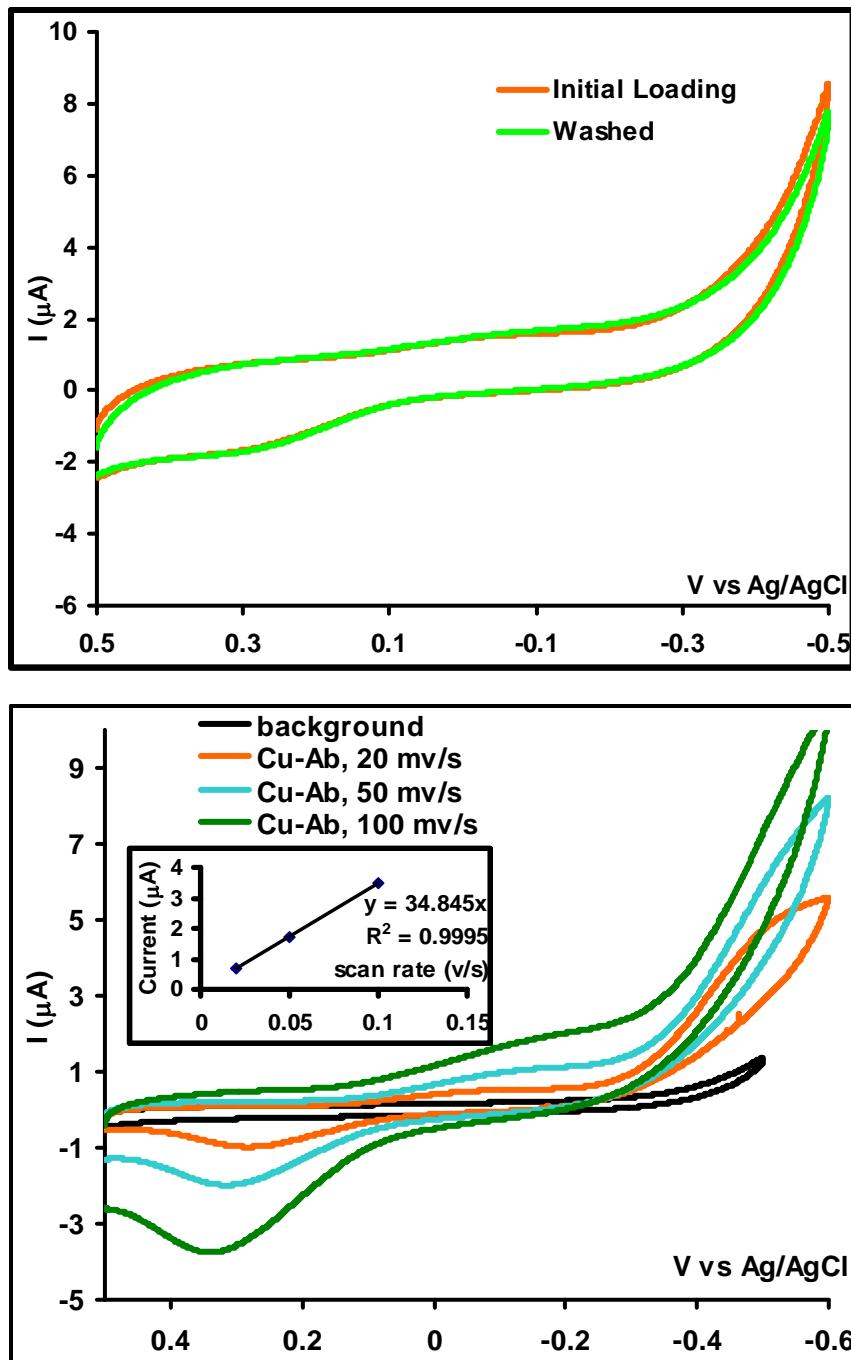


Supporting Information

Self-Assembled Monolayers of A β peptides on Au electrodes: An Artificial Platform for Probing the Reactivity of Redox Active Metals and Cofactors Relevant to Alzheimer's Disease

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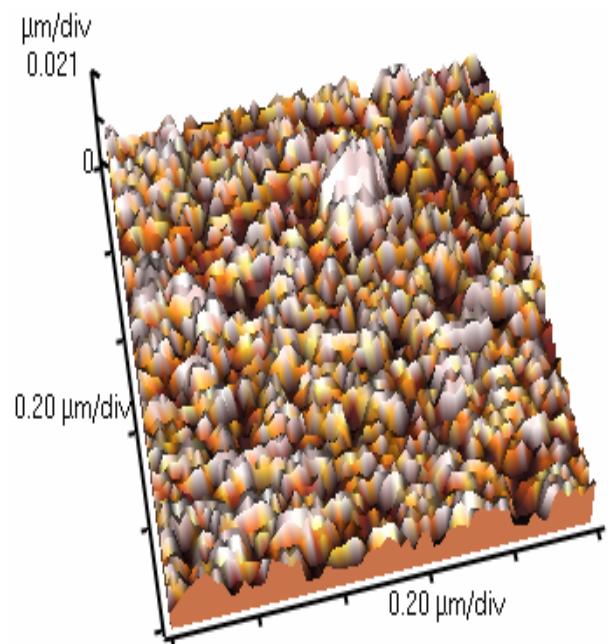


Figure S2. AFM data of $\text{A}\beta_{\text{Cys}}$ SAM bound to heme.

