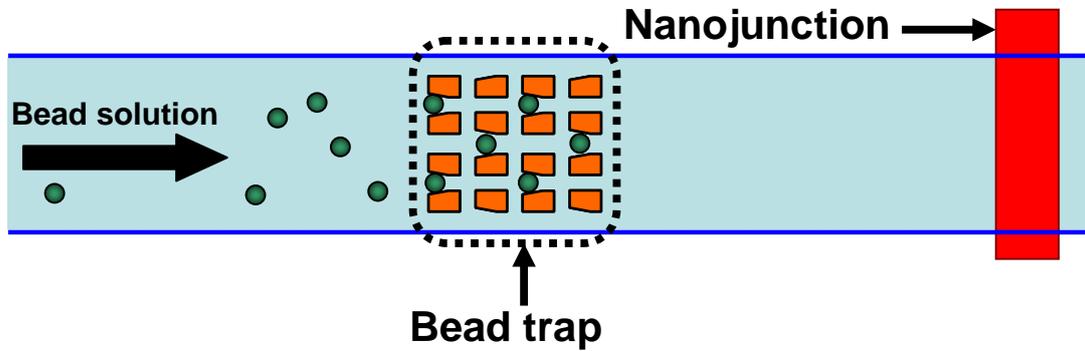


Supporting Information for

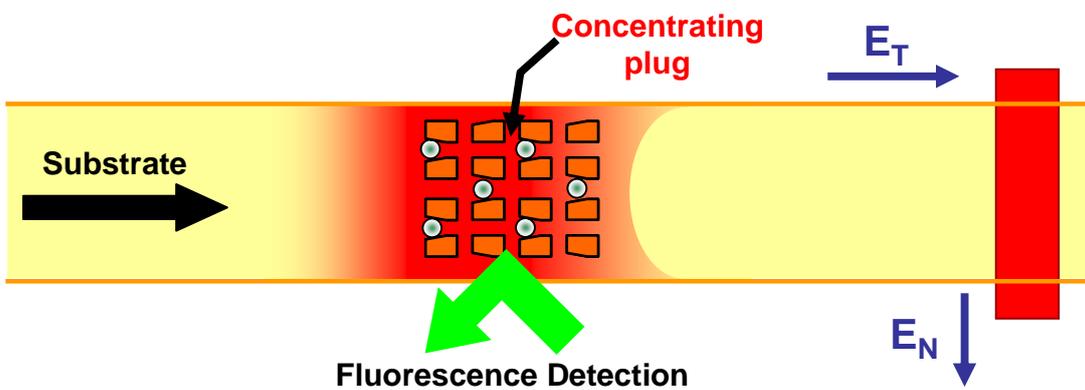
**Massively-Parallel Concentration Device for
Multiplexed Immunoassays**

Sung Hee Ko[†], Sung Jae Kim[†], Lih Feng Cheow, Leon D. Li, Kwan Hyoung Kang^{*}, and Jongyoon Han^{*}

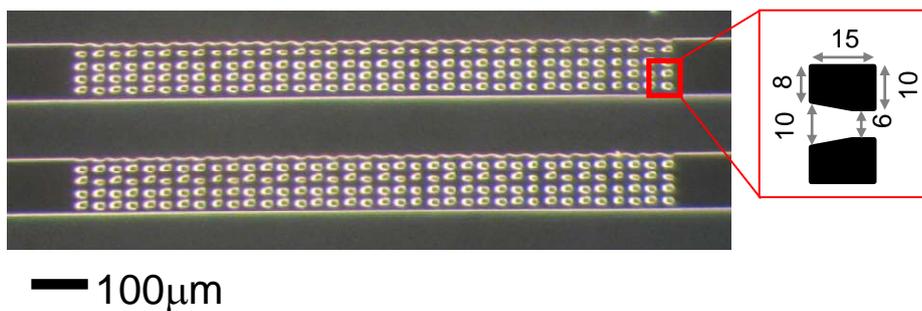
(a) STEP 1 – BSA coating and streptavidin-anti-CRP Bead Loading



