## **Supporting Information**

## A Diffusion-Free Mediator based Miniature Biofuel Cell Anode fabricated on a Carbon-MEMS Electrode

Gobind Bisht<sup>a</sup>, Sunny Holmberg<sup>b</sup>, Lawrence Kulinsky<sup>c</sup>, Marc Madou<sup>a,c,d\*</sup>

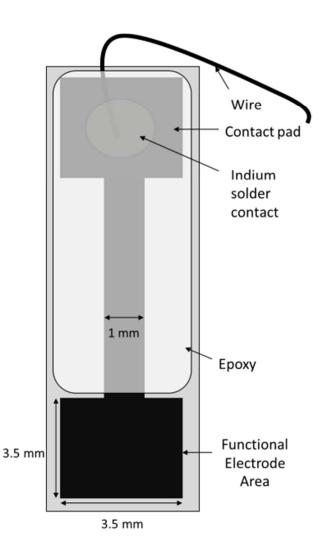
<sup>a</sup> Department of Biomedical Engineering, University of California, Irvine, CA 92617

<sup>b</sup> Department of Electrical Engineering & Computer Science, University of California, Irvine, CA 92617

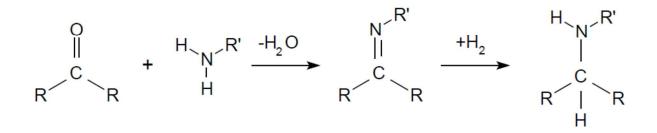
<sup>c</sup> Department of Mechanical and Aerospace Engineering, University of California, Irvine, CA 92617

<sup>d</sup> Ulsan National Institute of Science and Technology (UNIST), Banyeon-ri 100, Ulsan 689-798, Korea

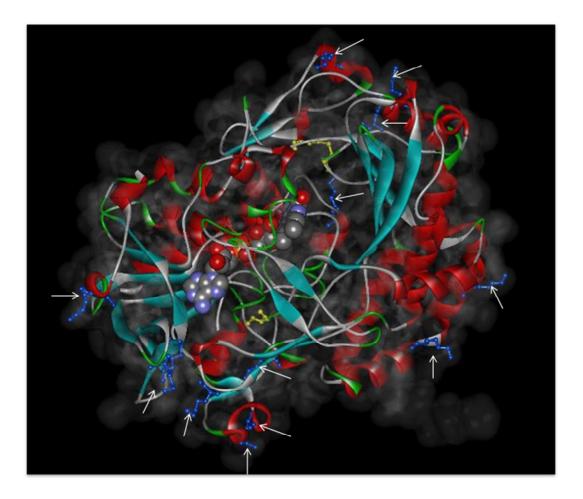
\* Corresponding author . Email : mmadou@uci.edu , Ph no: 19498246585



**Figure S1.** A schematic of the electrode after the soldering of electrical contact and application of epoxy protection of the non-functional area of the electrode.



**Figure S2.** Reductive amination of the carbonyl group on 2,5-Dihydroxy Benzaldehyde molecule with the  $NH_2$  group on the EDA linker leads to the covalent attachment of the mediator molecule to the amine linker.



**Figure S3**.Molecular model of Glucose Oxidase revealing the amine terminated Lysine groups shown with arrows. Lysine side chains act as anchor points for attachment of enzymes to the carboxyl groups on the electrode surface.