



**Supplemental Figure 3.** Cell viability after overnight culture on the platform. For overnight cell culture, the chip is coated with collagen, perfused with media saturated with pre-mixed 5% CO<sub>2</sub> + 95% air, and is maintained in an air-tight configuration at a desired temperature (37°C ± 0.1 °C) using a thermal unit integrated in the chip manifold. In this experiment macrophages (P388D.1 cell line) were cultured overnight on the microfluidic chip, and imaged the following morning prior to staining for dead cells (A). The yellow arrows indicate cell doublet after 24 hrs of on-chip maintenance; presumably generated through cell division. The same cells were stained for dead cells and detached for flow cytometric analysis, and ~80% of the cells on chip were viable (B).