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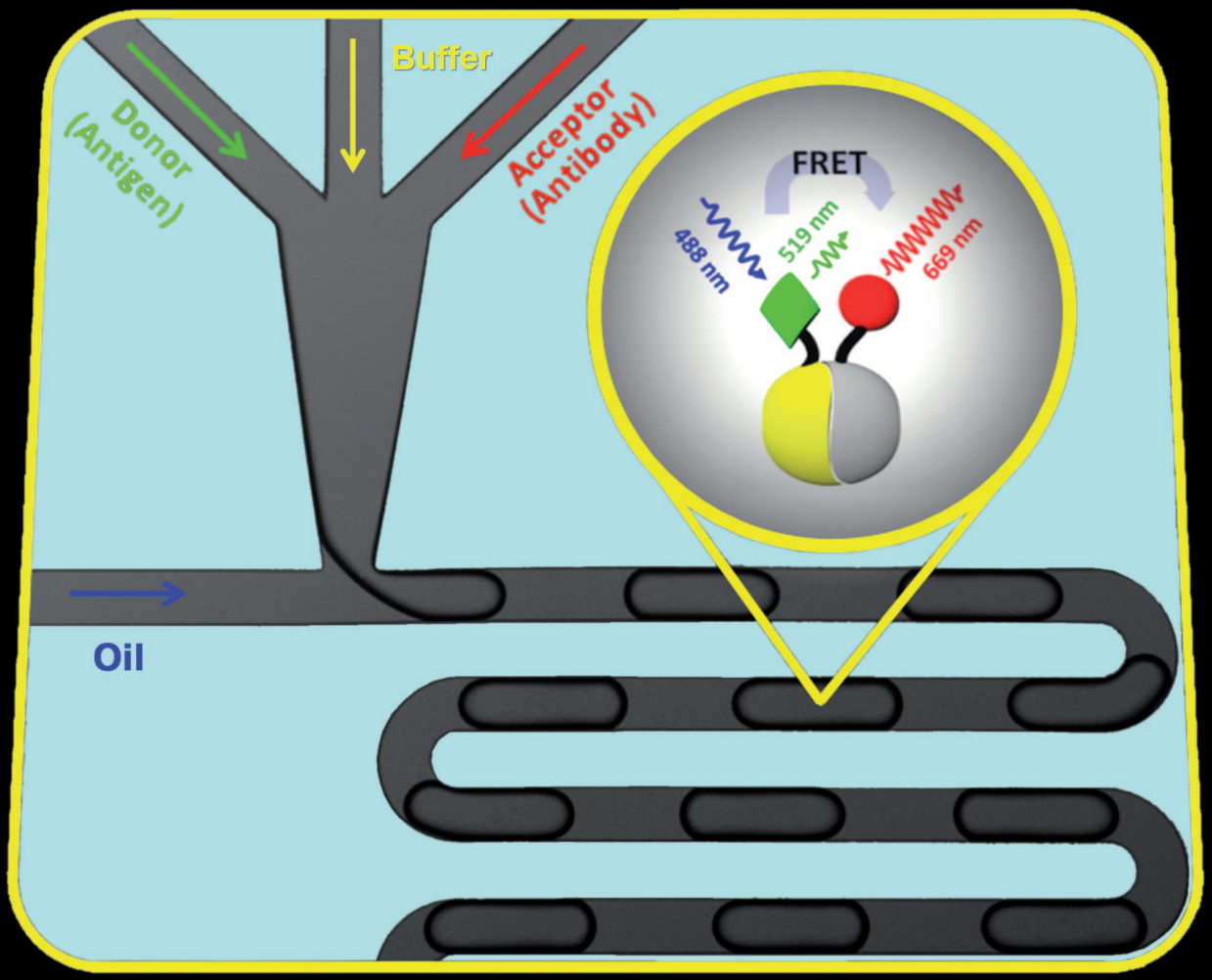
Protein–Protein Interactions in Picolitre Droplets



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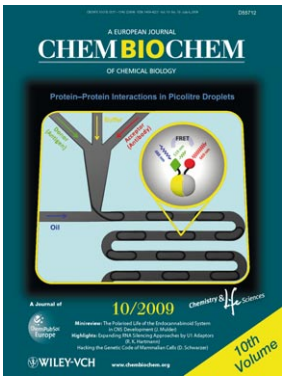
10th Volume

Cover Picture

Monpichar Srisa-Art, Dong-Ku Kang, Jongin Hong, Hyun Park, Robin J. Leatherbarrow, Joshua B. Edel, Soo-Ik Chang*, and Andrew J. deMello*



The cover picture shows a segmented-flow microfluidic system that was used to analyse protein–protein interactions in picolitre droplets. The 400 pL aqueous droplets were formed, encapsulated by a carrier fluid, and then transported through a 50 μm-wide microchannel at a constant velocity. Each droplet contained fluorescently labelled antigens and antibodies, and FRET was used to report protein–protein interactions. Angiogenin (ANG), a small polypeptide implicated in angiogenesis and tumour growth, was selected as a model protein. Specifically, an anti-ANG antibody (anti-ANG Ab) and an ANG antigen were labelled with fluorophores to act as donor and acceptor in the FRET measurements. K_D values for ANG and anti-ANG Ab from these experiments (K_D=6.4±1.6 nM) agree closely with data from bulk fluorescence polarisation measurements K_D=9.0±1.5 nM). We expect that this novel experimental platform will have significant application in high-throughput protein expression profiling and drug discovery. For further details, see the article by S.-I. Chang, A. J. deMello et al. on p. 1605 ff.