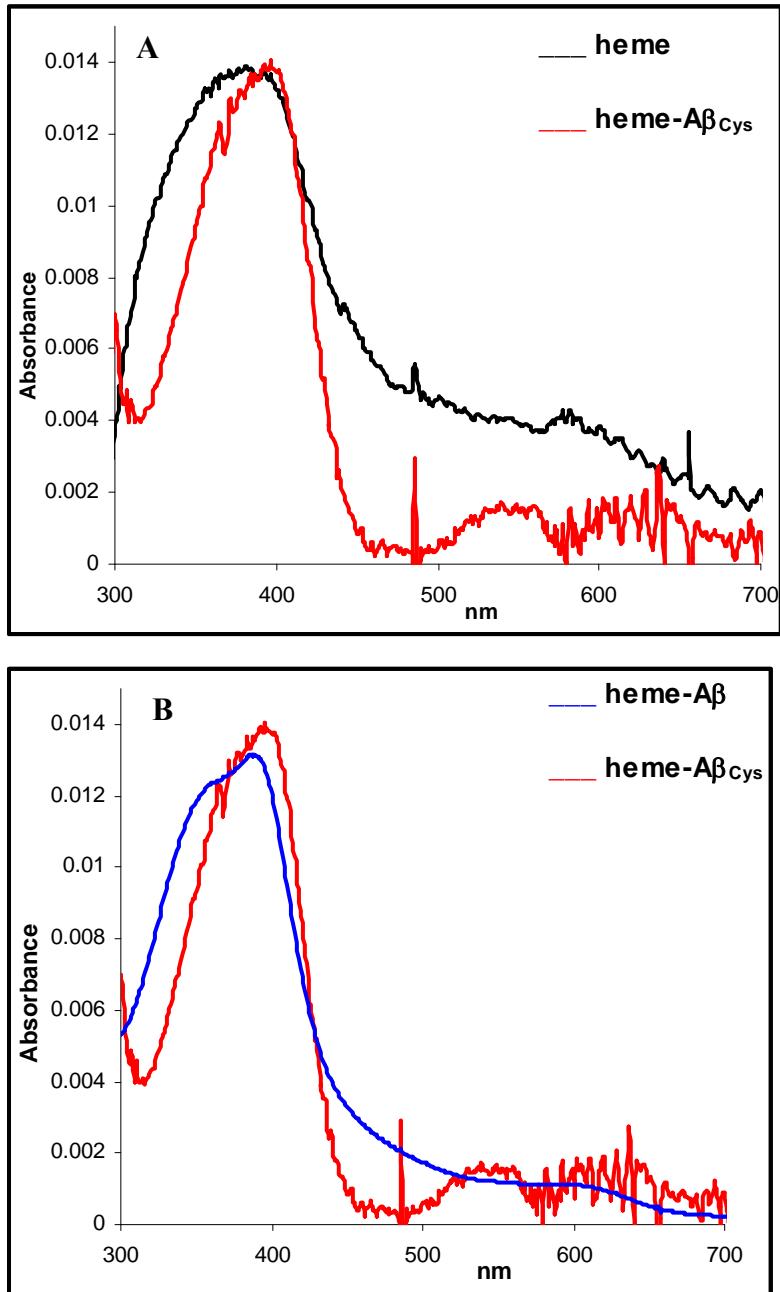
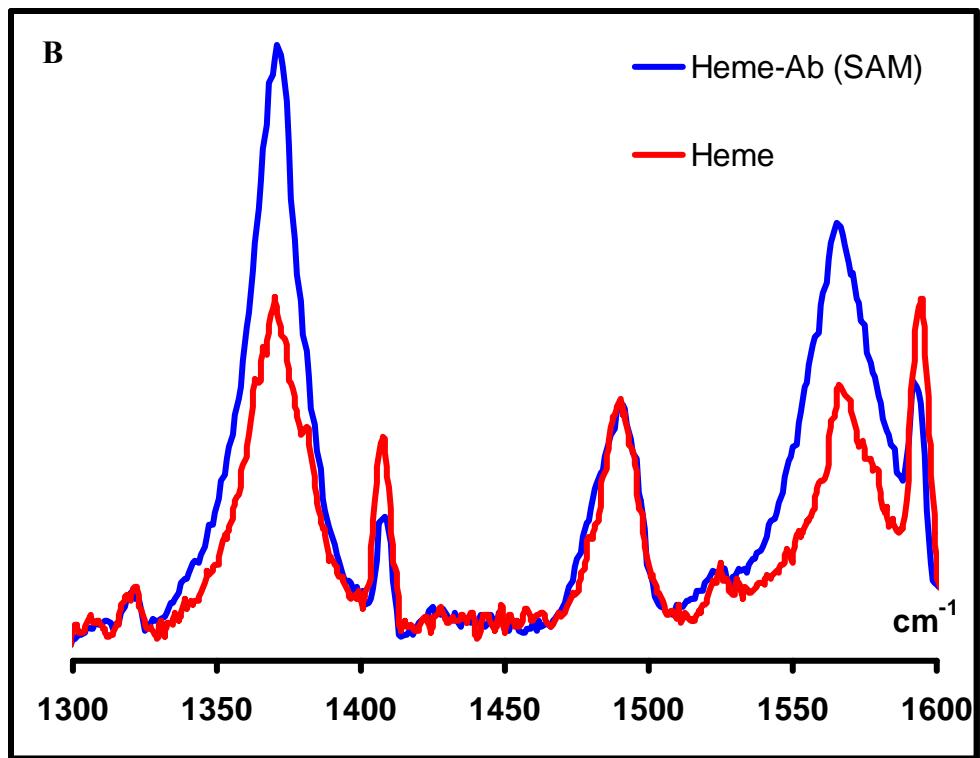
