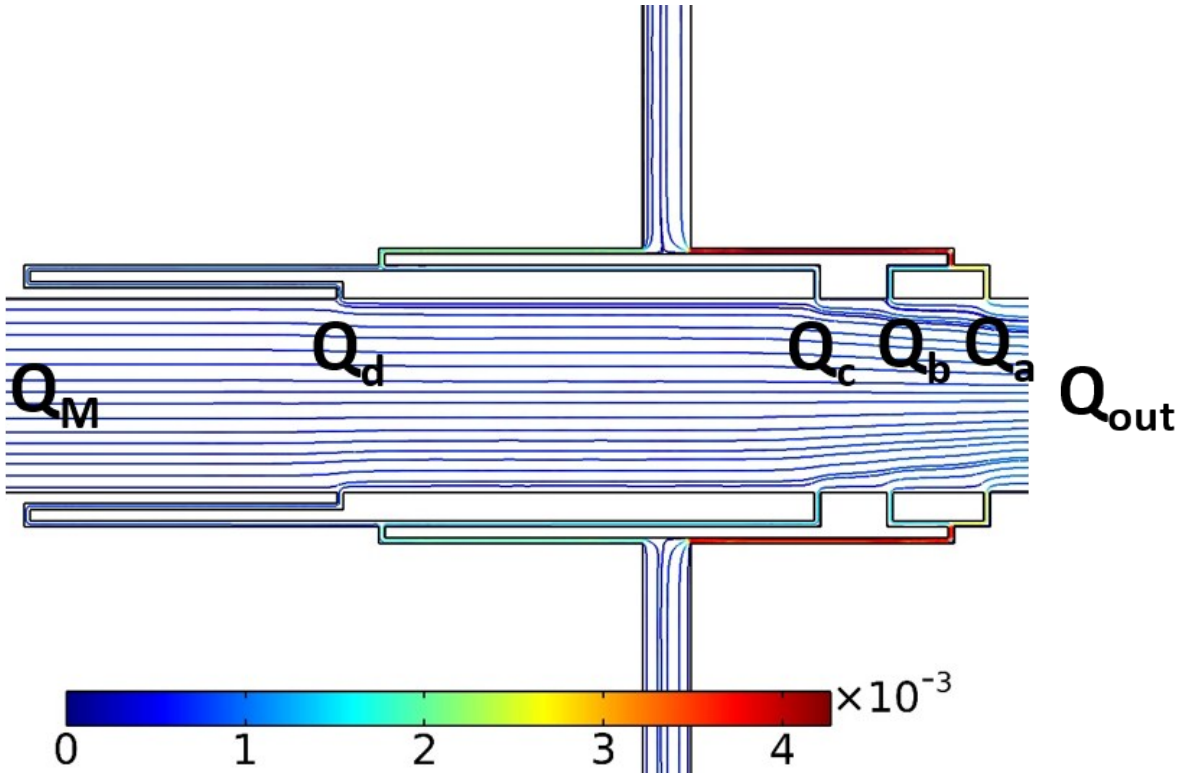
Electronic Supplementary Material (ESI) for RSC Advances.

Merging orthogonal microfluidic flows to generate multi-profile concentration gradients

Supplementary Figures



Supplementary Fig.S1: Streamlines of fluids introduced through the orthogonal side channels interacting with the main flow channel in laminar regim. The streamlines are color coded with red as the maximum velocity and blue as the minimum velocity as represented by the colour bar. The flow rates from the side channels A, B, C, D increases as $Q_A<Q_B<Q_C<Q_D$. As a result of this increasing flow rate, the slope changes gradually along the various non-linear gradient profiles demonstrated in this work.