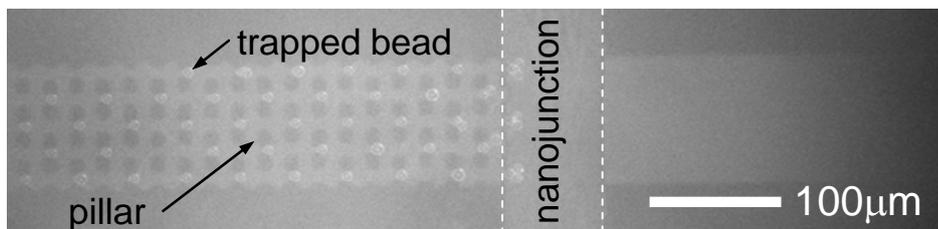
STEP 2 – Alexa-488 labeled CRP Loading and preconcentration



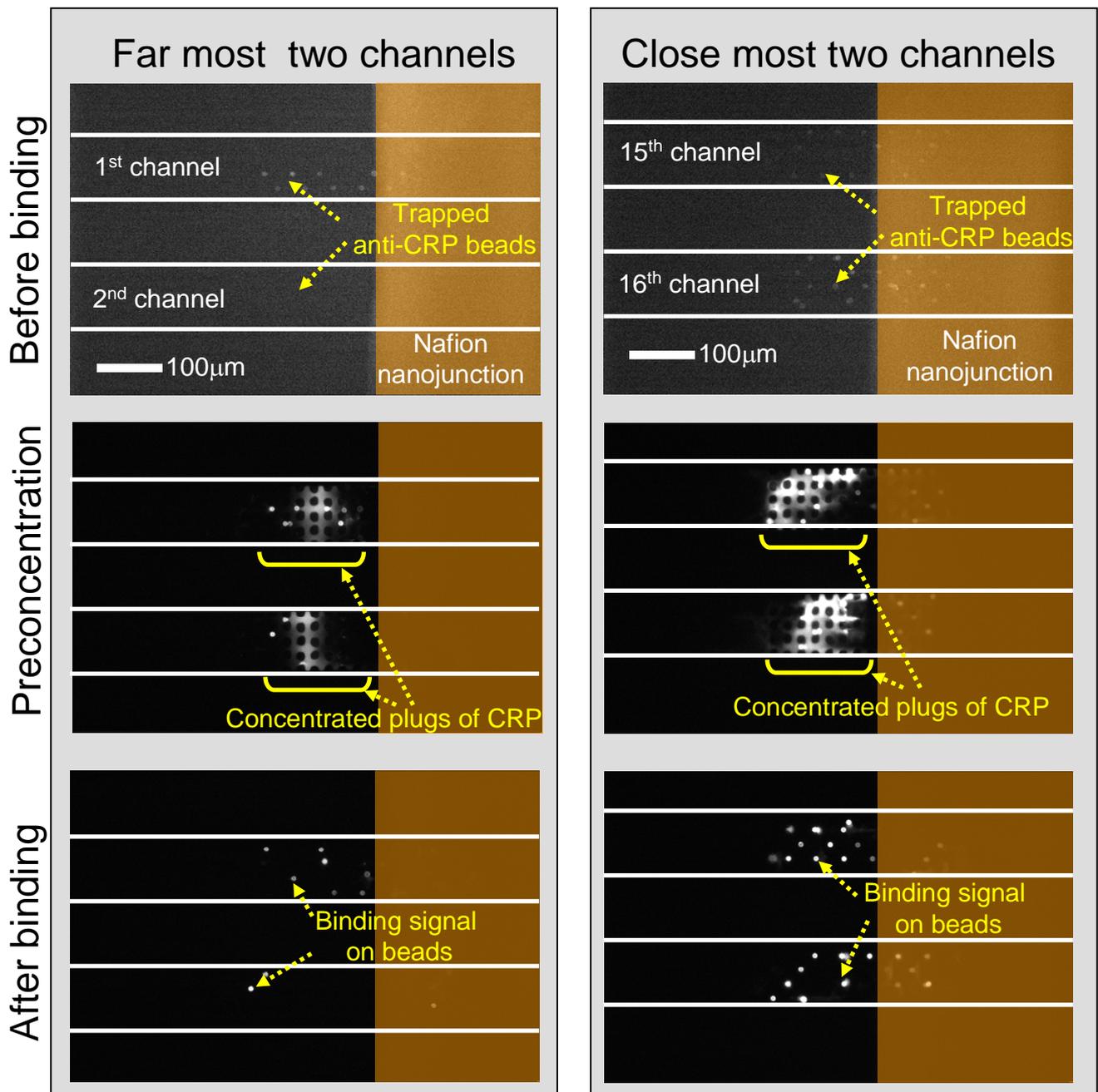
(b)