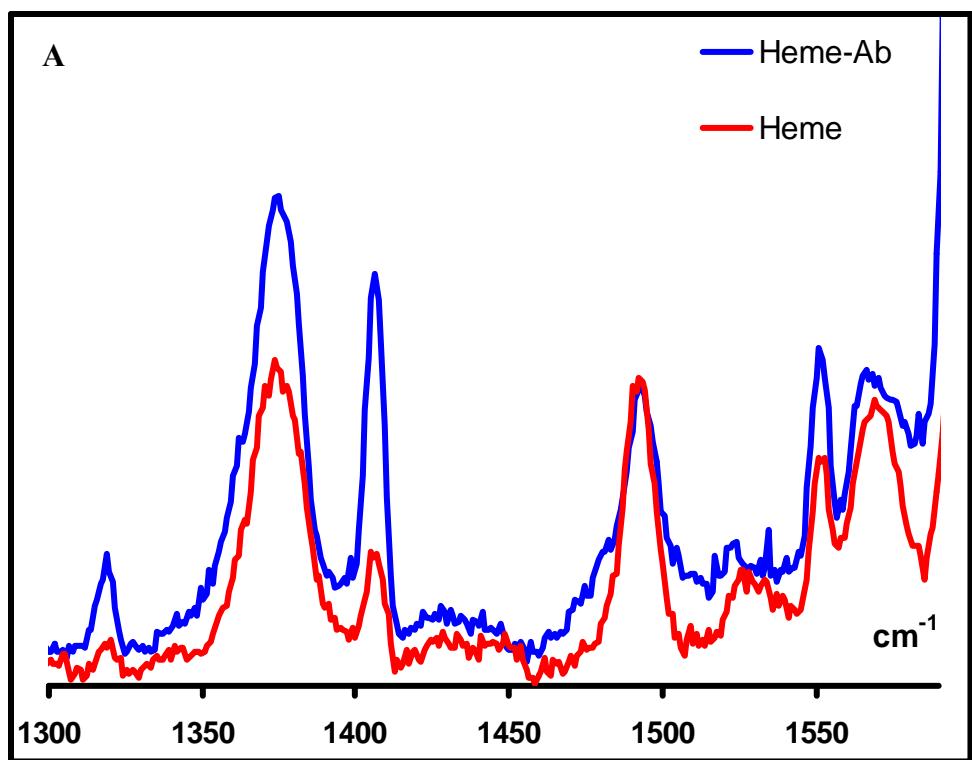


