Supporting information

Nucleoside-5'-phosphorothioate Analogues are biocompatible antioxidants Dissolving efficiently Amyloid Beta –Metal Ion Aggregates

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Cu^{+} titration of 1 mM $A\beta_{28}$ solution monitored by ^{1}H-NMR

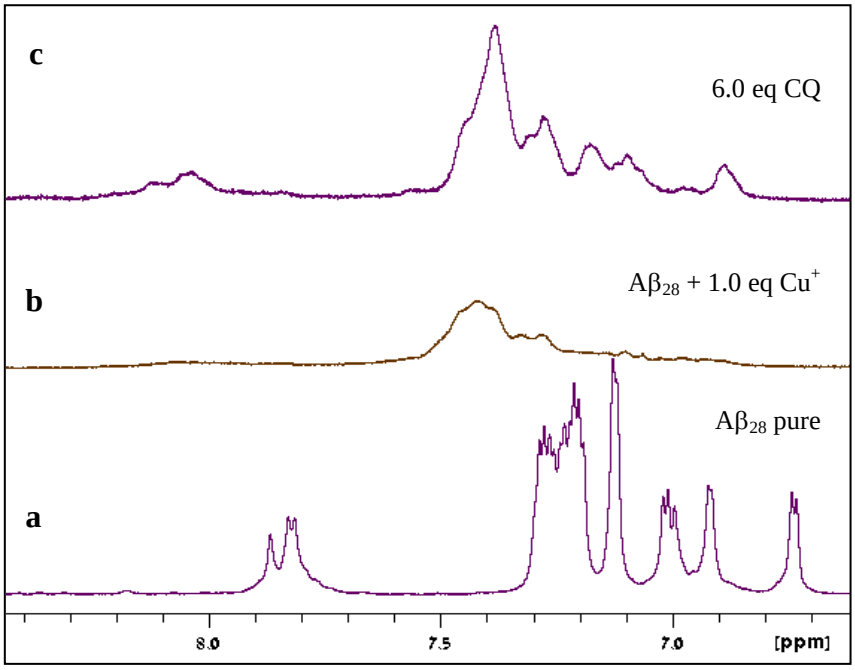

Fig. S1: $A\beta_{28}$-Cu^{+} complex titrated by clioquinol (CQ). a: $A\beta_{28}$ pure pD 7. b: $A\beta_{28}$-Cu^{+} 1:1. c: $A\beta_{28}$-Cu^{+}-CQ 1:1:6.

