

Supporting information

XANES calibration of standards

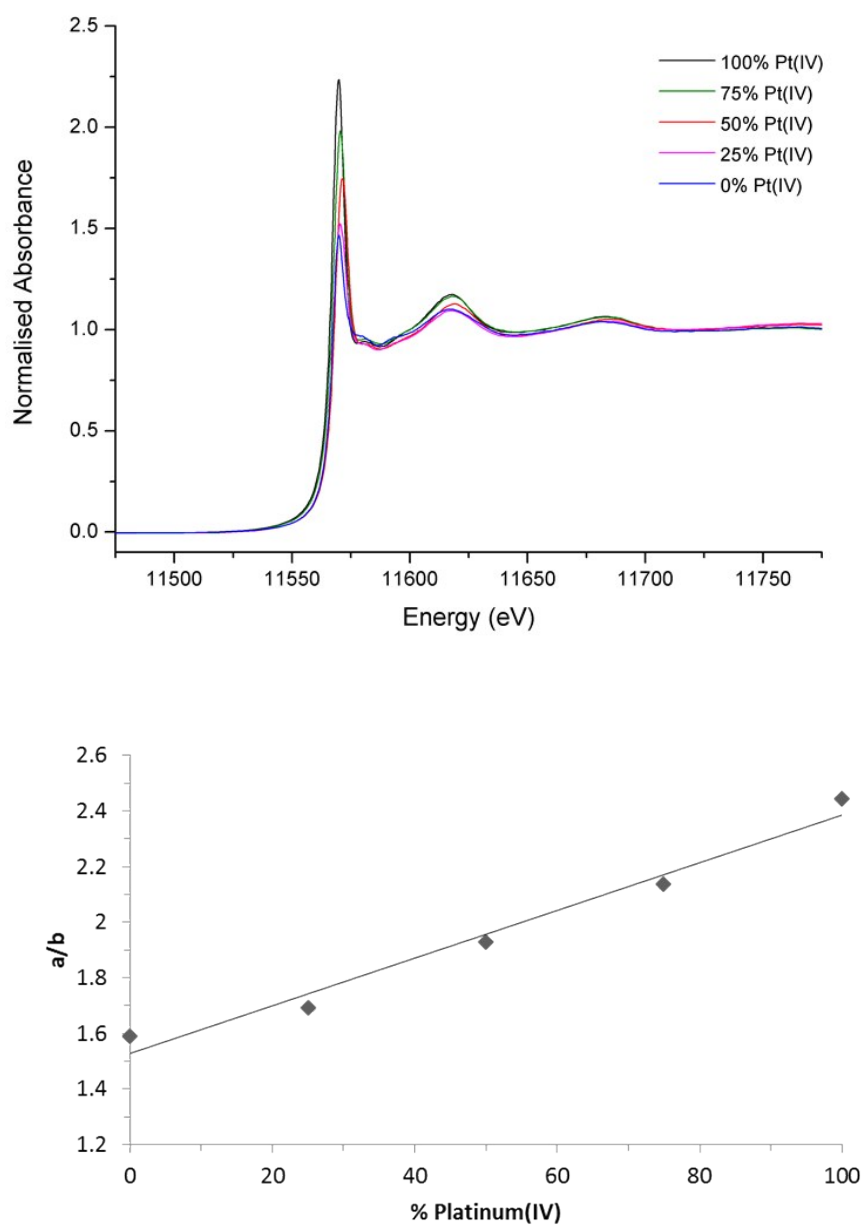


Figure S1. Normalised XANES spectra of $[\text{PtCl}_2(\text{en})](\mathbf{X})$, $\text{trans-}[\text{PtCl}_2(\text{OH})_2(\text{en})](\mathbf{I})$ and 25:75; 50:50; 75:25 molar ratio mixtures (top) and linear fit of peak height ratios, a/b , derived from XANES spectra of $[\text{PtCl}_2(\text{en})](\mathbf{X})$, $\text{trans-}[\text{PtCl}_2(\text{OH})_2(\text{en})](\mathbf{I})$ and 25:75; 50:50; 75:25 mixtures ($R^2 = 0.975$) (bottom).

