Supplementary Information

Volumeless reagent delivery: a liquid handling method for adding reagents to microscale droplets without increasing volume

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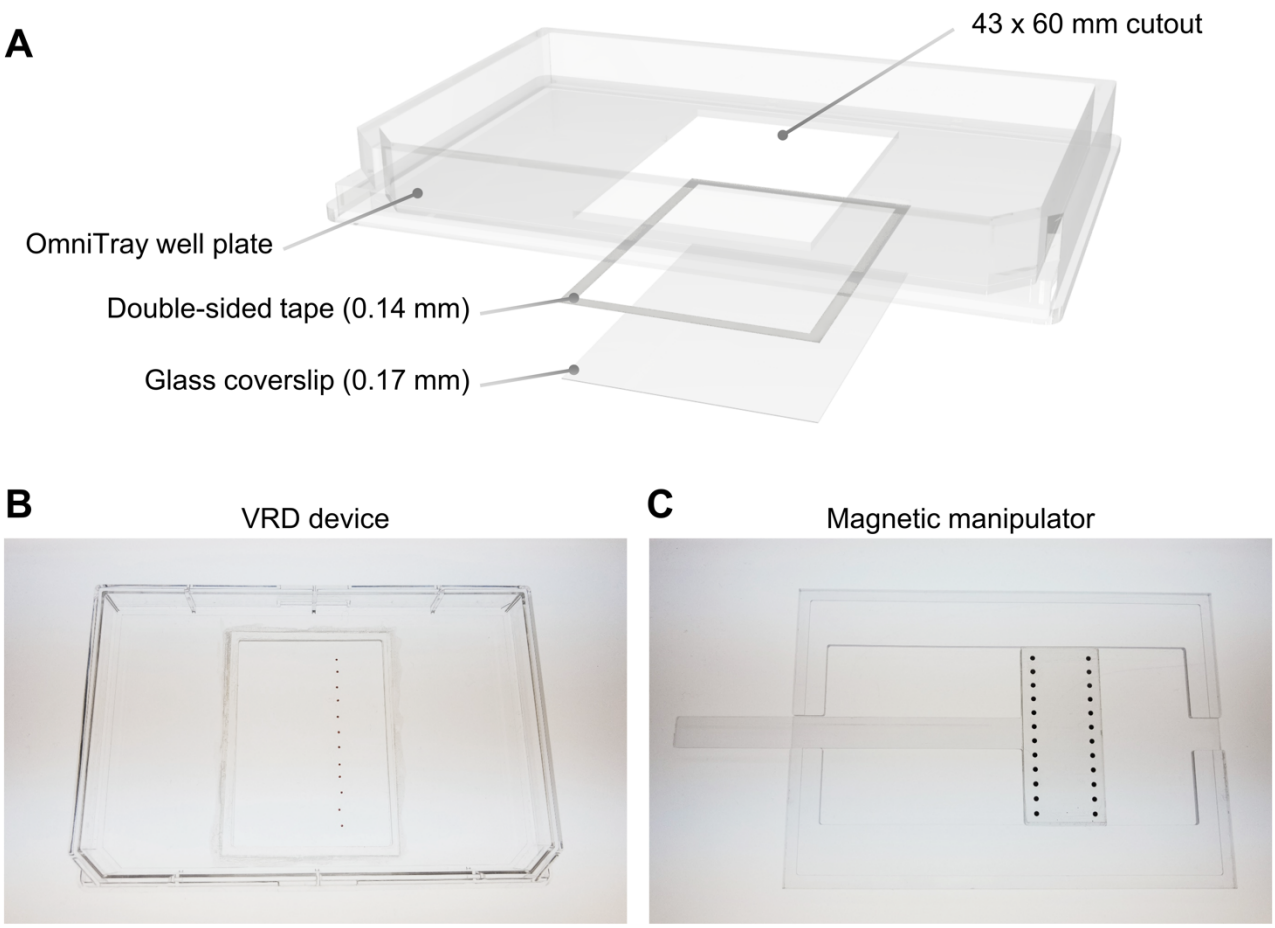

Fig. S1 (A) Exploded view of the VRD device constructed by cutting out a 43 x 60 mm rectangular hole on the bottom of an OmniTray well plate, followed by attaching a glass coverslip to the bottom surface of the plate via double-sided tape. (B) Image of the device for performing VRD (modified from a commercial OmniTray well plate) with dried spots of food dye and (C) the magnetic manipulator for performing PMP and droplet actuation.

