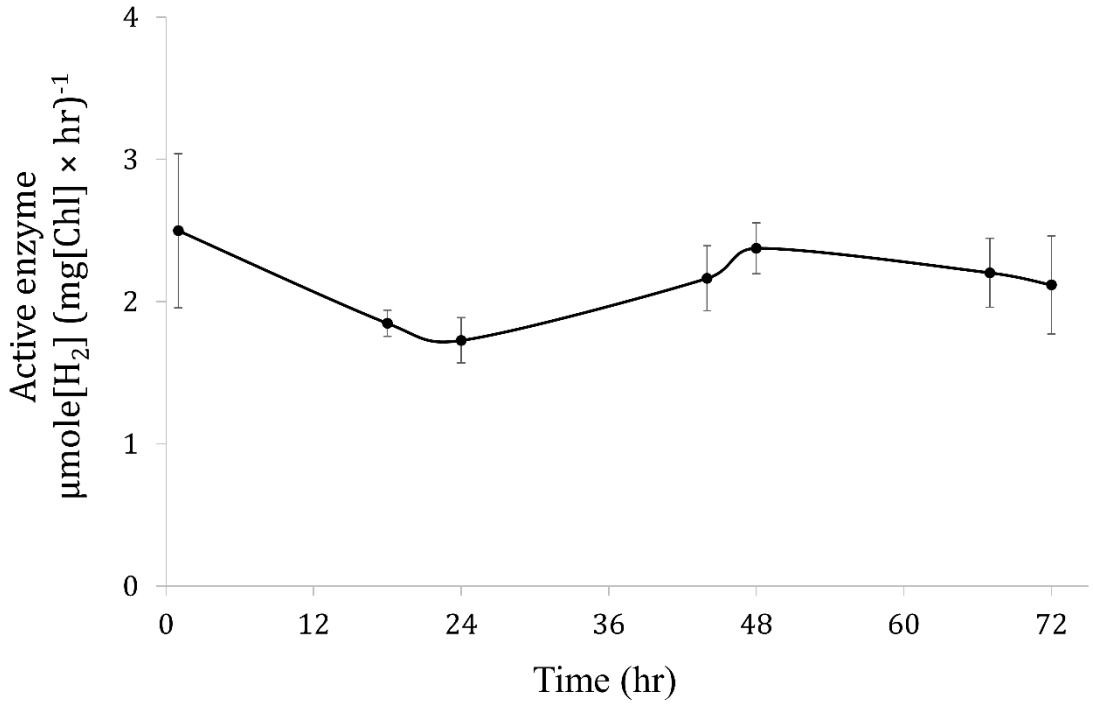

Figure S1 – Active protein abundance during Long-term H_2 photoproduction.
Cultures of HS-14 (n=4) were placed in BlueSens 1 L-photobioreactor measuring system. Following 2hr dark induction, the bioreactors were continuously illuminated at 180 µmol photons·m^{-2}·s^{-1}. For hydrogenase activity measurement, 2mL samples were drawn and a modified MV assay was used, in which the samples were directly added to the activity buffer without dark incubation (*see method*). Error bars represent standard error.

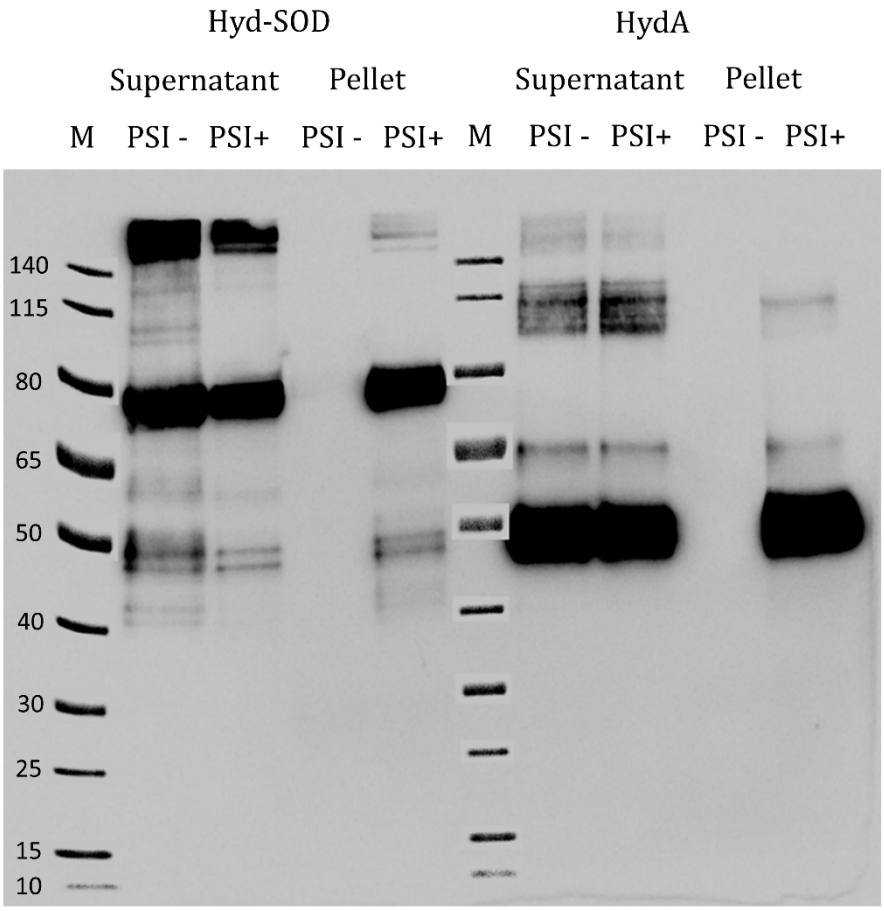

Figure S2 – Hyd-SOD Pull down assay.
Recombinant HydA and Hyd-SOD were expressed and purified as described previously (Ref). Histaged PSI was purified according to (Ref). For pull down assay, purified Histaged PSI was incubated with nickel beads, followed by 3 washing steps. Then the protein of choice was incubated with the PSI coated beads for 15 min, followed by 3 additional washing steps. The supernatant and beads containing pellet were analyze by immunoblot assay (*see method*). PSI- represent non coated beads and PSI+ represent PSI coated beads.