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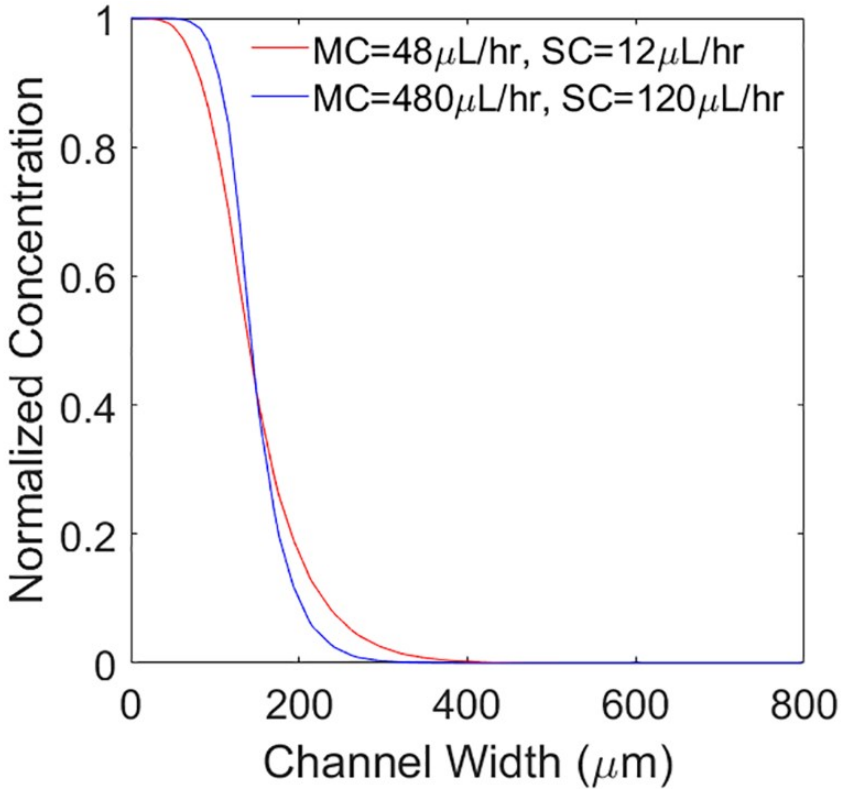

Supplementary Fig.S2: Simulated exponential concentration profiles where the ratio of MC and SC flow rates is increased by a factor of 10. This results in steeper slope of gradient profiles and longer saturation areas.

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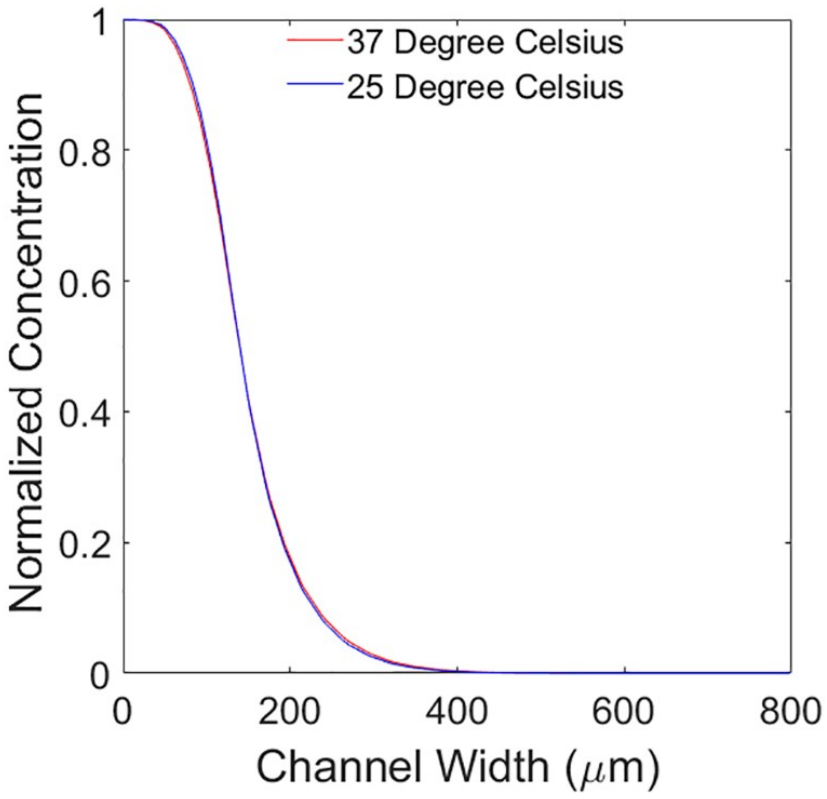

Supplementary Fig.S3: Simulated 3D exponential concentration profiles at 37 ^{o}C and 25 ^{o}C. The profile change is not noticeable. The flow rates used were 48 µL/hr from main channel, 12 µL/hr from side channel 1 and 0 µL/hr from side channel 2.