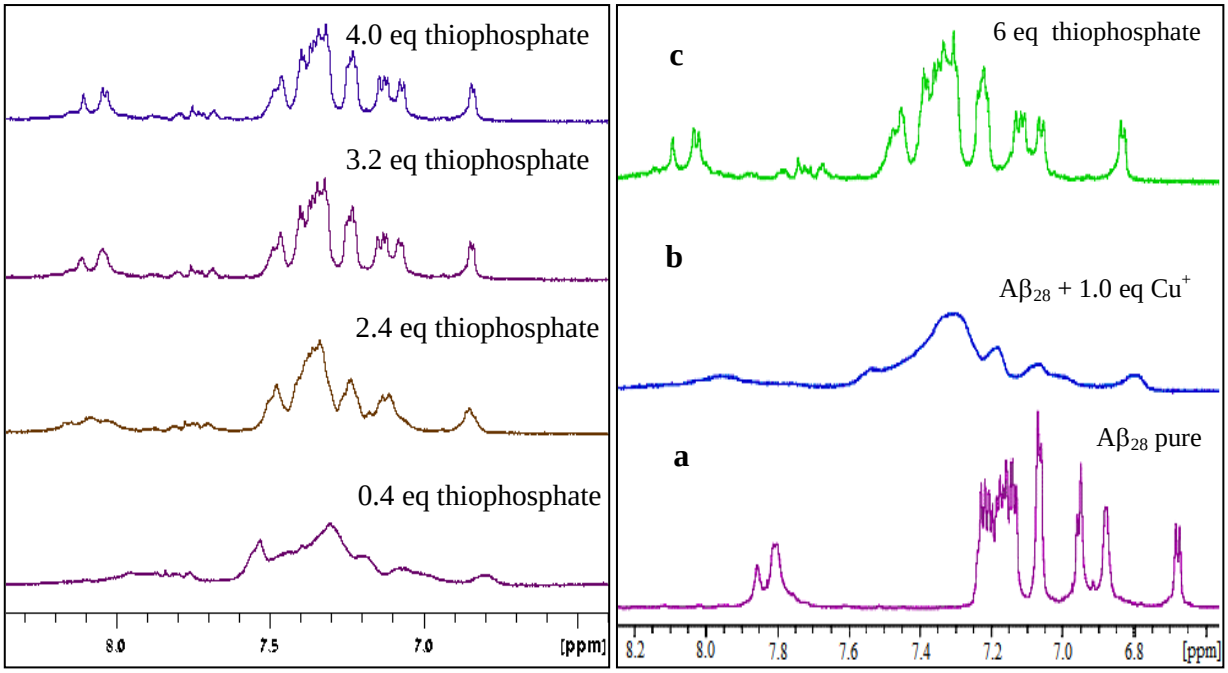

Fig. S2: $A\beta_{28}$-Cu^{+} complex titrated by thiophosphate, **5**,. a: $A\beta_{28}$ pure pD 7. b: $A\beta_{28}$-Cu^{+} 1:1. c: $A\beta_{28}$-Cu^{+}-thiophospahte 1:1:6.

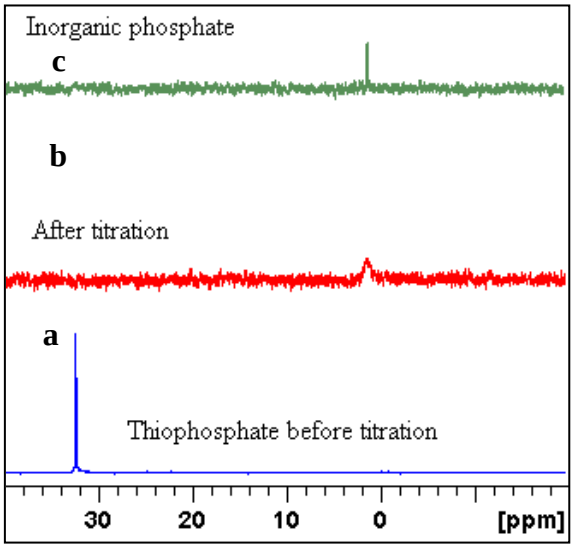

Fig S3: ^{31}P-NMR of thiophosphate, **5**, taken before and after the titration. a. thiophosphate before titration pD 6.93. b. after titration. c. Inorganic phosphate pD 6.9.

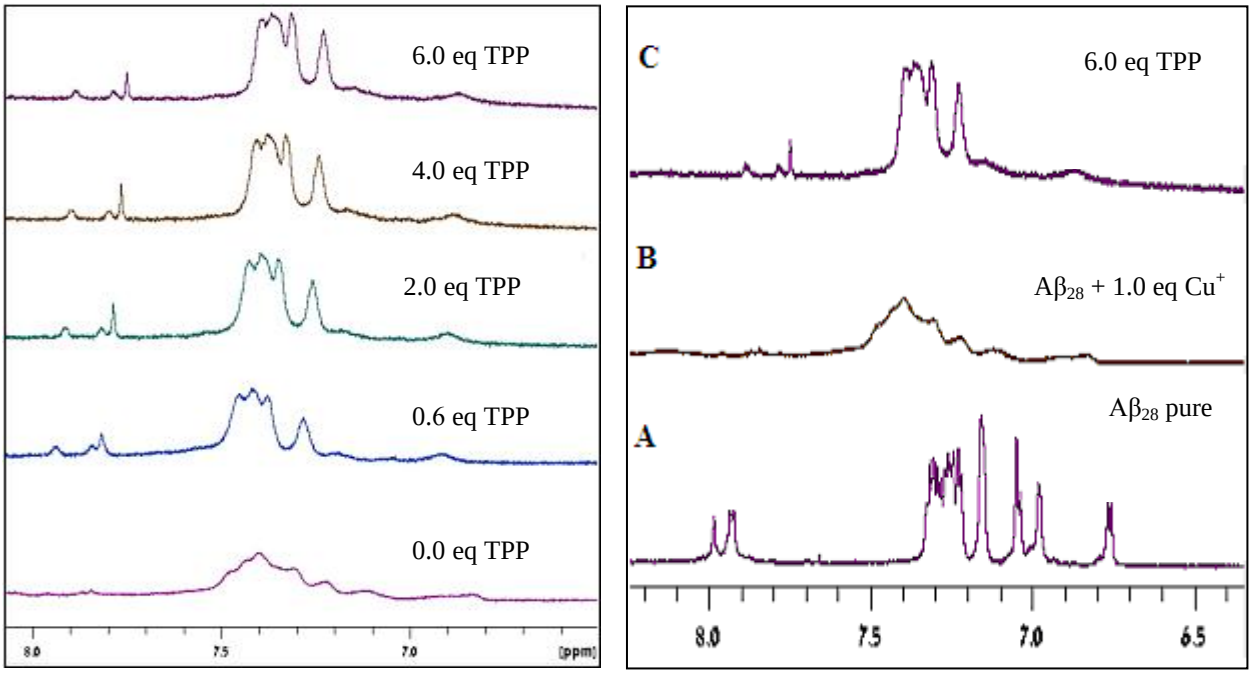

Fig. S4: $A\beta_{28}$-Cu^{+} complex titrated by tripolyphosphate (TPP), **8**,. a: $A\beta_{28}$ pure pD 6.9. b: $A\beta_{28}$-Cu^{+} 1:1. c: $A\beta_{28}$-Cu^{+}-TPP 1:1:6 pD 6.8.