Figure S3. Absorption data of A) heme physi-absorbed on octanethiol surface (black) and heme- $\text{A}\beta_{\text{Cys}}$ (red) on transparent Au electrodes and B) heme- $\text{A}\beta$ (blue) in solution and heme- $\text{A}\beta_{\text{Cys}}$ (red) on transparent Au electrodes. The solution absorption data has been scaled down by a factor of 80.



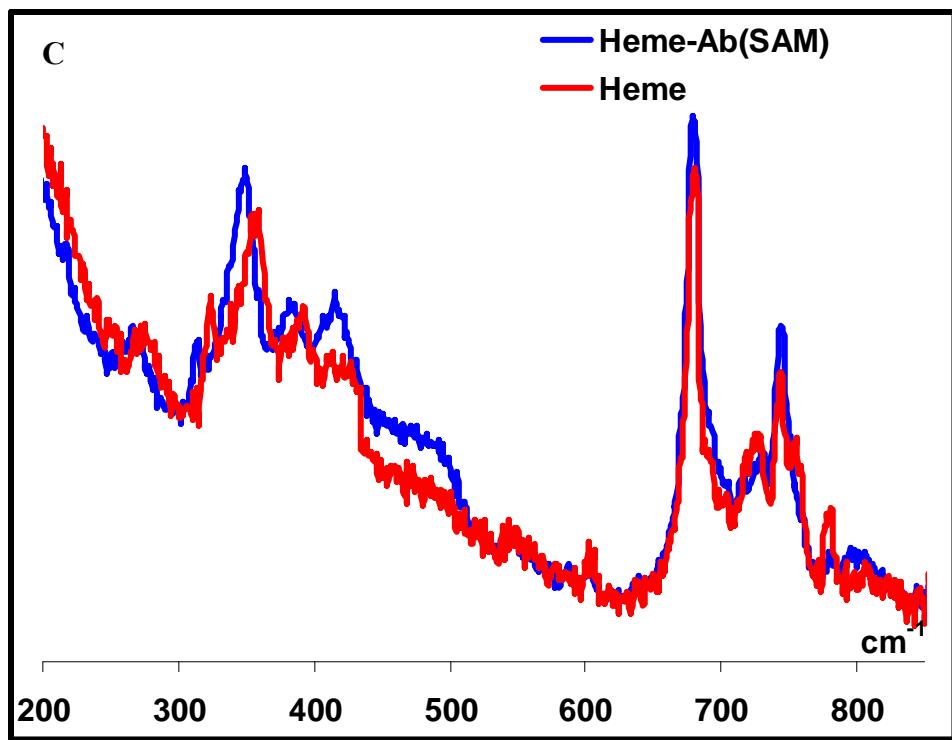


Figure S4. A) Resonance Raman data of free heme (red) and heme-A β (blue) in pH 7 buffer, B) SERRS data of heme on octanethiol SAM (red) and heme-A β _{Cys} (blue) in pH 7 buffer at high energy region , and C) SERRS data of heme on octanethiol SAM (red) and heme-A β _{Cys} (blue) in pH 7 buffer at low energy region on roughened Ag disc.

