INSTITUTE FOR CELLULAR ENGINEERING

Surfaces with Antimicrobial Activity and Selective Bacterial Adhesion

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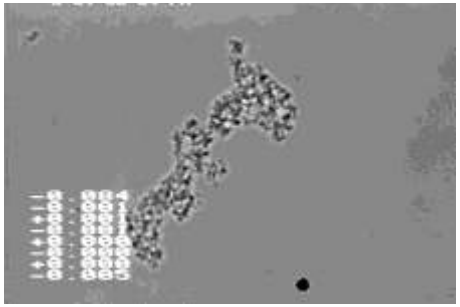
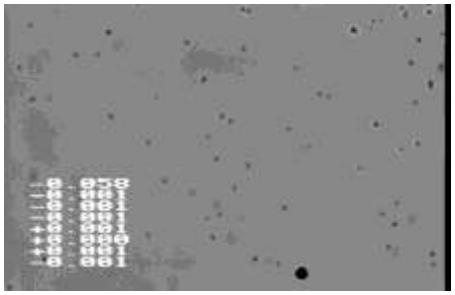
Aggregation: Fibrinogen



Stable Dispersion: PEO



(8000 ppm, 3h, for both)

Surfaces of implants placed into the body can adhere bacteria, causing infections. Our goal is to alter implant surfaces to lessen the opportunity for infection. Surfaces can be engineered to either adhere to or repel bacteria depending on the desired outcome.

A study was performed to observe the affect of several polymers and a protein on bacteria in solution. The following polymers were studied; Poly(ethylene oxide) (PEO), Poly-L-Lysine (PLL), and a Zwitterionic Polymer. The protein studied was the plasma protein, Fibrinogen. The bacteria studied was S. Aureus. Dispersed bacteria was observed upon addition PEO. Bacteria aggregated with PLL and Fibrinogen. The Zwitterionic polymer had no effect. For the PEO PLL and Fibrinogen the observed effect intensified with increased concentration.

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