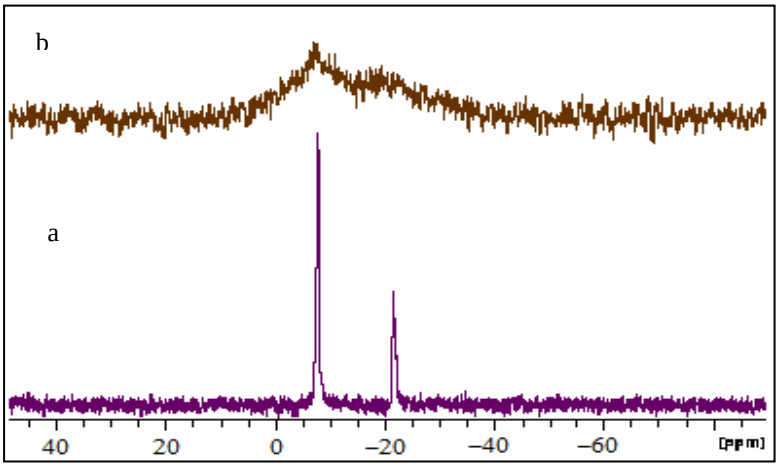

Fig S5: ^{31}P-NMR of tripolyphosphate (TPP), **8**, taken before and after the titration. a. TPP before titration pD 6.9. b. after titration pD 6.8.

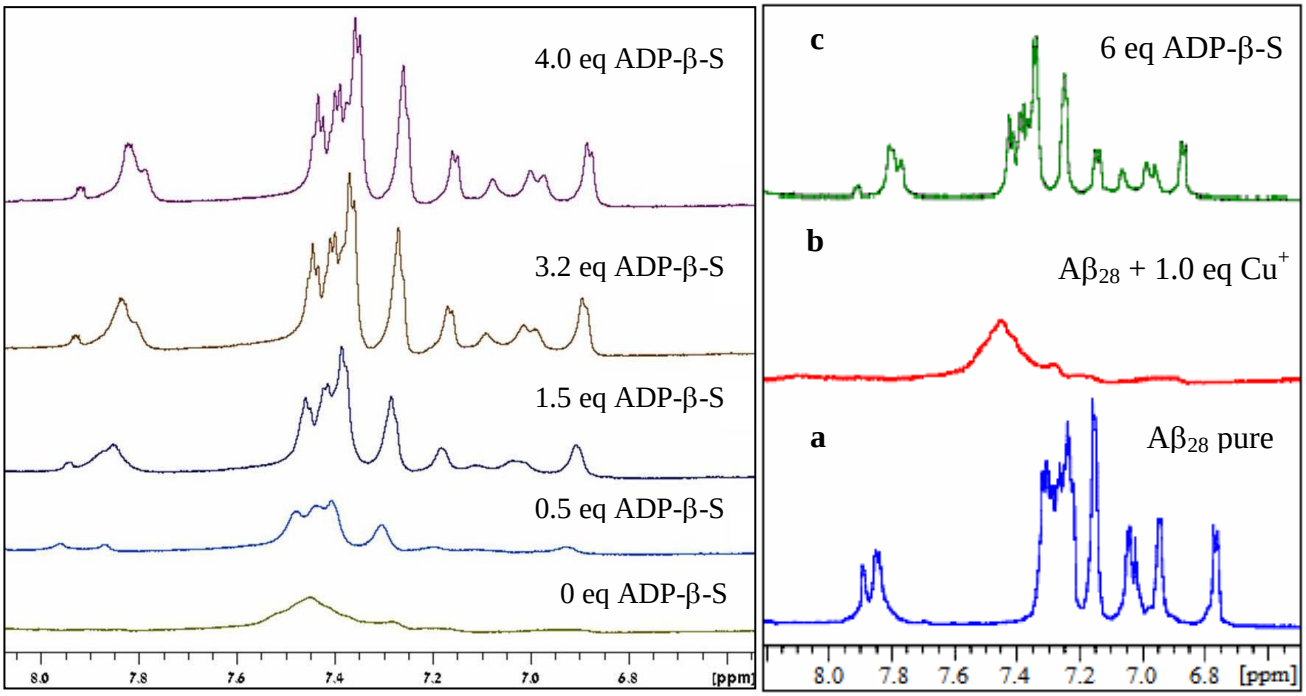

Fig. S6: $A\beta_{28}$-Cu^{+} complex titrated by ADP-β-S, **6**,. a: $A\beta_{28}$ pure pD 7.2. b: $A\beta_{28}$-Cu^{+} 1:1. c: $A\beta_{28}$-Cu^{+}-ADP-β-S 1:1:5 pD 8.

