

The Investigation of Memory Functions of Biomolecular Device consisting of Metalloprotein

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We demonstrated a protein-based memory device using recombinant *Pseudomonas aeruginosa* azurin (Azurin), a metalloprotein with a redox property. Azurin was recombined with a cysteine residue to enhance the stability of the self-assembled protein on the gold surface. The memory device characteristics, including the “Read”, “Write”, and “Erase” functions of the self-assembled azurin layer, were obtained with three distinct electrical states of azurin layers by cyclic voltammetry. It is concluded that the proposed device has a function of memory and can be used for the construction of nanoscale bioelectronic device with memory function. Acknowledgments : This research was supported by the Nano/Bio science & Technology Program (M10536090001-05N3609-00110) of the Ministry of Science and Technology (MOST), by the Korea government (MOST) (2006-05374), and by the Korea Research Foundation Grant funded by the Korean Government (MOEHRD) (KRF-2006-005-D00003).