Supporting Information

The capture and detection of T7 bacteriophages on a nanostructured interface

Jin-Hee Han,[†] Min S. Wang,[‡] Jayanti Das,[†] L. Sudheendra,[†] Erica Vonasek,[§] Nitin Nitin,[§] Ian M. Kennedy*,[†]

Department of [†]Mechanical and Aerospace Engineering, [‡]Food Science and Technology, and [§]Biological and Agricultural Engineering, University of California, Davis, California 95616, United States

*Correspondence should be addressed to I. M. Kennedy. (imkennedy@ucdavis.edu)

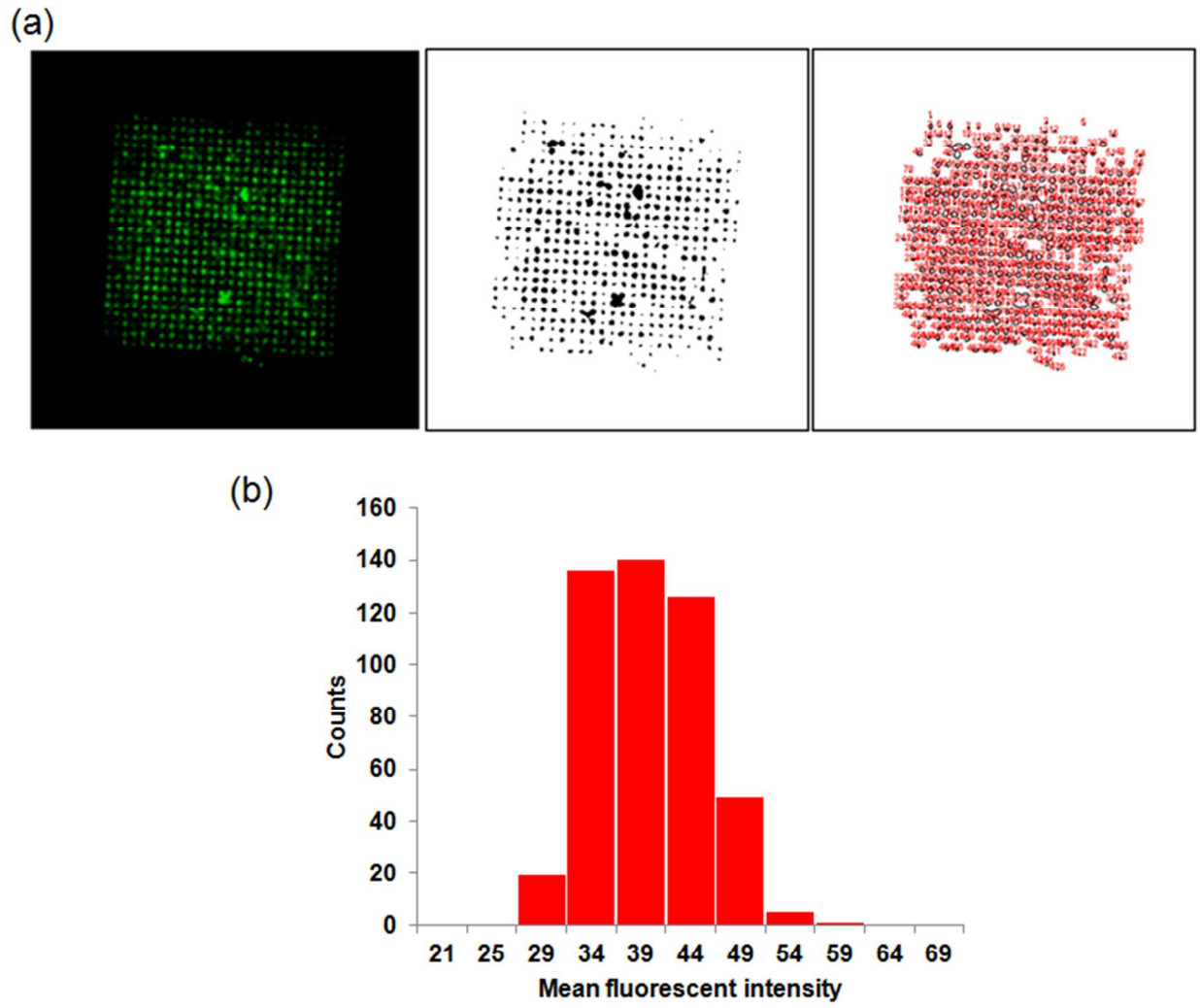

Figure S1. Image analysis of the fluorescent intensity of individual wells on the array obtained from ImageJ analysis. (a) counts of the spots: 476 (total number of wells per array: 625), (b) distribution of mean fluorescent intensity of individual well: 38±5.

