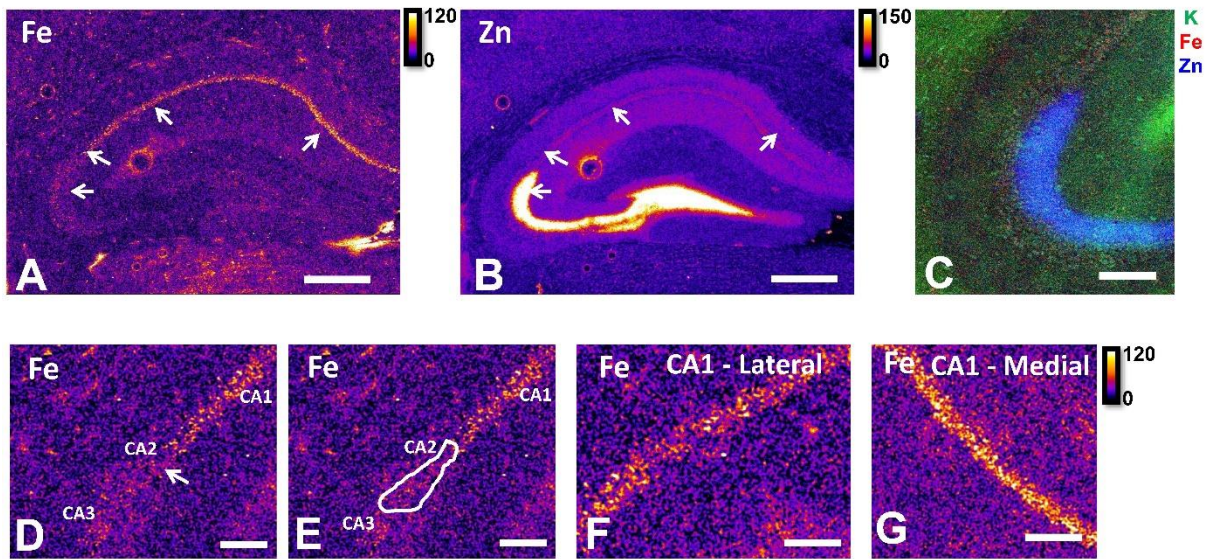
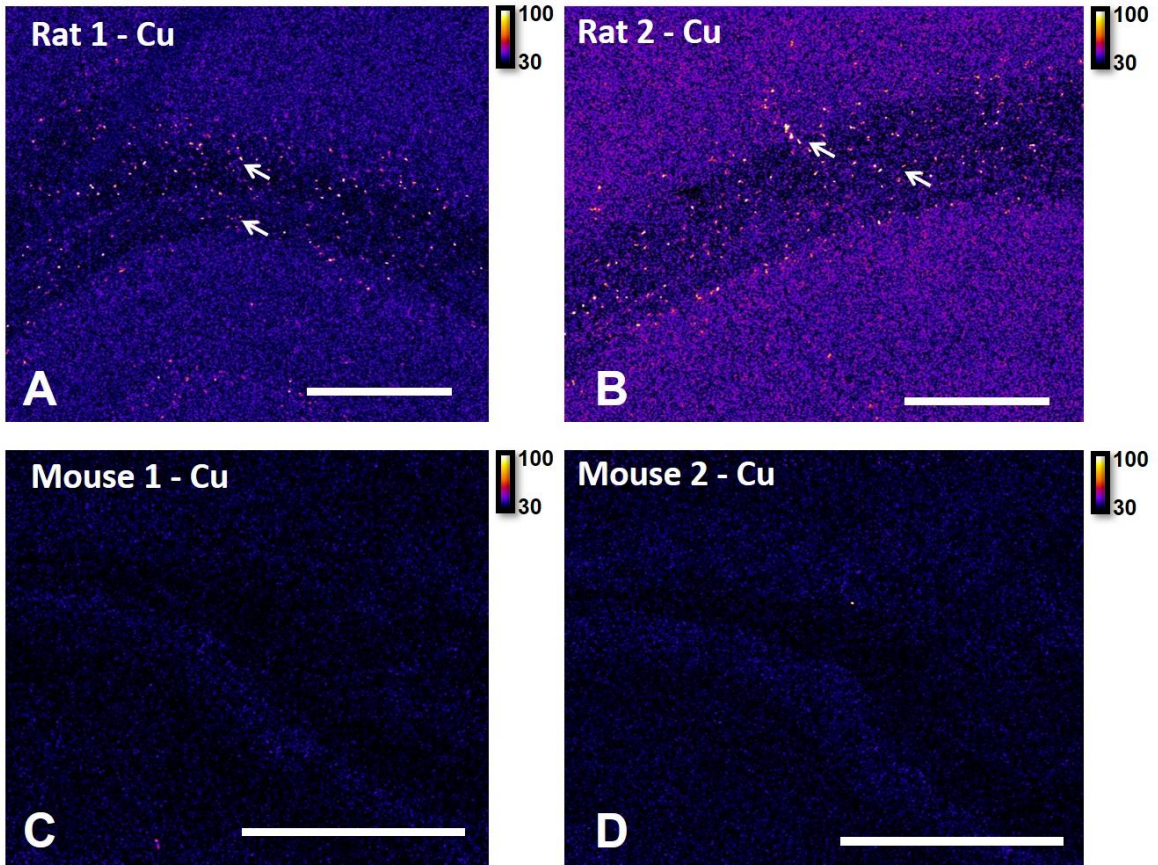