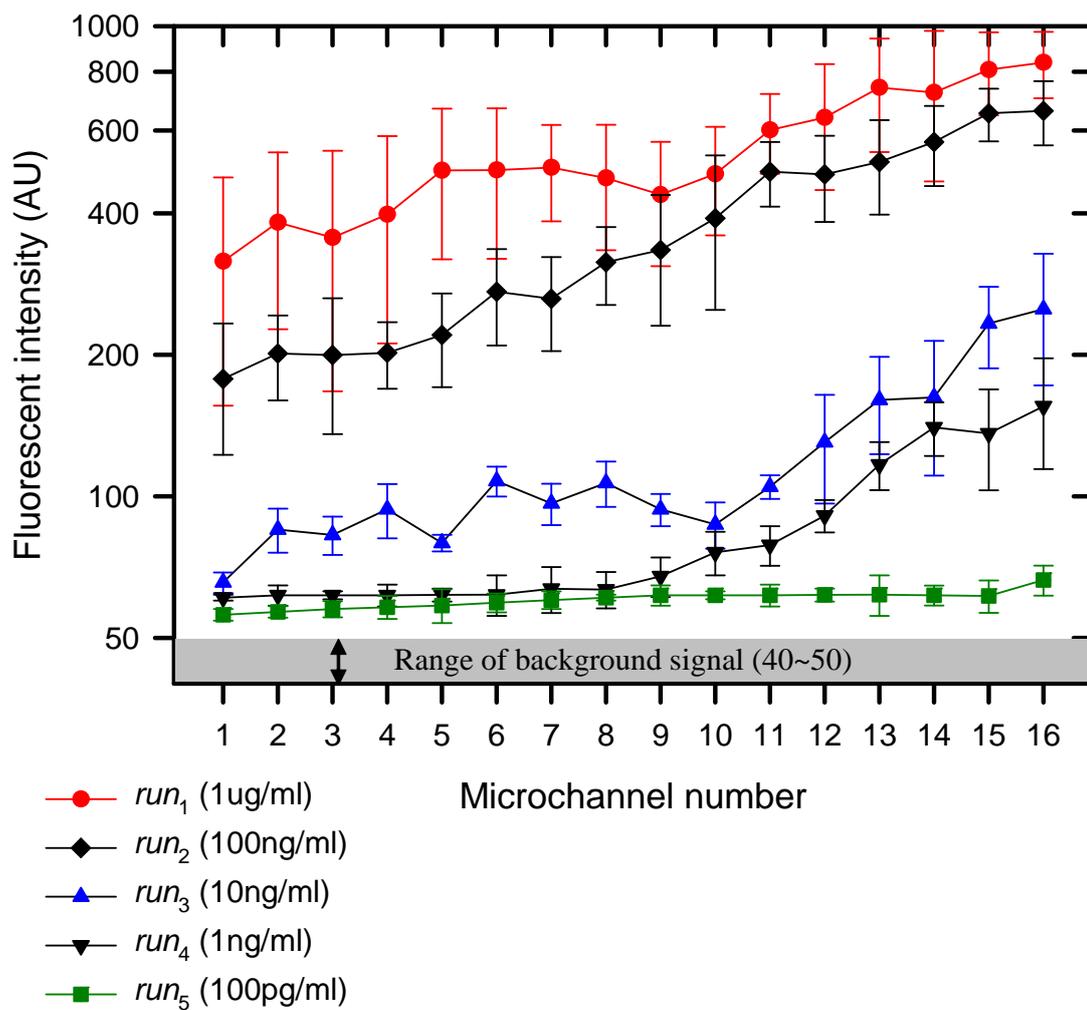
(c)