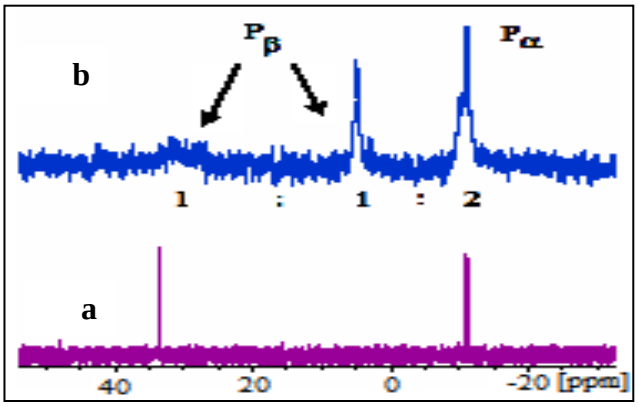

Fig S7: ^{31}P-NMR of ADP-β-S, **6**, taken before and after the titration. a. ADP-β-S before titration pD 7.2. b. after titration pD 8.

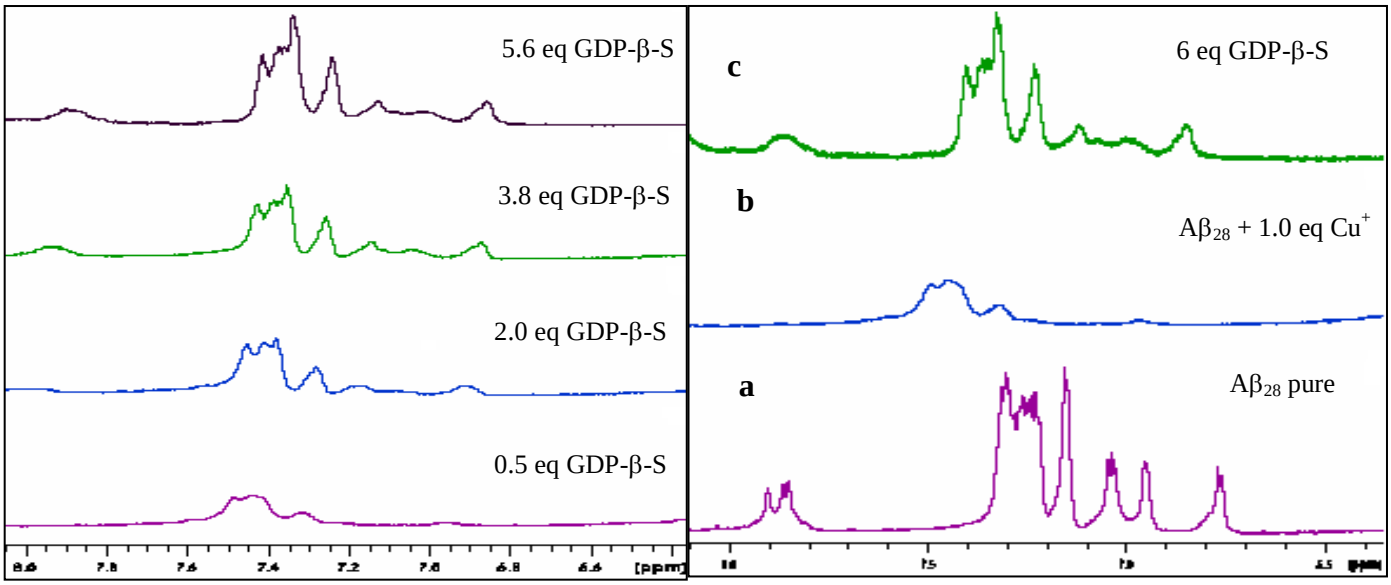

Fig. S8: $A\beta_{28}$-Cu^{+} complex titrated by GDP-β-S, **9**,. a: $A\beta_{28}$ pure pD 7.3. b: $A\beta_{28}$-Cu^{+} 1:1. c: $A\beta_{28}$-Cu^{+}-GDP-β-S 1:1:6 pD 7.8.

