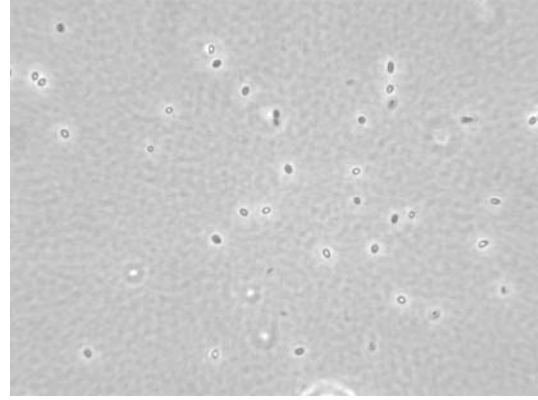


Ungerminated spores, phase-bright

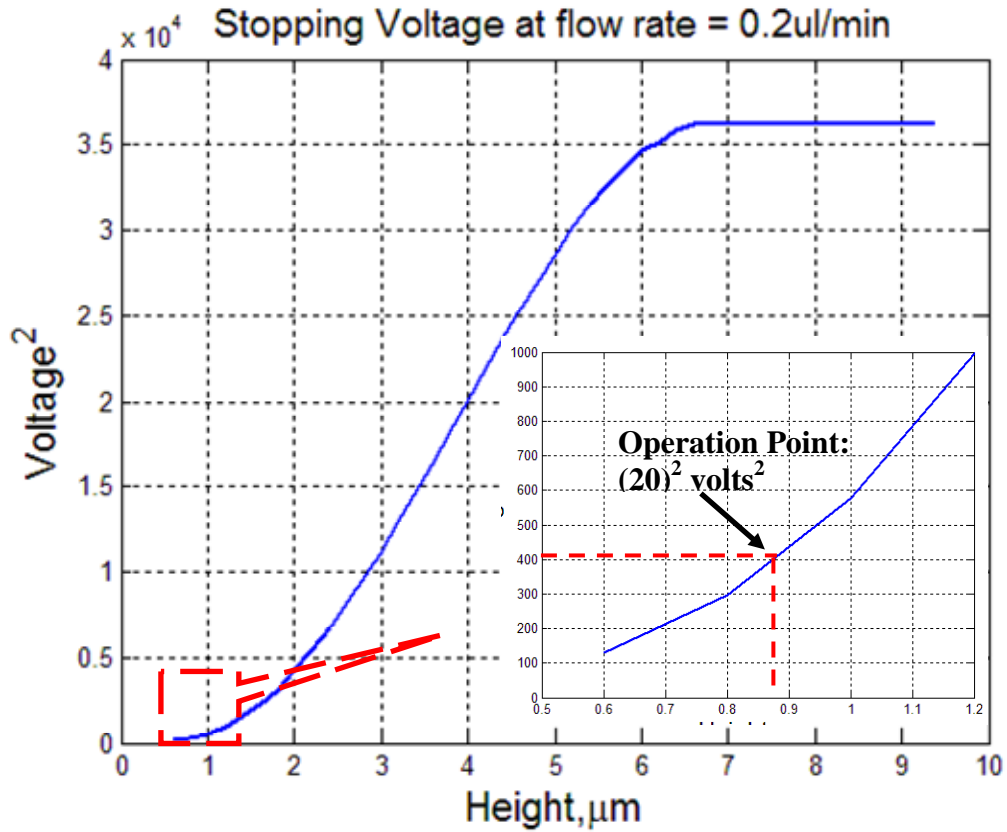
(a)



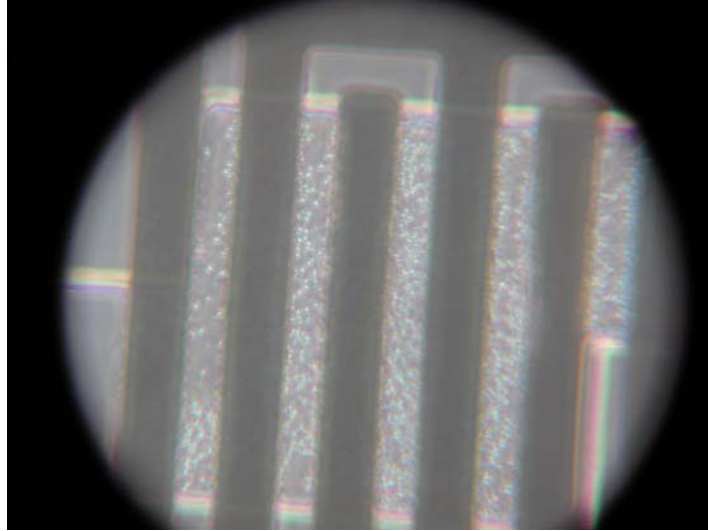
Germinated spores, phase-grey to phase-dark

