

## Biomolecular Memory Device Composed of Self-Assembled Metalloprotein

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Metalloprotein is a protein containing a metal ion within its structure. We used these proteins for fabricating new functional devices. That can be inspired from the biological systems, which have the ability of trapping charge. In this study, molecular information storage of self-assembled layer of metalloprotein was investigated by applying the reduction potential as a write function and measuring the stored reducing charge as a read function. Metalloproteins were immobilized onto modified Au surface. The immobilization of protein molecules was investigated by Surface Plasmon Resonance, and the surface morphology of protein film onto the gold surface was analyzed using Scanning Probe Microscope. In addition, we confirmed the redox property of protein using by Cyclic Voltammetry to verify the possibility of application to the information storage. The result implicate that the biosurface is fabricated by self assembled redox proteins. And It could be successfully applied to the construction of nanoscale bioelectronic device with memory function.

### Acknowledgement

This research was supported by the Nano/Bio science & Technology Program (M10536090001-05N3609-00110) of the Ministry of Science and Technology( MOST).