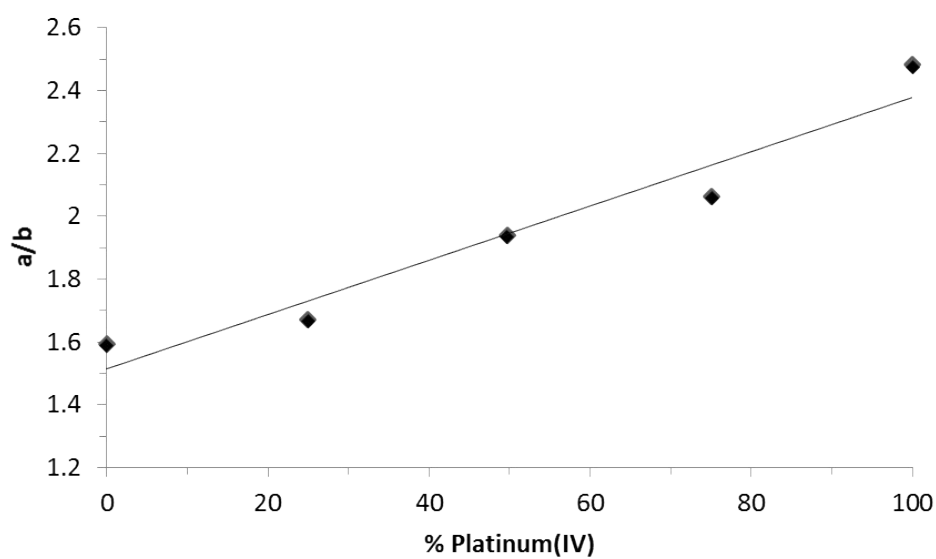
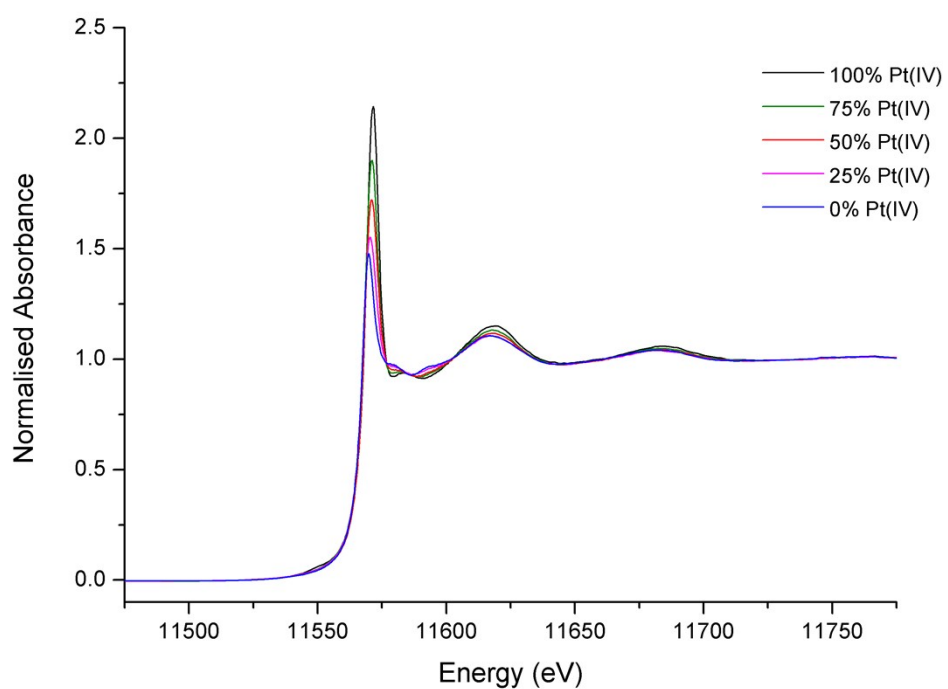


Figure S2. Normalised XANES spectra of $[\text{PtCl}_2(\text{en})](\text{X})$, $\text{trans-}[\text{PtCl}_2(\text{OAc})_2(\text{en})](\text{II})$ and 25:75; 50:50; 75:25 molar ratio mixtures (top) and linear fit of peak height ratios, a/b , derived from XANES spectra of $[\text{PtCl}_2(\text{en})](\text{X})$, $\text{trans-}[\text{PtCl}_2(\text{OAc})_2(\text{en})](\text{II})$ and 25:75; 50:50; 75:25 mixtures ($R^2=0.939$) (bottom).

