

Fabrication of Nanoscale Biofilm Consisting of Cytochrome c on Self-assembled 11-MUA Layer and its Application to Biomemory

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In the past few years there is significant increase in research towards the field of molecular electronic to overcome the limitations of silicon based devices. Metalloproteins can be used as an electron acceptor in the development of molecular electronic device by using chemical linker 11-MUA. To achieve their information storage properties on solid state with reproducibility and reliability, the robust fabrication of molecular layers with fine orientation are one of the key process. The orientation of cytochrome c with cystein residues immobilized on the Au substrate were analyzed by STM and SPR. The memory device characteristics were well-demonstrated with three distinct electrical states of biofilm by CV. Immobilization of highly oriented cytochrome c using 11-MUA could be useful for the nanoscale fabrication of bioelectronic device.

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