High-Performance Bio-assisted Nano Photocatalyst for Hydrogen Production

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5. Additional References

10 20 30 40 50 60 MLELLPTAVE GVSQAQITGR PEWIWLALGT ALMGLGTLYF LVKGMGVSDP DAKKFYAITT

70 80 90 100 110 120 LVPAIAFTMY LSMLLGYGLT MVPFGGEQNP IYWARYADWL FTTPLLLLDL ALLVDADQGT

130 140 150 160 170 180 ILALVGADGI MIGTGLVGAL TKVYSYRFVW WAISTAAMLY ILYVLFFGFT SKAESMRPEV

190 200 210 220 230 240 ASTFKVLRNV TVVLWSAYPV VWLIGSEGAG IVPLNIETLL FMVLDVSAKV GFGLILLRSR

250 260 AIFGEAEAPE PSAGDGAAAT SD



Figure S1. Bacteriorhodopsin sequence (top) and secondary structure display (bottom). From Protein Data Bank, PDB number 1 DZE [

http://www.rcsb.org/pdb/explore/remediatedSequence.do?structureId=1DZE]



Figure S2. The photoelectrochemical characteristics were analyzed in a typical three-electrode configuration with as-prepared TiO_2 or TiO_2/bR on FTO serving as the working electrode, Ag/AgCl (3M NaCl) as the reference electrode and Pt wire as the counter electrode. The photoelectrochemical characteristics were analyzed in a typical three-electrode configuration with as-prepared TiO2 or TiO2/bR on FTO serving as the working electrode, Ag/AgCl (3M NaCl) as the reference electrode and Pt wire as the counter electrode and Pt wire as the counter electrode and Pt wire as the reference electrode and Pt wire as the counter electrode and Pt wire as the counter electrode, 1.0 M citrate buffer containing 2 mM Iodine/Iodide (Iodolyte Z-150) redox species, pH 7.0 serves as electrolyte. Before the measurement, oxygen in the reactors (air-tight) was expelled by Ar gas for 15 minutes to remove dissolved oxygen.



Figure S3. UV-Vis absorption spectra of free bR and bR –functionalized Pt/TiO₂ particles in solution.





Figure S4: EDS of the TiO₂/Pt (top) and size distribution of the Pt nanoparticles (bottom).

References:

1. Zhang, F. *et al.* Synthesi of titania-supported platinum catalyst: the effect of pH on morphology control and valence state during photodeposition. *Langmuir* **20**, 9329-9334 (2004).