(b)

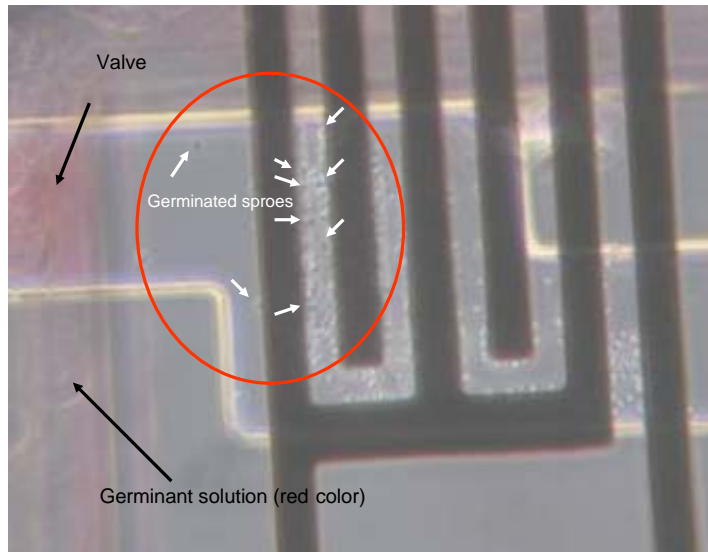
S1: Verification of spore germination by validating the loss of refractility of *Bacillus anthracis* spores using phase contrast microscopy. (Magnification: 1000 X, DMLB, Leica Microsystems Inc., Bannockburn, IL.) About 80% of spores have germinated 30 minutes after adding germinant solution, 10mM L-alanine and 2mM inosine.



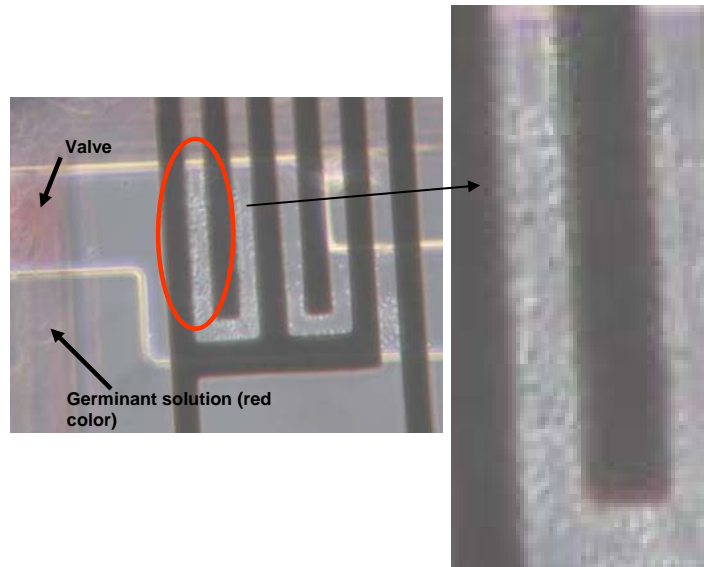
S2: Results of the DEP simulation showing the square of the blocking voltage versus height in the chamber. The DEP force, with 20 volts peak to peak, extended to 0.9  $\mu$ m above the electrodes.



(a)



(b)



(c)

S3: Delivery of germinant through the PDMS layer. (a) On-chip ungerminated spores. (Microscope Magnification: 400 X. Axiostar Plus, Carl Zeiss MicroImaging, Inc., Thornwood, NY, Pictures were taken by digital camera with magnification varied with respect to focus.) (b, c) Germinated spores with germinant delivered from valve channels in the third PDMS layer. Phase-dark germinated spores (arrows) can be seen in (b) and (c), particularly near the valve channels.