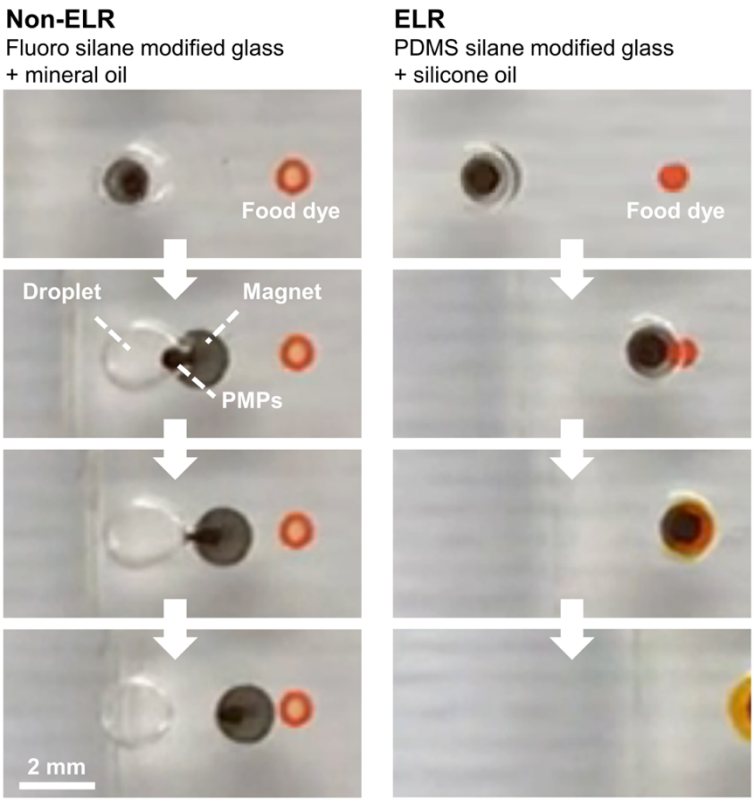

Fig. S2 ELR (accomplished via a PDMS silane modified glass surface with silicone oil) enables better droplet manipulation via PMPs compared to a non-ELR system (fluoro silane modified glass with mineral oil). Scale bar: 2 mm.

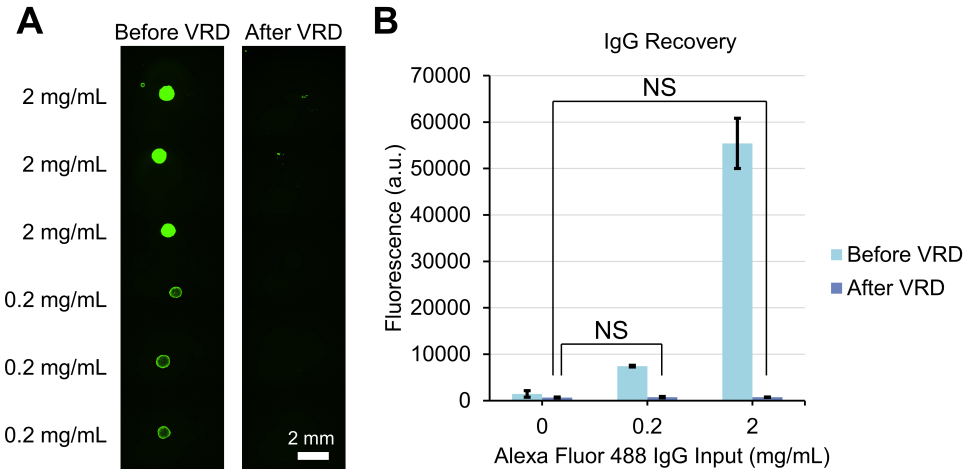

Fig. S3 Protein (IgG) recovery with VRD. (A) Fluorescence microscope images of dried Alexa Fluor 488 IgG spots before (left) and after (right) VRD reconstitution. Scale bar: 2 mm. (B) Quantified fluorescence of the Alexa Fluor 488 IgG spots from panel (A) images before and after VRD. Error bars denote the standard deviation from 3 technical replicates. NS: Not significant, calculated using 2-tailed Student's t-test.