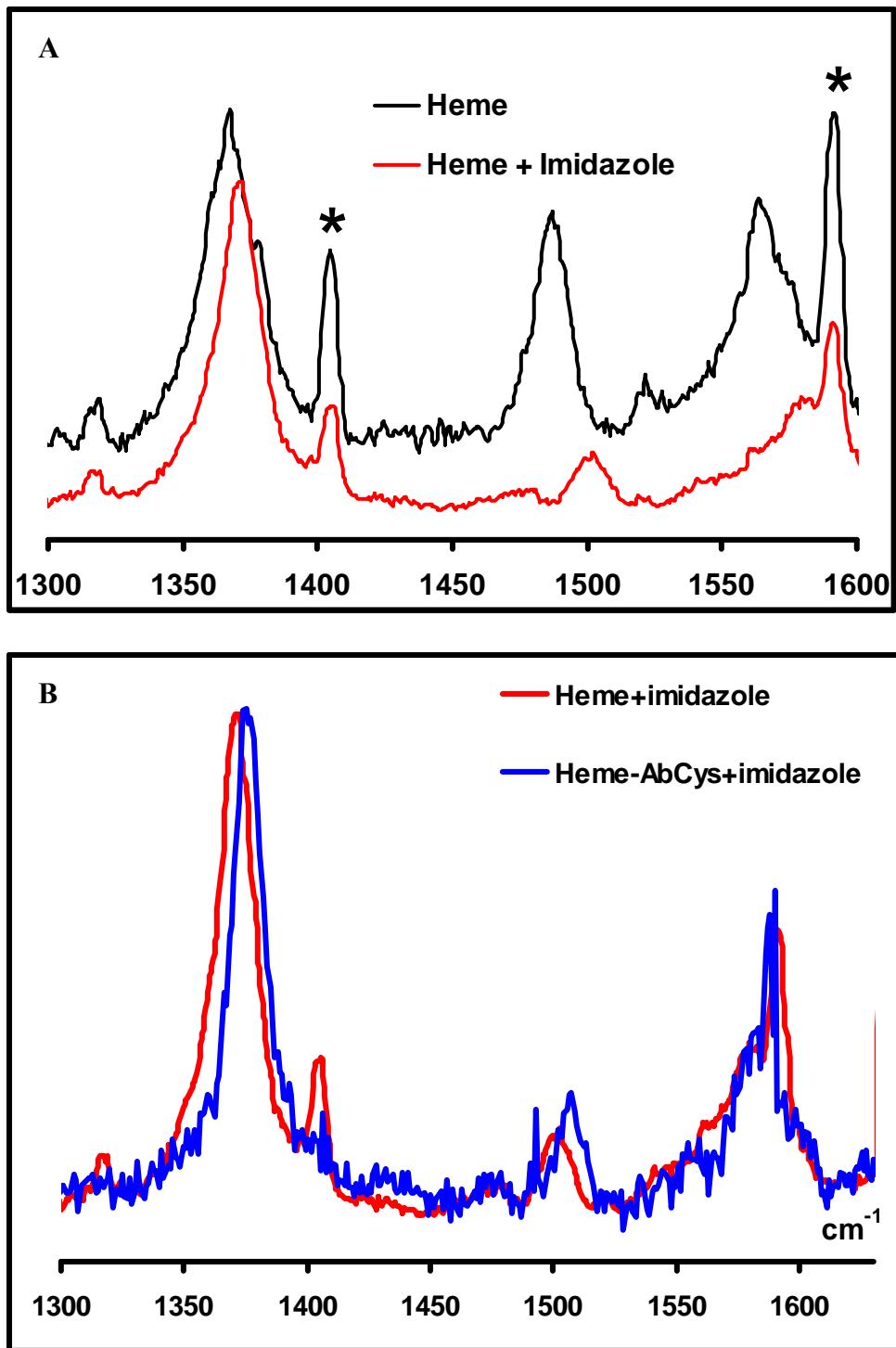


Figure S5. SERRS data of A) heme on octanethiol SAM in pH 7 buffer (black) and in pH 7 buffer containing 100 mM imidazole (red) on roughened Ag disc. (* implies plasma line) and B) heme on octanethiol SAM in pH 7 buffer with 100 mM imidazole (red) and heme-AbCys in pH 7 buffer containing 100 mM imidazole (red) on roughened Ag disc.

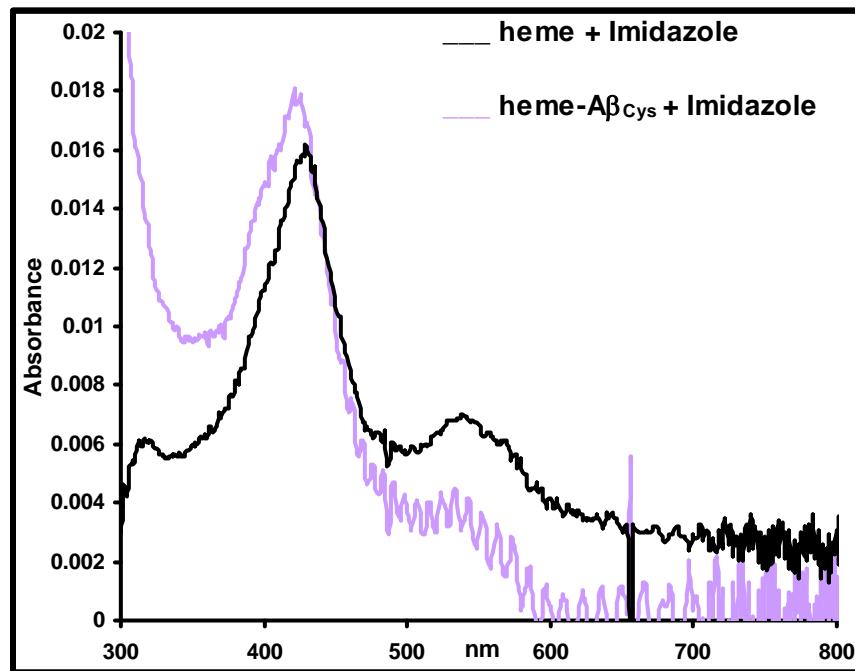


Figure S6. Absorption data of heme physi-absorbed on octanethiol surface in pH 7 buffer containing 100 mM imidazole (black) and heme- $\text{A}\beta_{\text{Cys}}$ in pH 7 buffer containing 100 mM imidazole (violet) on transparent Au electrodes.