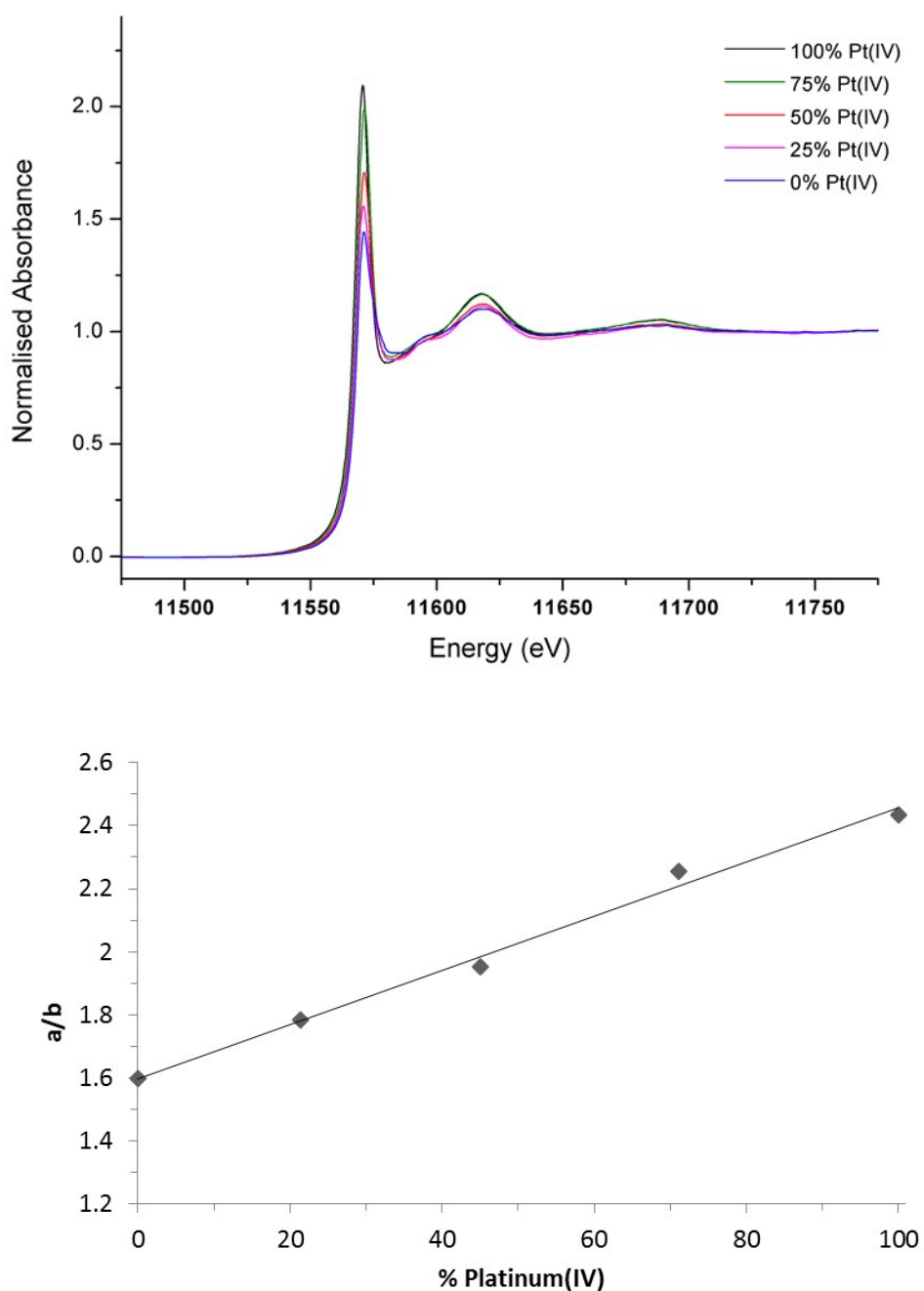


Figure S3. Normalised XANES spectra of $[\text{Pt}(\text{ox})(\text{en})](\mathbf{XI})$, $\text{trans-}[\text{Pt}(\text{OH})_2(\text{ox})(\text{en})](\mathbf{V})$ and 25:75; 50:50; 75:25 molar ratio mixtures (top) and linear fit of peak height ratios, a/b , derived from XANES spectra of $[\text{Pt}(\text{ox})(\text{en})](\mathbf{XI})$, $\text{trans-}[\text{Pt}(\text{OH})_2(\text{ox})(\text{en})](\mathbf{V})$ and 25:75; 50:50; 75:25 mixtures ($R^2= 0.992$) (bottom).