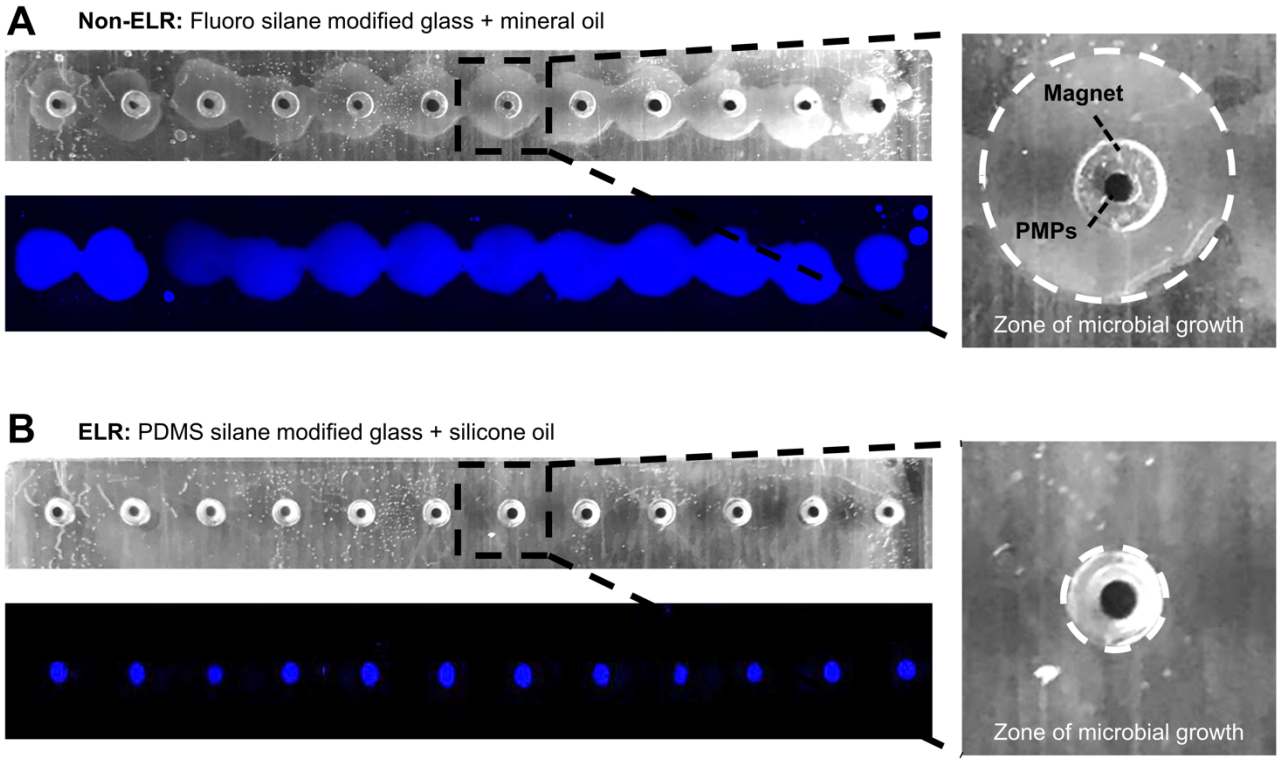

Fig. S4 Bacterial growth-induced biofouling (droplet spreading) of non-ELR surface (fluoro silane modified glass with mineral oil) compared to no fouling/spreading observed on an ELR surface (PDMS silane modified glass with silicone oil) after a 24 h culture. Bacteria used: *P. aeruginosa* CFP (strain PA01).