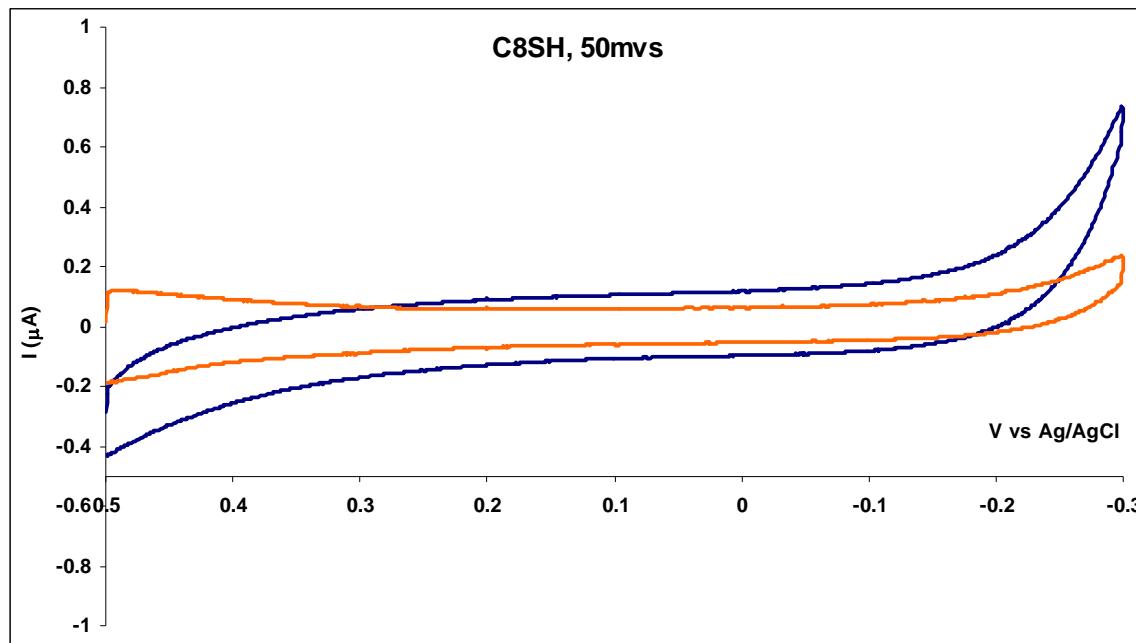


Figure S7. CV of octanethiol SAM covered Au electrode after Cu loading (blue) in pH 7 at 50 mV/s using Ag/AgCl reference and Pt wire counter electrode. The background current is shown in orange. No $\text{Cu}^{2+/+}$ CV is observed as Cu does not bind the octanethiol surface.

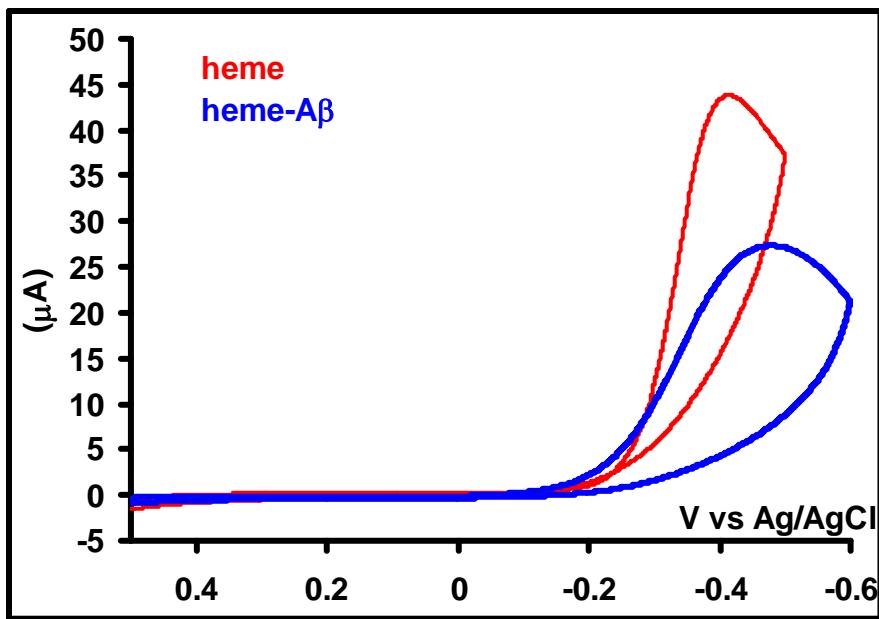


Figure S8. CV of heme physi-absorbed on octanethiol SAM (red) and heme-A β_{Cys} SAM (blue) in pH 7 buffer at 50 mV/s using Ag/AgCl reference and Pt wire counter electrode.