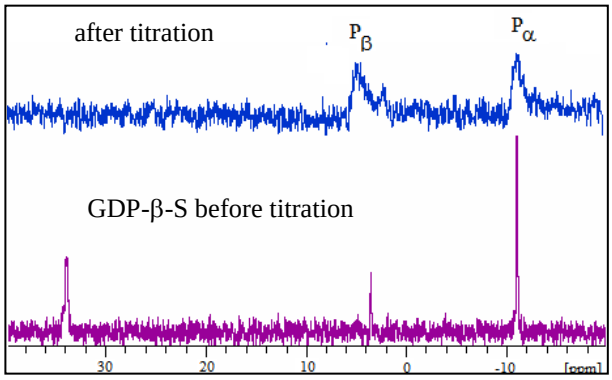

Fig S9: ^{31}P-NMR of GDP-β-S, **9**, taken before and after the titration. a. GDP-β-S before titration pD 7.3. b. GDP-β-S after titration pD 7.8.

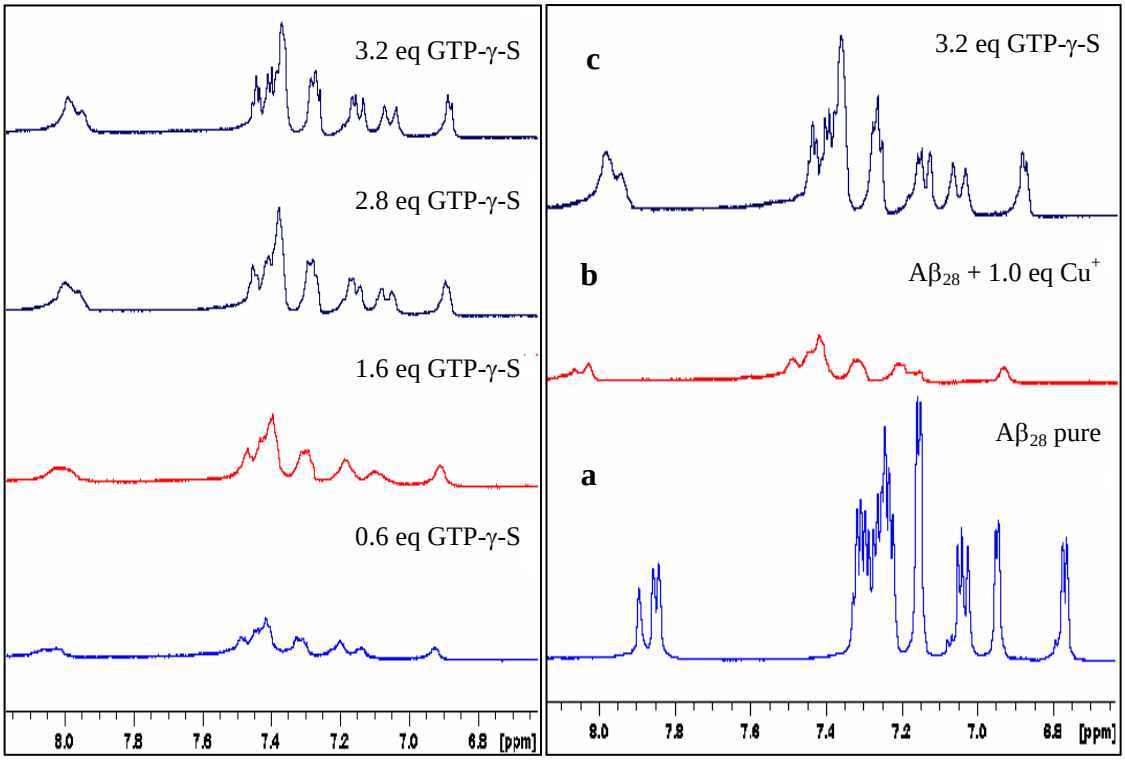

Fig. S10: $A\beta_{28}$-Cu^{+} complex titrated by GTP-γ-S, **10**,. a: $A\beta_{28}$ pure pD 7.2. b: $A\beta_{28}$-Cu^{+} 1:1. c: $A\beta_{28}$-Cu^{+}-GDP-β-S 1:1:3.2 pD 7.4.

