SUPPLEMENTARY INFORMATION

Microfluidics platform for single-shot dose-response analysis of chloride channel-modulating compounds

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I. linearity between dye fluorescence and concentration

We verified the linear relationship between fluorescence intensity and concentration in our microscope/camera system by injecting difference concentrations (10 nM, 30 nM, 100 nM, 300 nM, 1 μM, 3 μM, 10 μM) of rhodamine-101 and calcein in the microfluidic channel.

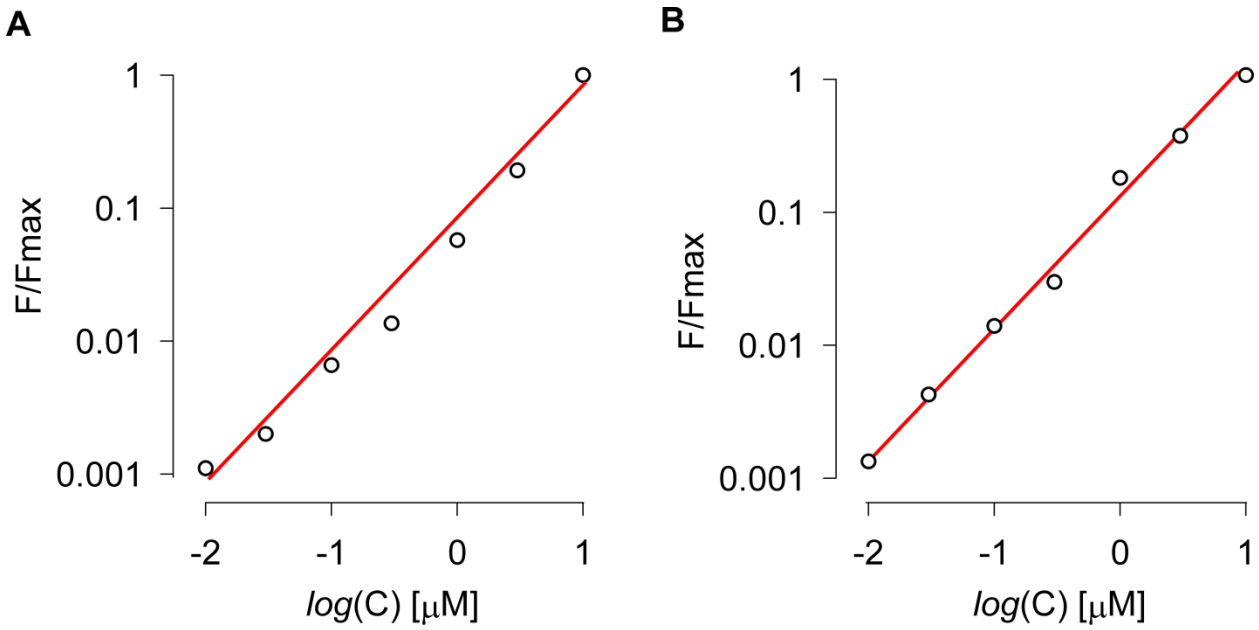

Figure S1. Linear relationship between measured fluorescence (normalized to maximum fluorescence, F/Fmax) and concentration for (A) rhodamine-101 and (B) calcein.

II. Minimum spatial variation in fluorescence over the observation region

We measured the variation in fluorescence over the square measurement area following perfusion of the chamber with the same fluorescent solution in both inlets. Any variation in intensity could be due to variations in chamber depth and/or non-uniform illumination. We found no systematic variation in fluorescence in the square measurement area, with a standard deviation of < 1 % of fluorescence (Figure S2).

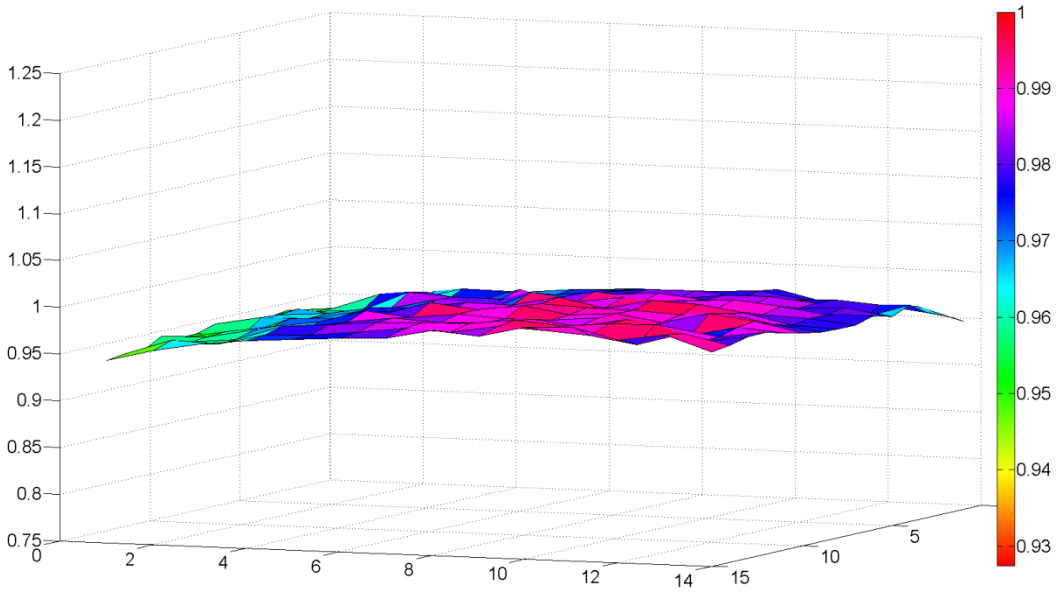

Figure S2. Spatial variation in fluorescence over the square measurement area (15 × 15 arrays) for in which both inlets were perfused with 300 nM rhodamine-101. Standard deviations of fluorescence are less than 1 % when the inlets were perfused with 10 nM, 30 nM, 100 nM, 300 nM, 1 μM, 3 μM and 10 μM rhodamine-101.