

Technology for molecular assembly of electron transfer proteins

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We have developed various techniques to construct a molecular assembly system with controlled molecular orientation of electron transfer proteins, especially for bacterial photosynthetic reaction centers. The molecular orientation of an immobilized reaction center was controlled using specific biological affinity ligands, Langmuir-Blodgett film techniques, and reconstitution into liposomes. We also constructed biological photocells, herbicide sensors and bioreactors for decomposition of toxic compounds and also for production of hydrogen.