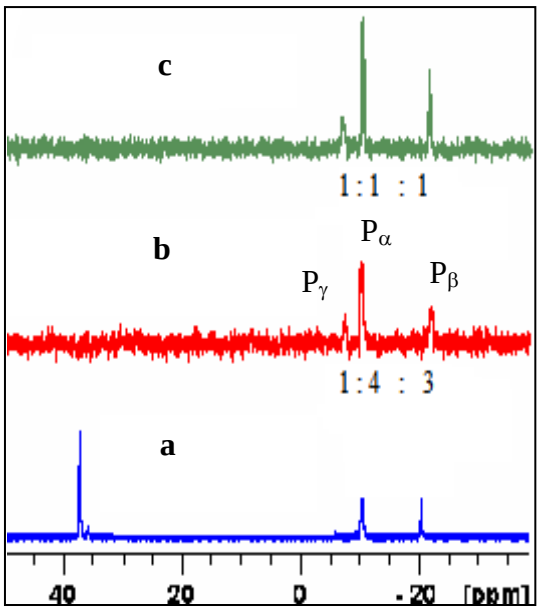

Fig S11: ^{31}P-NMR of GTP-γ-S, **10**, taken before and after the titration. a. GTP-γ-S before titration pD 7.2. b. GTP-γ-S after titration pD 7.4. c. Free GTP pD 7.4

Dynamic light scattering (DLS) messurments

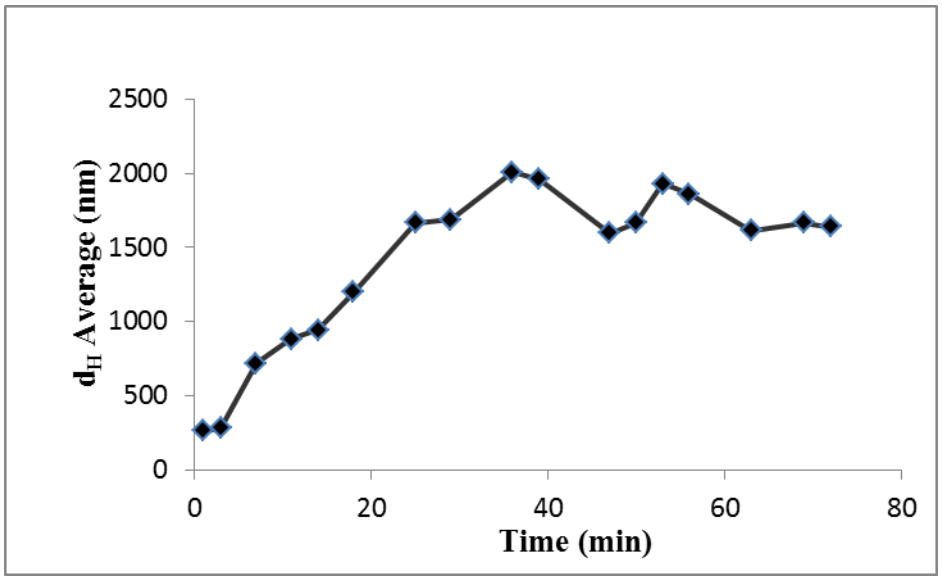

Fig S12: $A\beta_{40}$-Cu^{2+} size by time DLS measurement.

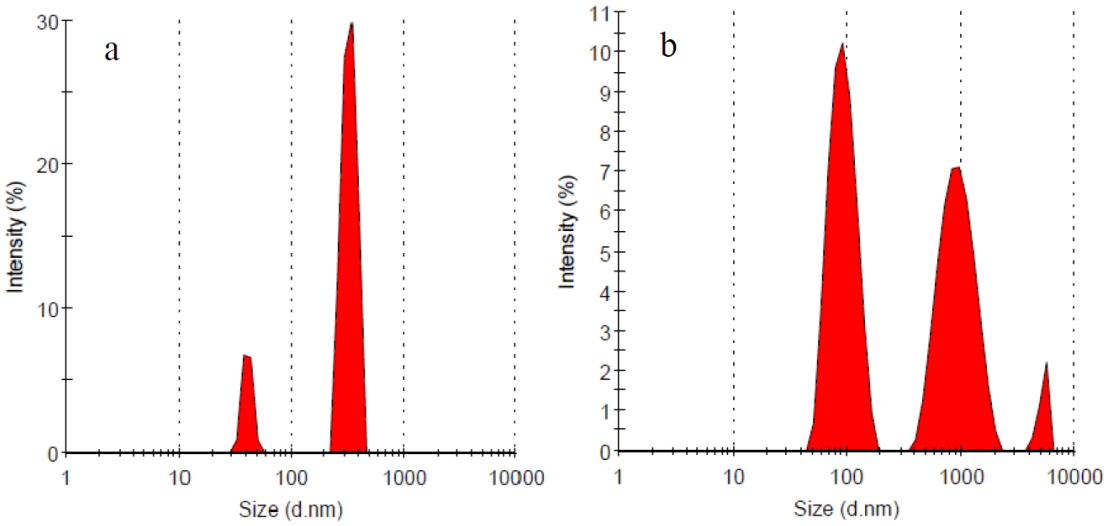

Fig S13: $A\beta_{40}$-Zn^{2+} size DLS measurement: (a) after Zn^{2+} addition (b) after 45 min from Zn^{2+} addition.