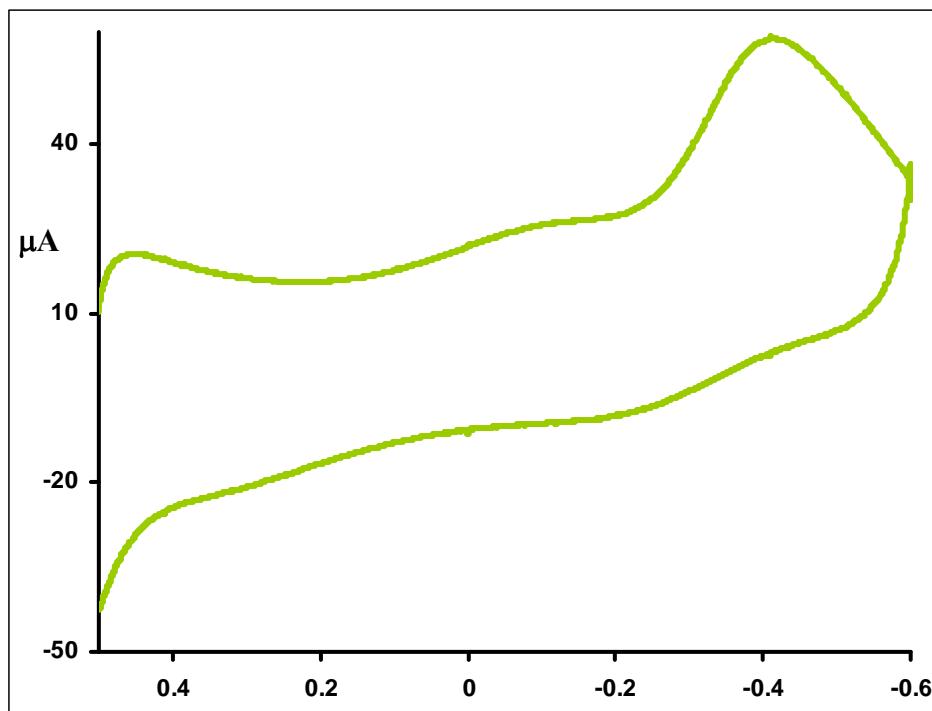


Figure S9. Anaerobic CV of heme-Cu-A β Cys at 1 V/s, in a pH 7 buffer, using Ag/AgCl reference, Pt counter electrode.

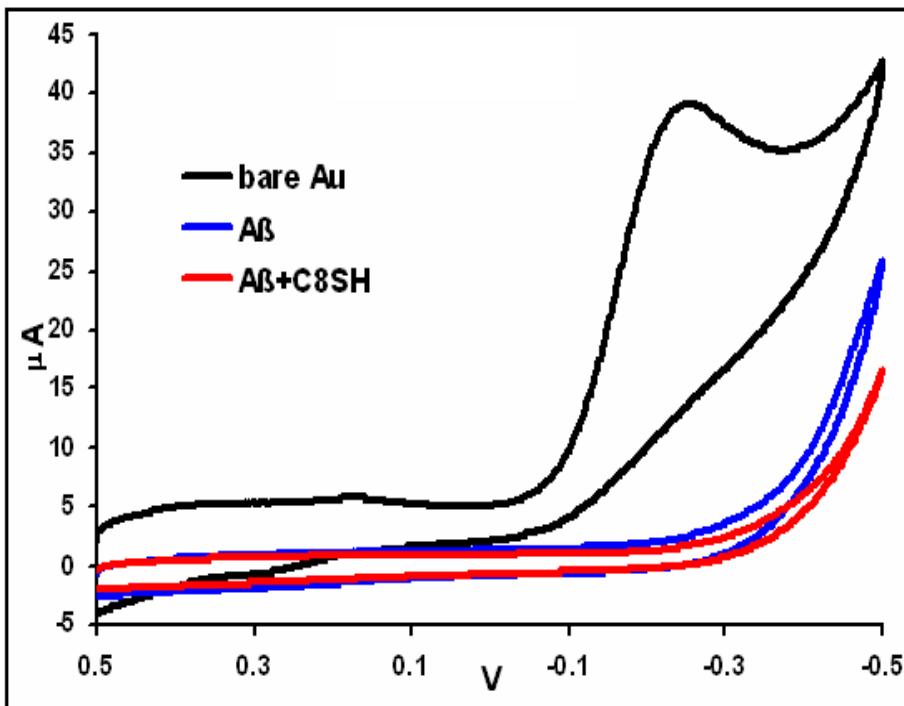


Figure S10. CV of bare Au surface (black), $\text{A}\beta$ peptide SAM (blue) and SAM of $\text{A}\beta$ peptide with octanethiol (red) at 50 mV/s in a pH 7 buffer using Ag/AgCl reference electrode and Pt counter electrode.

