

KA 1 - Chitosan: an Interface between Biology and Microsystems

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Microsystems technology has evolved from the integrated circuit industry and it is now holding tremendous potential for life science applications. One of the critical challenges in this area, however, is the integration of biological components with microfabricated devices. We exploit chitosan's unique properties to create a robust interface between microsystems and biology. Due to its pH dependent solubility, chitosan is electrodeposited on micropatterned electrodes with precise spatial and temporal control. Following the deposition, biomolecules are attached to chitosan using the reactivity of its primary amines. This approach was used for the functionalization of micromechanical and photonic sensors with probe biomolecules and the successful detection of target biomolecules. We will review the fabrication and testing results for these chitosan based sensing devices.