Disaggregation of $A\beta_{42}$-M^{2+} by various chelators as measured by turbidity assay at 405 nm.

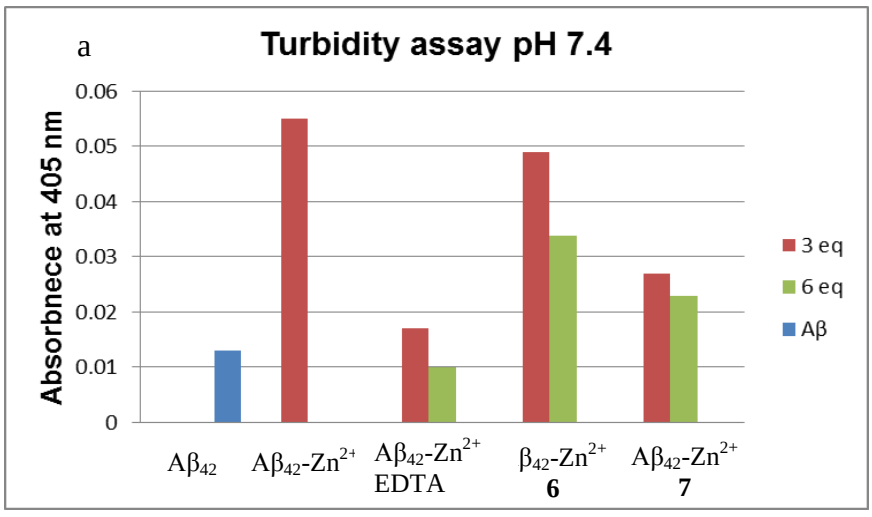

Fig S14: Chelator-depended changes of $A\beta_{42}$-Zn^{2+} aggregates.

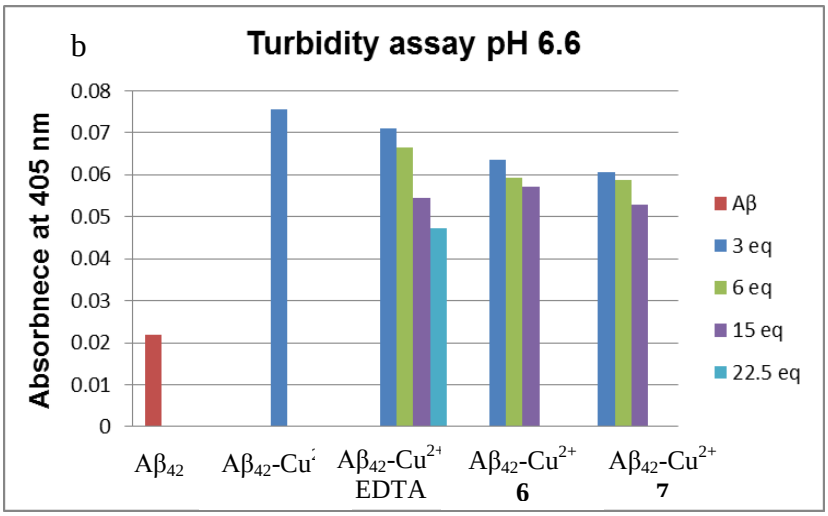

Fig S15: Chelator-depended changes of $A\beta_{42}$-Cu^{2+} aggregates.

Electron spin resonance (ESR) radical assay.

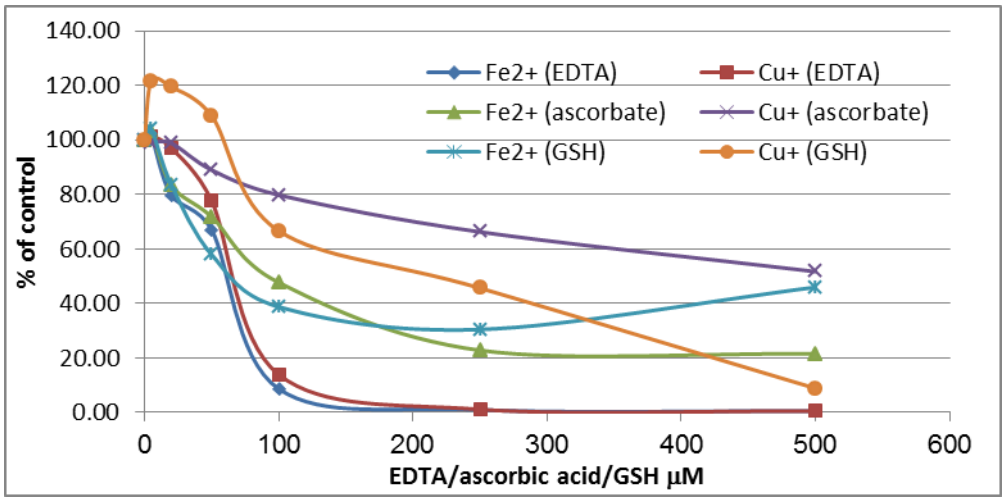

Fig S16: Inhibition of OH radical production by EDTA, ascorbic acid and GSH as percent of control.