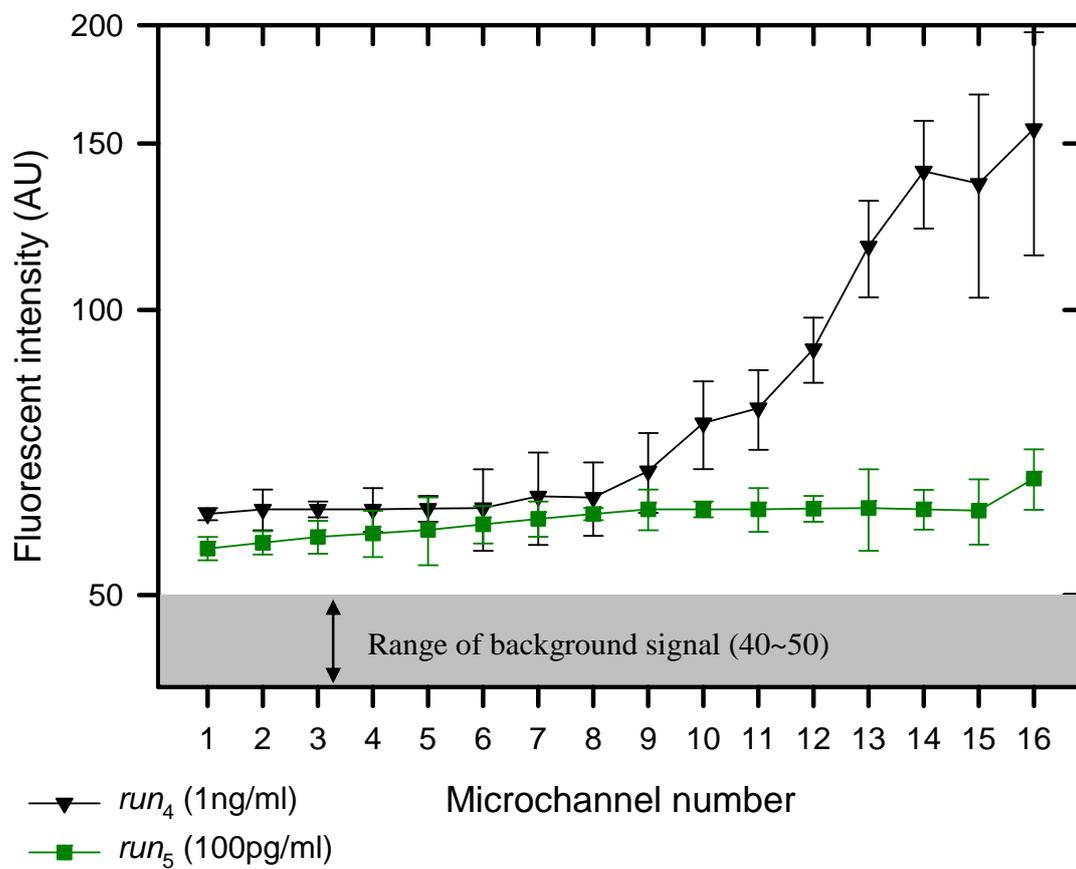
SI Figure 1. (a) The schematic illustration of CRP binding experimental procedures. (b) Fabricated microchannels that had the pillar structures for beads trapping. The unit for number in the inset was micrometer. (c) Bright field image of pillars and trapped beads inside the microchannel.



SI Figure 2. Detail experimental steps for anti-CRP and CRP binding with multiplexed concentration operation at 1st/2nd and 15th/16th channel.



SI Figure 3. Fluorescent signals from the binding event of anti-CRP and CRP as a function of microchannel number. Initial CRP concentrations were 100pg/ml, 1ng/ml, 10ng/ml, 100ng/ml and 1 μ g/mL for each run.



SI Figure 4. Blowup plot only with run_4 and run_5 showing distinct difference of the background noise signal.

VIDEO CAPTIONS

Figure4(a)_16channel_same_length_multiplexing.wmv

A 16-channels multiplexed concentration demonstration with $1\mu\text{g/mL}$ FITC at the applying voltage of 50V. The concentration factors and the location where the plugs were formed at each channels were almost the same. The video plays 10 times faster than real time.

Figure4(b)_128channel_same_length_multiplexing.wmv

A 128-channels multiplexed concentration demonstration with $1\mu\text{g/mL}$ FITC at the applying voltage of 100V. The concentration factors and the location where the plugs were formed at each channels were almost the same. The video plays in real time.

Figure4(c)_16channel_different_length_multiplexing.wmv

A 16-channels multiplexed concentration demonstration with $1\mu\text{g/mL}$ FITC at the applying voltage of 50V. Because the lengths of each channel were different, the concentration factors and the location where the plugs were formed at each channels were different. The video plays 10 times faster than in real time.