

Nanoscale rectifying property of biophodiode composed of cytochrome c/chlorophyll a hetero-structure

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The rectifying property of biomolecular heterostructures was investigated in molecular scale by scanning-tunneling-spectroscopy (STS). Cytochrome c and chlorophyll a were used as an electron acceptor and sensitizer respectively by mimicking photosynthesis. The cytochrome c and chlorophyll a hetero layer was fabricated by self-assembly method and langmuir-blodgett technique. The formation of cytochrome c/chlorophyll a hetero-layers was confirmed by surface plasmon resonance. The rectifying property by STS based current-voltage characteristics was achieved in the cytochrome c/chlorophyll a hetero-layers. Acknowledgements: This work was supported by the korea Science and Engineering Foundation (KOSEF) through the Advanced Environment Monitoring Research Center at Gwangju Institute of Science and Technology and by the Nano/Bio science &Technology Program (M10536090001-05N3609-00110) of the Ministry of Science and Technology (MOST), and by the Brain Korea 21 Project of the Ministry of Education and Human Resources Development