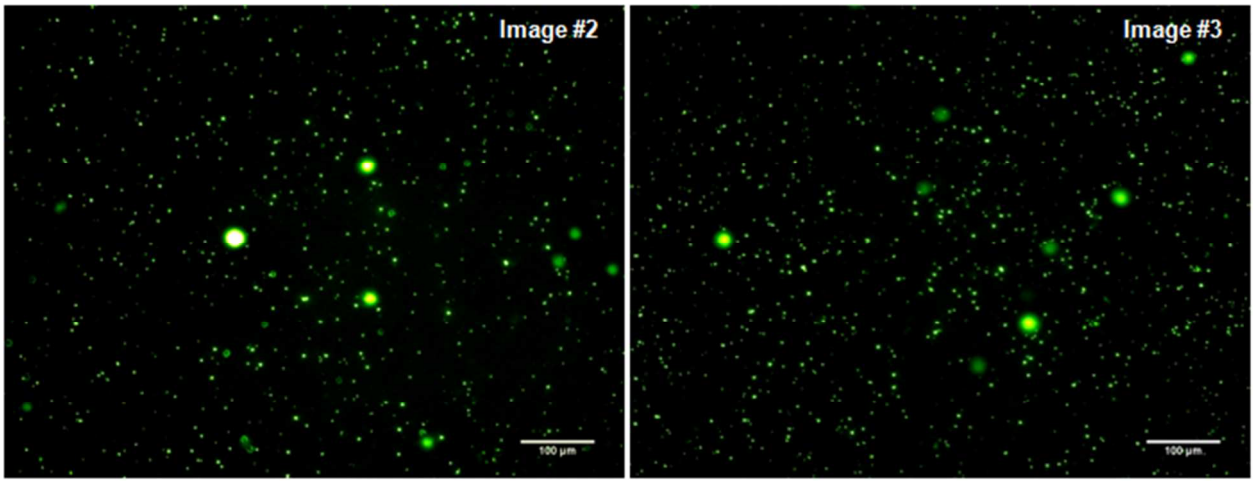

Figure S2. Phages captured on Anodisc; Image #2 and #3 used for image analysis in Figure 4 of the main text.

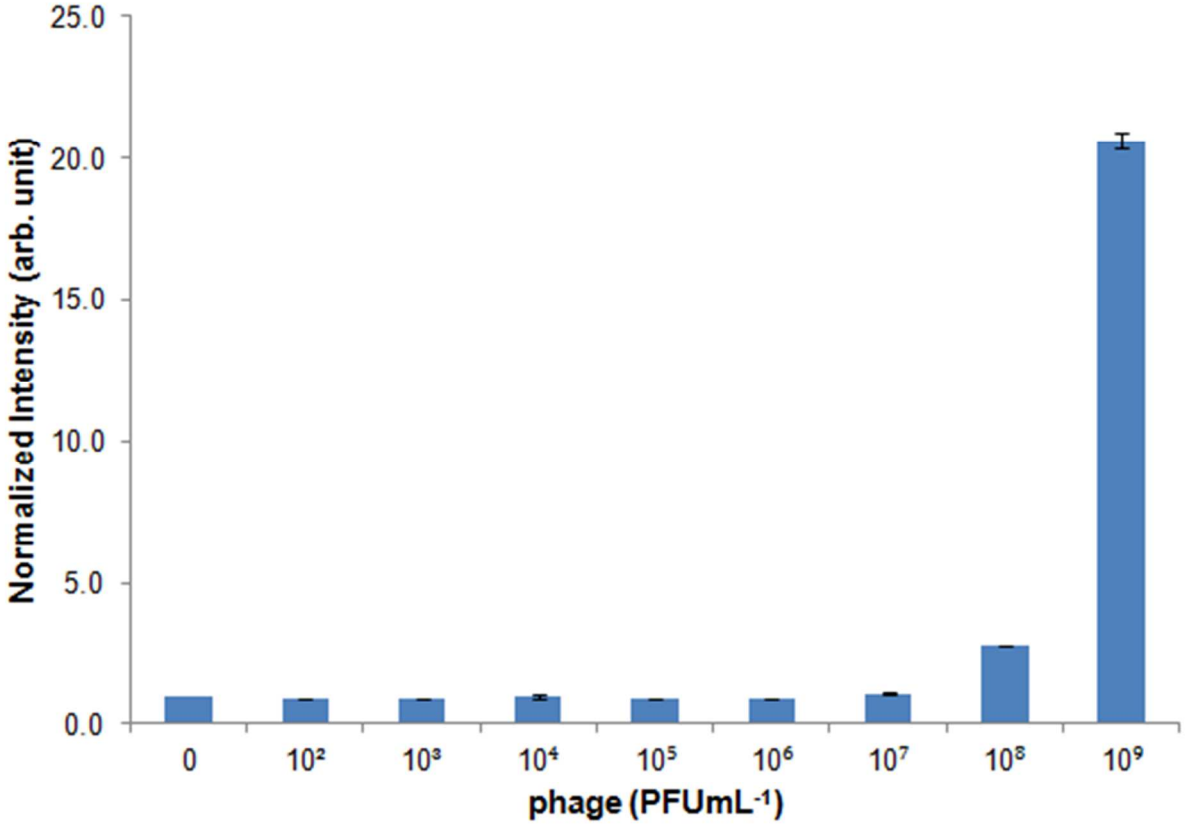

Figure S3. Fluorescent microplate assay using a microplate reader (ex: 544 nm, em: 572 nm). Nine different concentrations of T7 phages-SYTOX Orange were used: 0, 10^2, 10^3, 10^4, 10^5, 10^6, 10^7, 10^8 and 10^9 PFUmL^{-1}. In this assay, the phage was post-labeled with SYTOX Orange after the phages were introduced to the 96-well plate at different concentrations. SYTOX orange (1:1000 final dilution, Invitrogen) was added to each well and incubated for 15 min at room temperature in the dark to allow the dye to bind to the phage DNA. Error bars, standard deviation over three replicates.

Supplemental Table S1. Properties of materials used in the numerical model

	Refractive index	Relative permeability	Relative permittivity	Electrical conductivity (S/m)
PMMA	1.53	0.9	3.0	10^{-19}
Glass	1.50	1.0	4.8	10^{-14}
Polystyrene	1.55	0.9	2.5	10^{-16}
AIR	1.0	1	1	10^{-30}
ITO	2.0	1	3.6	4500

In refractive index of the PMMA, the averaged value of PMMA (1.48) and LOL (1.58) was used.