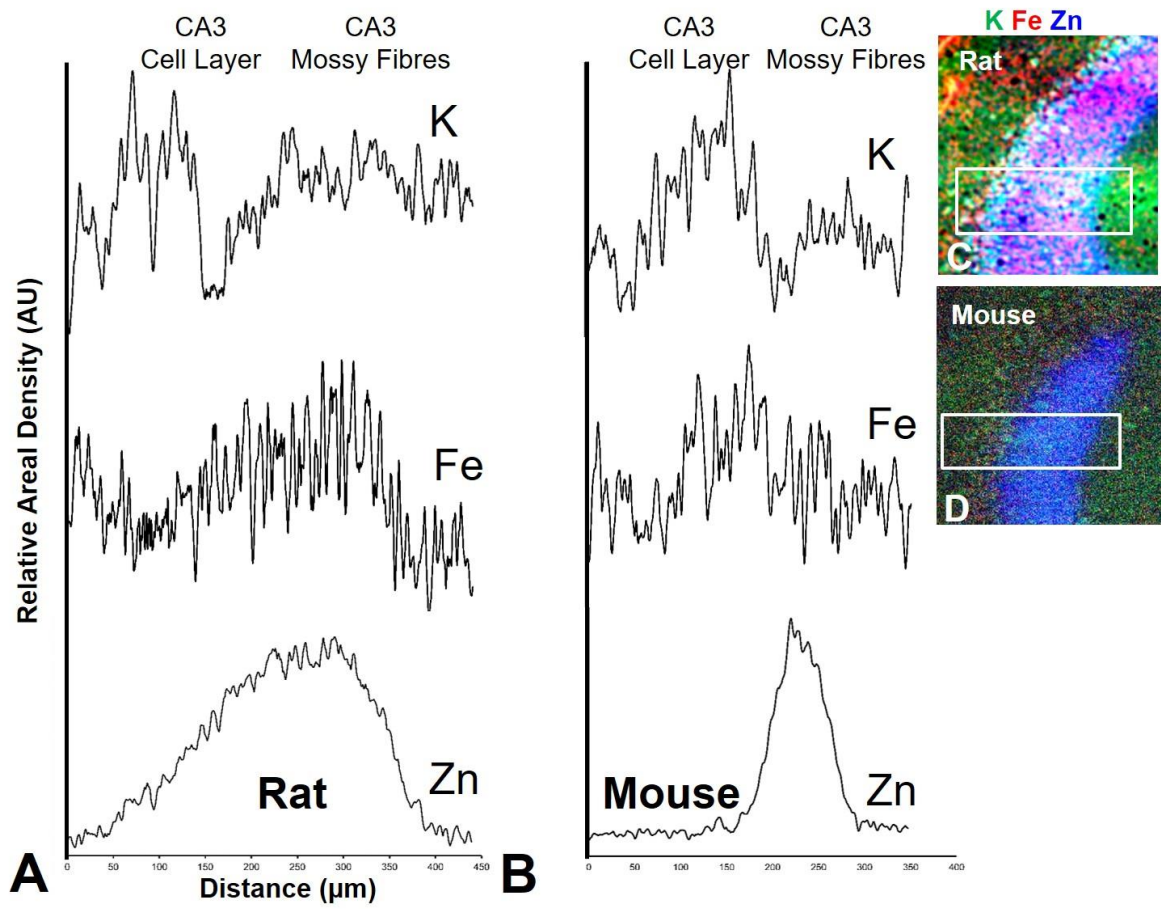
Supporting Information Figure 1. Additional rat XFI elemental maps of Fe (A) and Zn (B) white arrows in A and B, indicate from bottom left, clockwise, CA3, CA2, lateral CA1 and medial CA1 sub-regions. (C) K/Fe/Zn tri-colour overlay of CA3 region showing co-localisation of Fe and Zn (magenta). (D-G) Zoomed in view of (D) CA2 region, indicated by white arrow, (E) CA2 region with border drawn, (F) CA1 lateral region and (G) CA1 medial region. Increased brightness in G relative to F, indicates higher Fe areal density in medial CA1 region compared to CA1 lateral region. Scale bar in A, B = 500 μm , C = 200 μm , D-G = 100 μm . Intensity scales in ng cm^{-2} .



Supporting Information Figure 2. Additional mouse XFI elemental maps of Fe (A) and Zn (B) white arrows in A and B, indicate from bottom left, clockwise, CA3, CA2, lateral CA1 and medial CA1 sub-regions. (C) K/Fe/Zn tri-colour overlay of CA3 region showing lack of co-localisation of Fe and Zn (no magenta). (D-G) Zoomed in view of (D) CA2 region, indicated by white arrow, (E) CA2 region with border drawn, (F) CA1 lateral region and (G) CA1 medial region. Increased brightness in G relative to F, indicates higher Fe areal density in medial CA1 region compared to CA1 lateral region. Scale bar in A, B = 500 μm , C = 200 μm , D-G = 100 μm . Intensity scales in ng cm^{-2} .



Supporting Information Figure 3. Cu distribution in corpus callosum of two representative rats (A, B) and mice (C, D). Numerous punctate Cu hotspots are seen in rats (white arrows), but not mice. This pattern was uniform across all 5 replicate animals. Scale bar = 500 μm . Intensity scale is in ng cm^{-2} .



SI Figure 4. Rat (A) and mouse (B) K, Fe, and Zn profiles (line-plots) of a cross section through the CA3 pyramidal neuron cell layer and mossy fibre region. Correspond XFI tri-colour overlay (green = K, red = Fe, blue =Zn) for rat (C) and mouse (D).