Electronic Supplementary Material (ESI) for Metallomics.

Supplementary information

PTA keeps its ability to prevent Cu(Amyloid-β) induced ROS formation and Amyloid-β oligomerisation in presence of Zn(II)

Elena Atrián-Blasco,[a,b] Elena Cerrada,[b] Peter Faller,[a,c] Mariano Laguna,[b] and Christelle Hureau,[*a]

[a] LCC-CNRS, Université de Toulouse, CNRS, 31400 Toulouse, France.
E-mail: christelle-hureau@lcc-toulouse.fr

[b] Instituto de Síntesis Química y Catálisis Homogénea, Universidad de Zaragoza-CSIC, Pza. San Francisco s/n, 50009 Zaragoza, Spain.

[c] Biometals and Biological Chemistry, Institut de Chimie, UMR 7177, Université de Strasbourg, CNRS, Le Bel, 4 rue B. Pascal, 67081 Strasbourg, France.

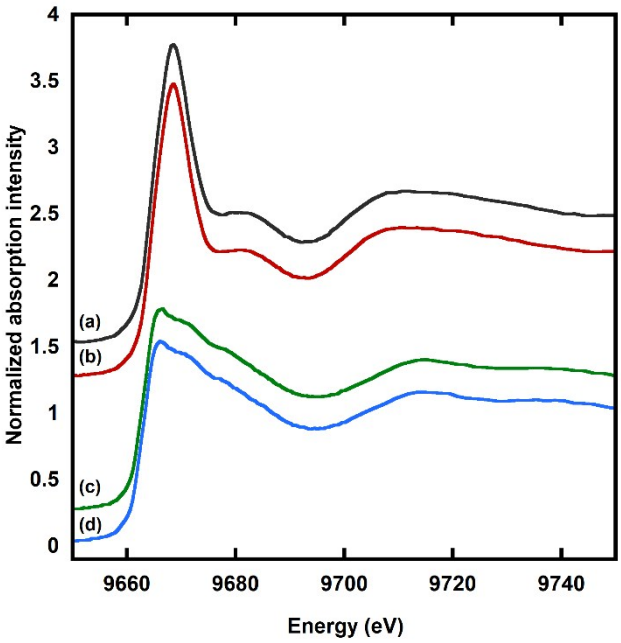

Figure S1. Zn K-edge XANES spectra of a mixture of (a) Zn in buffer, (b) Zn + 5 equiv. of PTA, (c) Zn($A\beta_{16}$) + 5 equiv. of PTA, d) Zn($A\beta_{16}$). Conditions: [Zn(II)] = 0.9 mM, [$A\beta_{16}$] = 1 mM, [PTA] = 5 mM, [HEPES] = 50 mM, pH 7.4, glycerol 10% v/v was used as a cryoprotectant. T = 20 K.