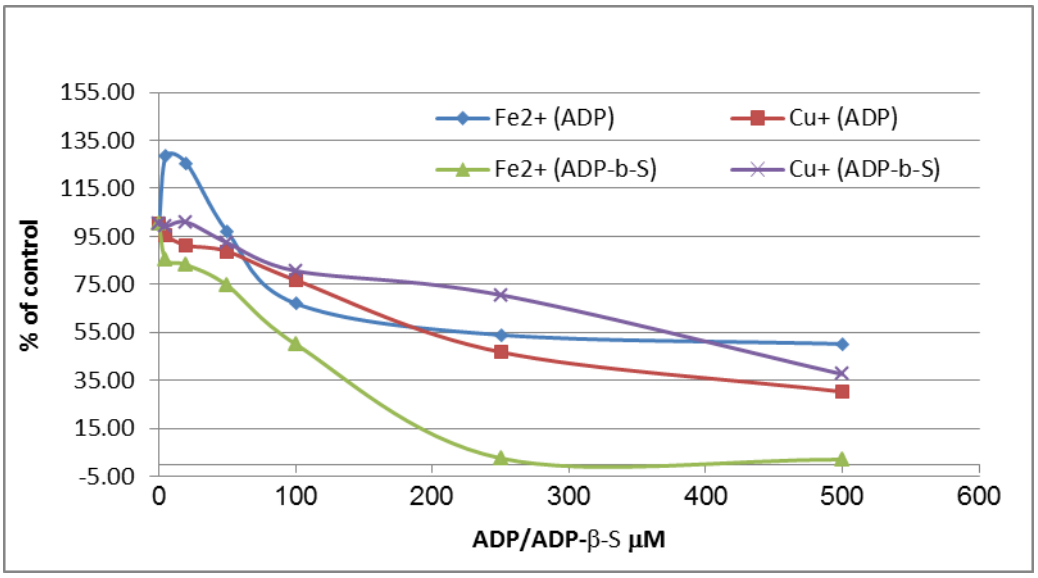

Fig S17: Inhibition of OH radical production by ADP, 4, and ADP-β-S, 6, as precent of control.

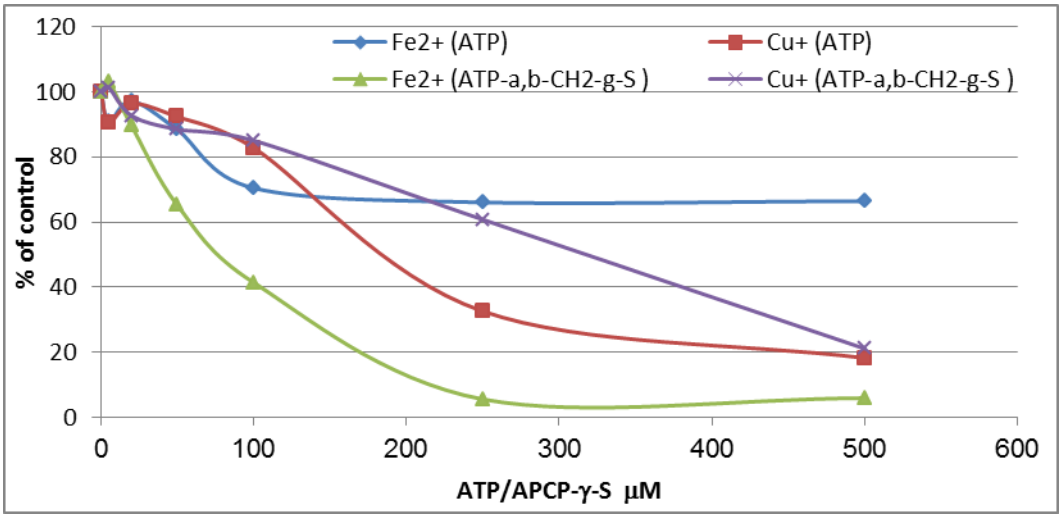

Fig S18: Inhibition of OH radical production by ATP, **1**, and APCP- γ-S, **7**, as percent of control.