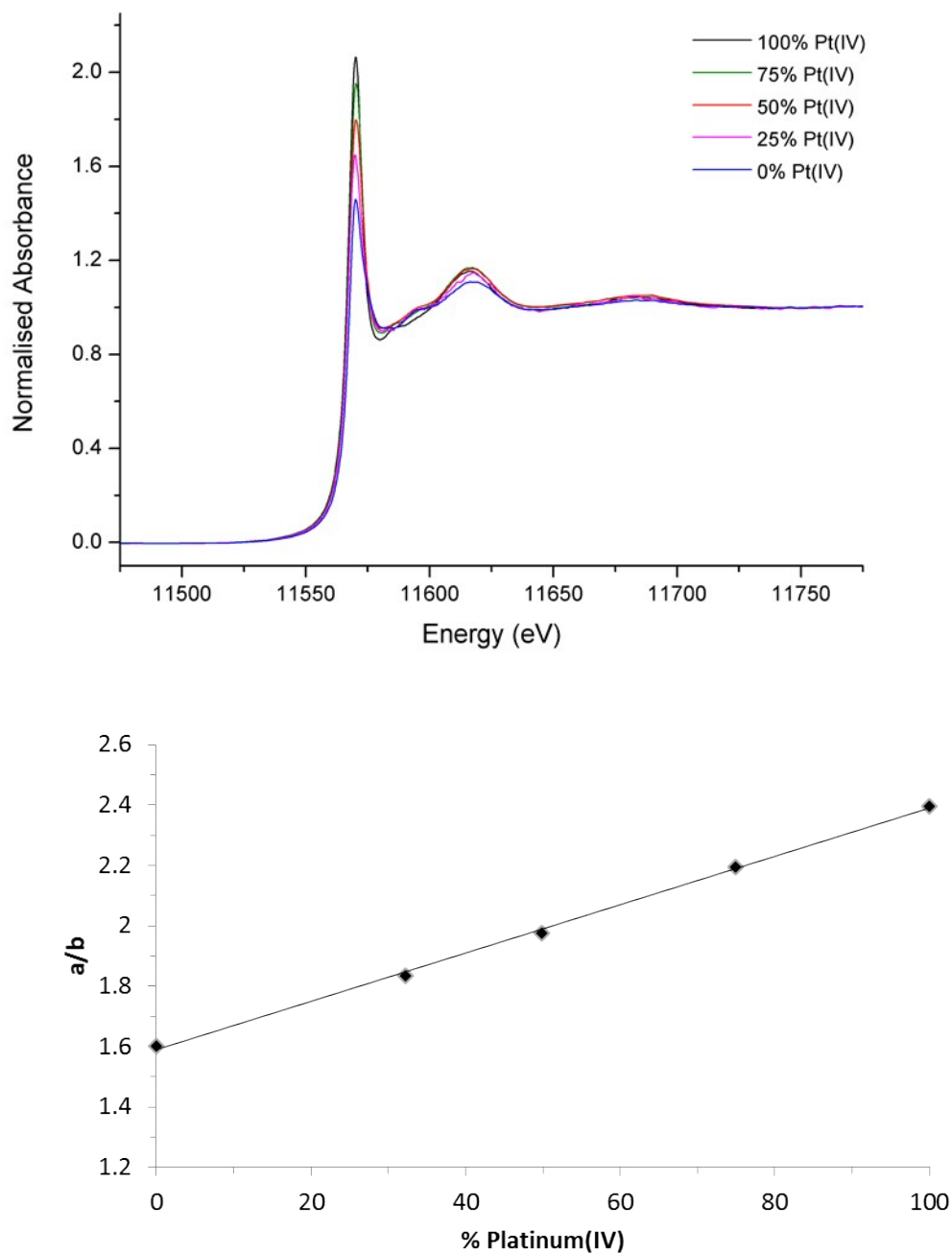


Figure S4. Normalised XANES spectra of $[\text{Pt}(\text{ox})(\text{en})](\text{XI})$, $\text{trans}-[\text{Pt}(\text{OAc})_2(\text{ox})(\text{en})](\text{VI})$ and 25:75; 50:50; 75:25 molar ratio mixtures (top) and linear fit of peak height ratios, a/b , derived from XANES spectra of $[\text{Pt}(\text{ox})(\text{en})](\text{XI})$, $\text{trans}-[\text{Pt}(\text{OAc})_2(\text{ox})(\text{en})](\text{VI})$ and 25:75; 50:50; 75:25 mixtures ($R^2= 0.998$) (bottom).

