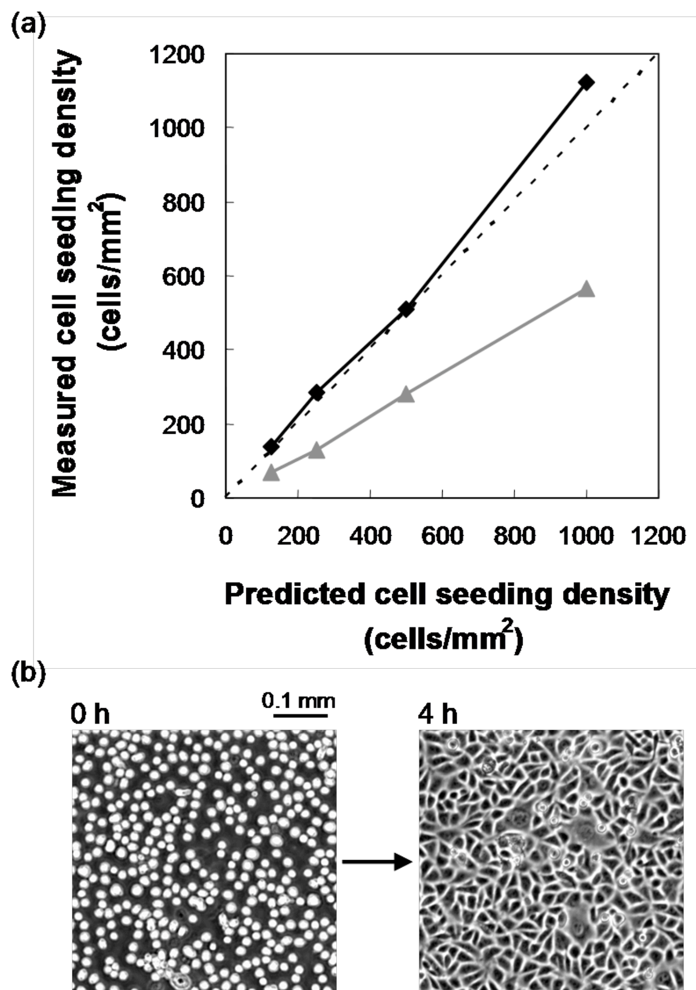
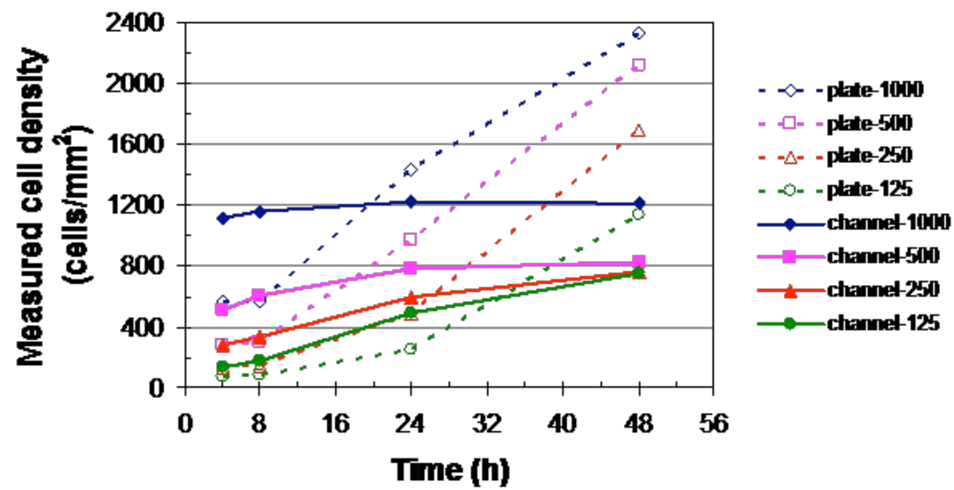
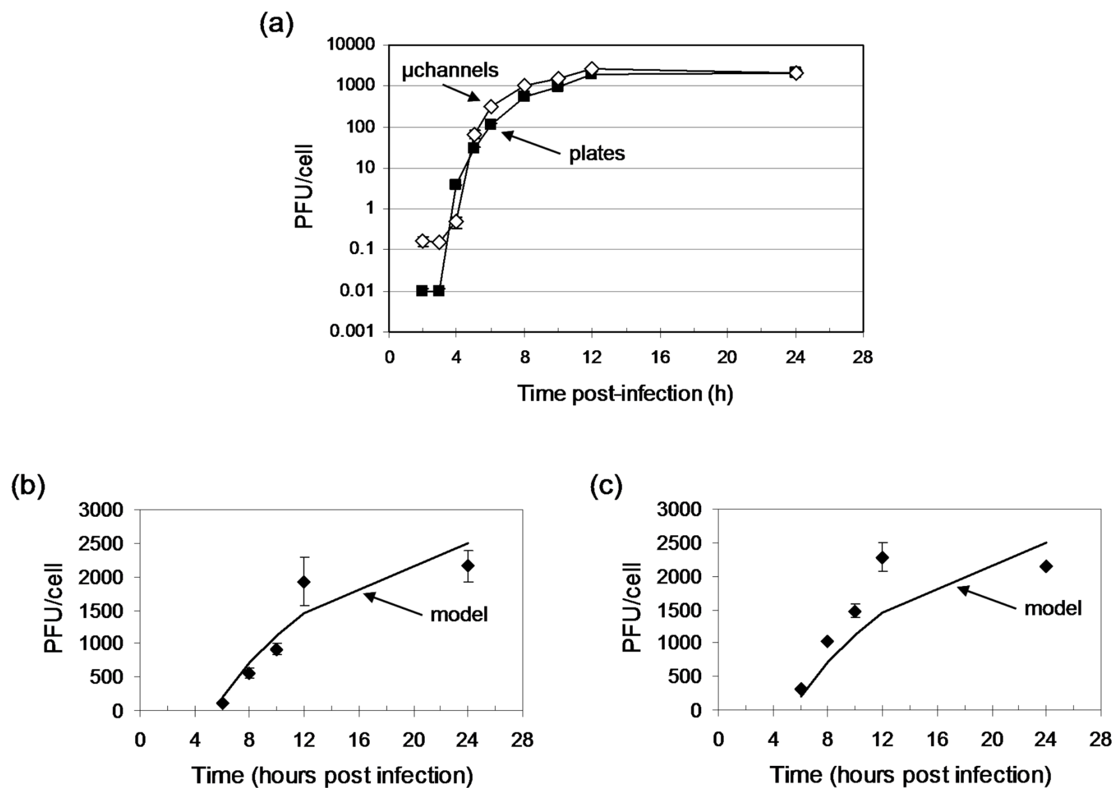
**Supplementary Figure 1.** Cell growth in microchannels. (a) BHK cell densities were more predictable in microchannels than in standard culture plates. Cells were seeded into microchannels or six-well culture plates at 125, 250, 500, or 1000 cells/mm$^2$. Measured cell seeding densities were within 15 percent (for microchannels) and 45 percent (for culture plates) of predicted values. (b) Cells formed confluent monolayers in microchannels. BHK cells introduced at 4 x$10^6$ cells/ml formed confluent monolayers (~ 1000 cells/mm$^2$) after 4 h.



**Supplementary Figure 2.** BHK cells grew at lower rates in microchannels than in culture plates. Cells were seeded into parallel samples in microchannels or six-well culture plates at 125, 250, 500, or 1000 cells/mm$^2$ and the growth medium was refreshed every 24 h. Cell densities were estimated by DAPI staining and counting over known areas.



**Supplementary Figure 3.** Viral productivity of BHK cells was not significantly changed in microchannels. (a) One-step growth curves of VSV in microchannels and culture plates were comparable, indicating that the production of VSV by infected BHK cells is not significantly changed in the microfluidic device. (b) Virus growth in six-well culture plates. Based on the model, seen as the solid line, $k$ was estimated at 2929 PFU/cell, $a$ was estimated at 0.10 $h^{-1}$, and $d$ was estimated at 5.3 h. (c) Virus growth in microchannels. Based on the model, $k$ was estimated at 2983 PFU/cell, $a$ was estimated at 0.12 $h^{-1}$, and $d$ was estimated at 5.0 h.



**Supplementary Figure 4.** Higher drug levels inhibited virus infection. Quantification of the 5-FU effects on infection spread using extent of viral gene expression (GFP signal) was comparable to the measure of 5-FU effects on infection spread from quantification of cell death (Figure 3c/e).