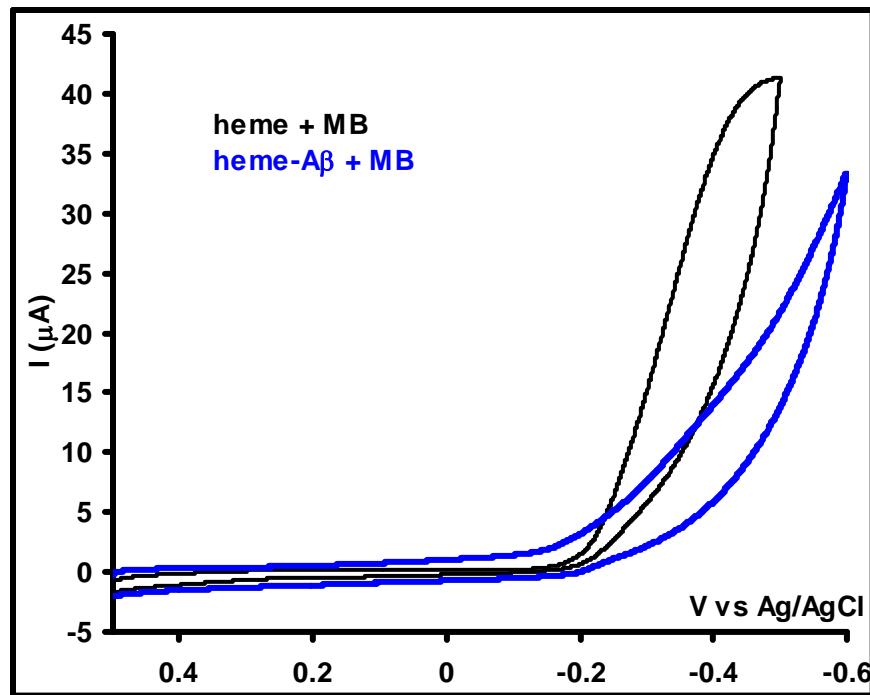


Figure S11. (A) CV of heme physi-absorbed on octanethiol SAM + 15 μ M methylene blue (black) and heme- $\text{A}\beta_{\text{Cys}}$ SAM + 15 μ M methylene blue (blue) in pH 7 buffer at 50 mV/s using Ag/AgCl reference and Pt wire counter.

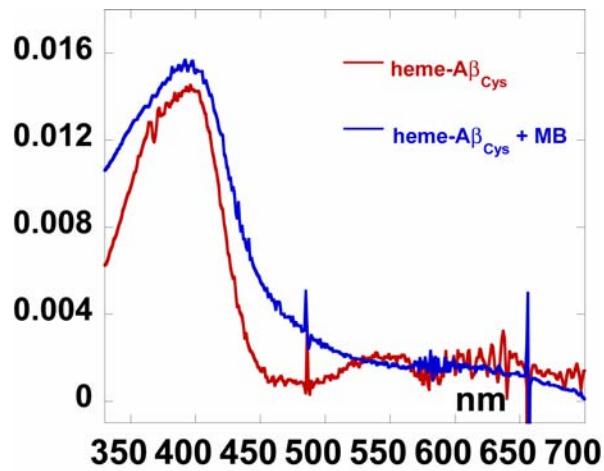


Figure S12. Absorption data of heme- $\text{A}\beta_{\text{Cys}}$ (red) and heme- $\text{A}\beta_{\text{Cys}}$ complex with methylene blue, after 6 hours of incubation (dark blue) on transparent Au electrodes.

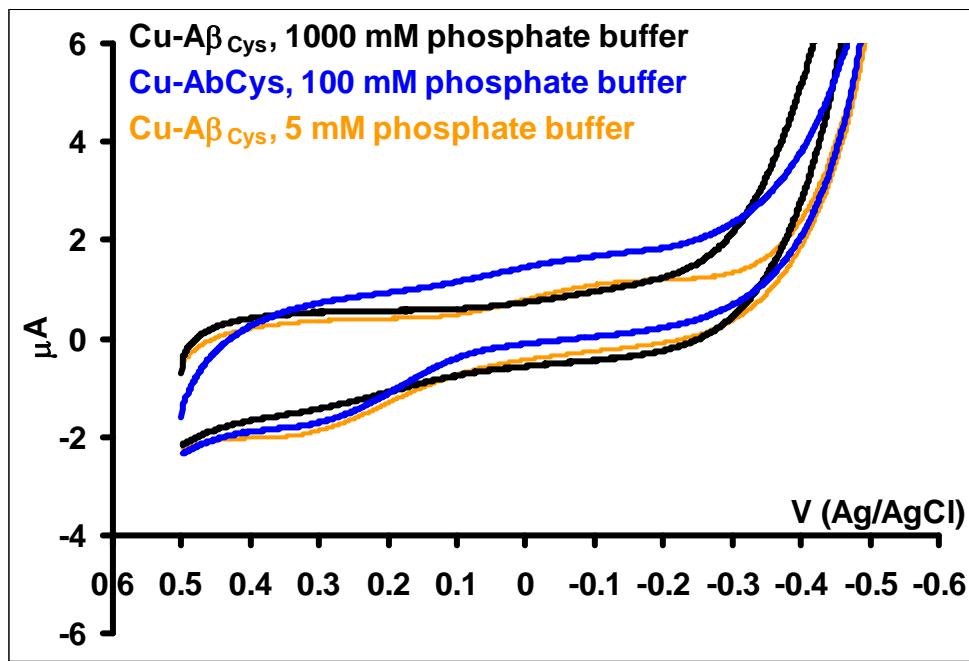


Figure S13. CV of Cu-A β Cys at 50 mV/s using Ag/AgCl reference and Pt wire counter electrode in 5 mM (orange) 100 mM (blue) and 1 M (black) phosphate buffer.