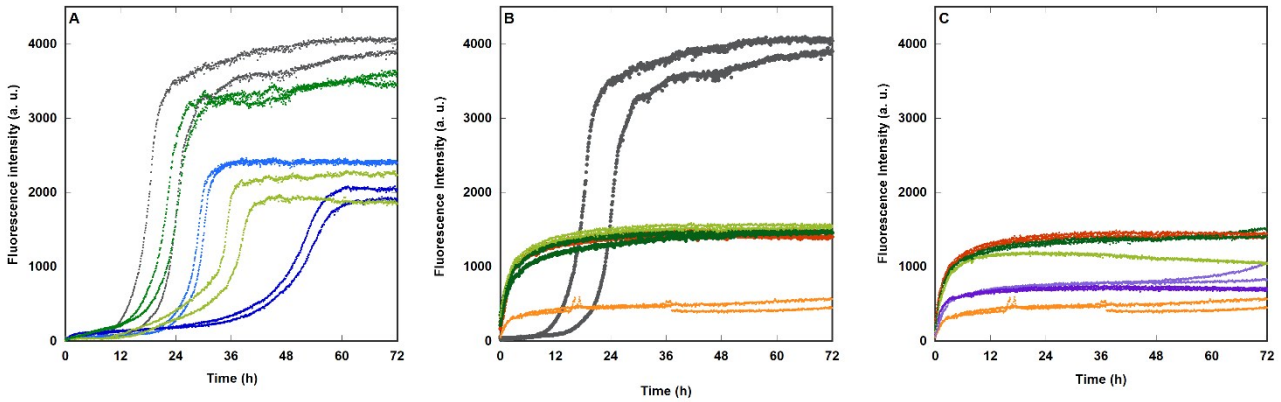

Figure S2. ThT- fluorescence spectra as a function of time of the aggregation of $A\beta_{40}$, in presence of (**A**) Cu(II), (**B**) Zn(II) and (**C**) Cu(II) + Zn(II); and the effect of adding 5 or 20 equivalents of PTA. [Cu(II)] = 10 or 18 µM, $[A\beta_{40}]$ = 20 µM, [Zn(II)] = 10 or 18 µM, [PTA] = 100 or 400 µM, [ThT] = 10 µM, [NaCl] = 100 mM, [EDTA] = 0.1 µM, [HEPES] = 50 mM, pH 7.4, T = 37 °C. Colour code of curves: (**A**) a) grey, apo-Aβ; b) light blue, Cu(Aβ) at ratio 0.5:1; c) blue, Cu(Aβ) at ratio 0.9:1; d) light green, Cu(Aβ) at ratio 0.9:1 + 5 equiv. of PTA; e) green, Cu(Aβ) at ratio 0.9:1 + 20 equiv. of PTA; (**B**) a) grey, apo-Aβ; f) light orange, Zn(Aβ) at ratio 0.5:1; g) orange, Zn(Aβ) at ratio 0.9:1; h) light green, Zn(Aβ) at ratio 0.9:1 + 5 equiv. PTA; i) green, Zn(Aβ) at ratio 0.9:1 + 20 equiv. PTA; (**C**) f) light orange, Zn(Aβ) at ratio 0.5:1; g) orange, Zn(Aβ) at ratio 0.9:1; j) violet, Cu,Zn(Aβ) at ratio 0.5:0.5:1; k) purple, Cu,Zn(Aβ) at ratio 0.9:0.9:1; l) light green, Cu,Zn(Aβ) at ratio 0.9:0.9:1 + 5 equiv. PTA; m) green, Cu,Zn(Aβ) at ratio 0.9:0.9:1 + 20 equiv. PTA.

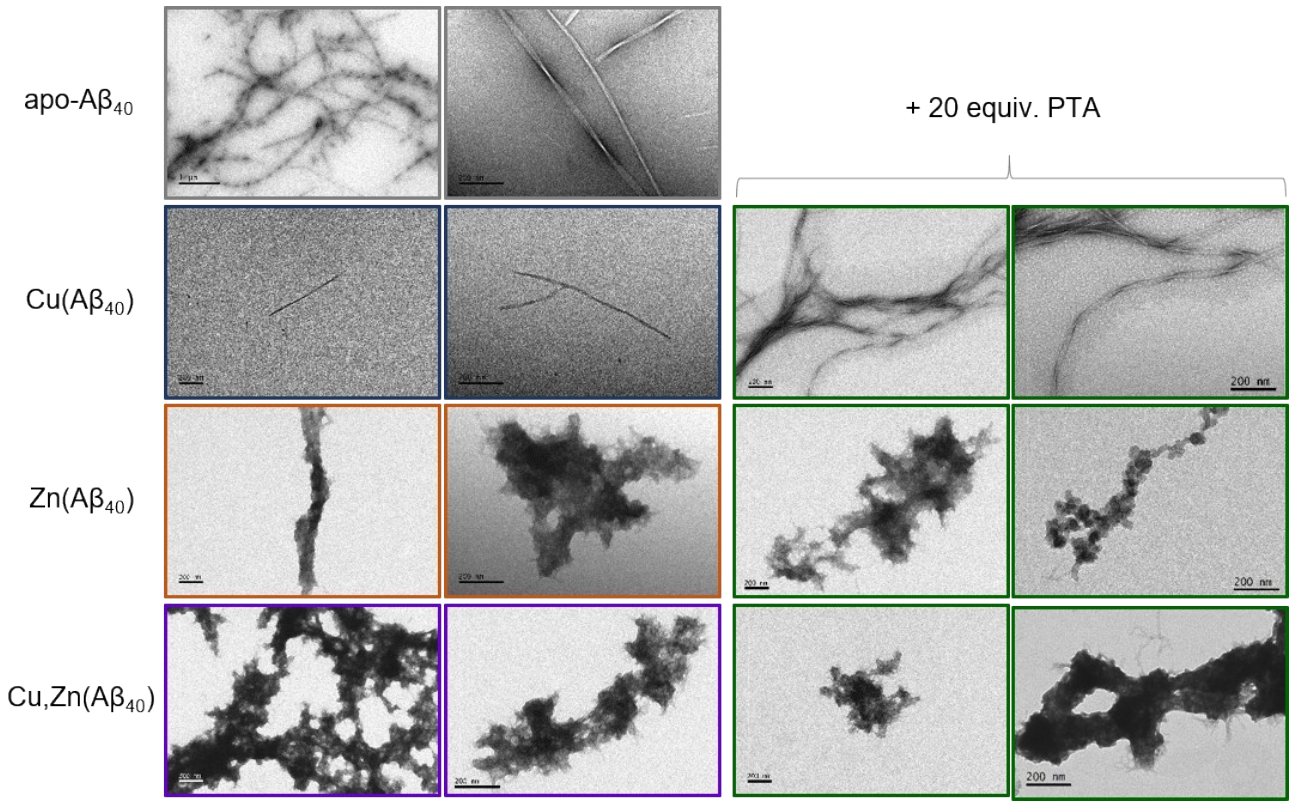

Figure S3. TEM images corresponding to curves (a) apo-$A\beta_{40}$, (c) $Cu(A\beta_{40})$ formed at 0.9 equivalents of Cu(II), (e) $Cu(A\beta_{40})$ + 20 equiv. of PTA, (g) $Zn(A\beta_{40})$ formed at 0.9 equivalents of Zn(II), (i) $Zn(A\beta_{40})$ + 0.9 equiv. of PTA, (k) $Cu,Zn(A\beta_{40})$ formed at 0.9 equivalents of Cu(II) and Zn(II), (m) $Cu,Zn(A\beta_{40})$ + 20 equiv. of PTA. Samples were taken at t = 72 h, at two different zoom: 4k and 12 k (scale bar = 200 nm).