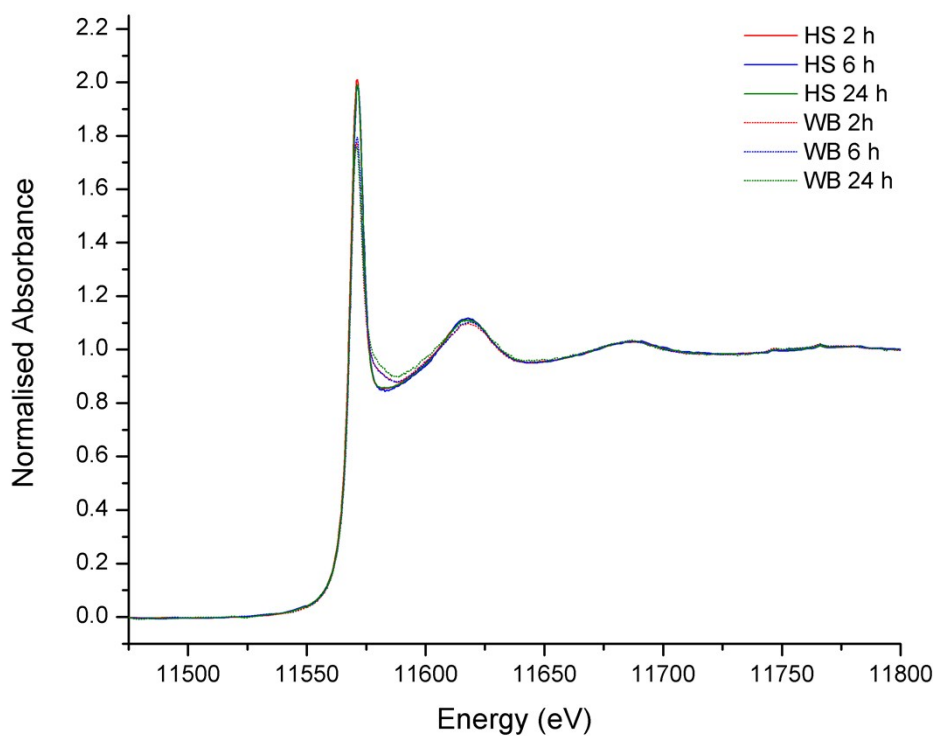


Figure S5. Normalized XANES spectra of whole human blood and blood serum incubated with *trans, cis*-[PtCl₂(OH)₂(en)] (**I**) for 2, 6, and 24 h.

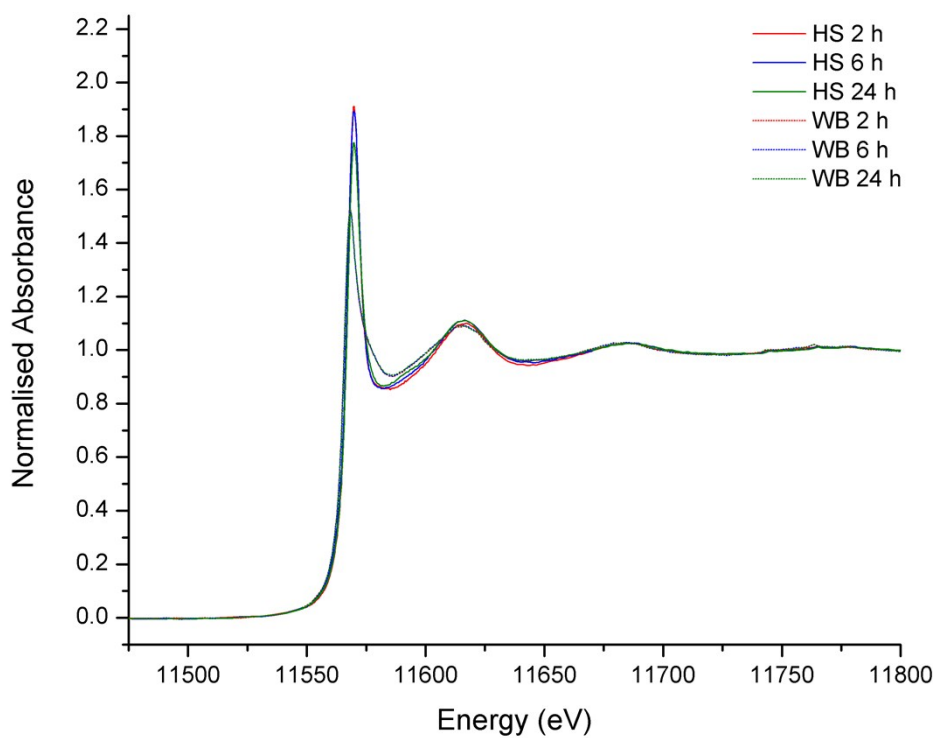


Figure S6. Normalized XANES spectra of whole human blood and blood serum incubated with *trans, cis*-[PtCl₂(OAc)₂(en)] (**II**) for 2, 6, and 24 h.

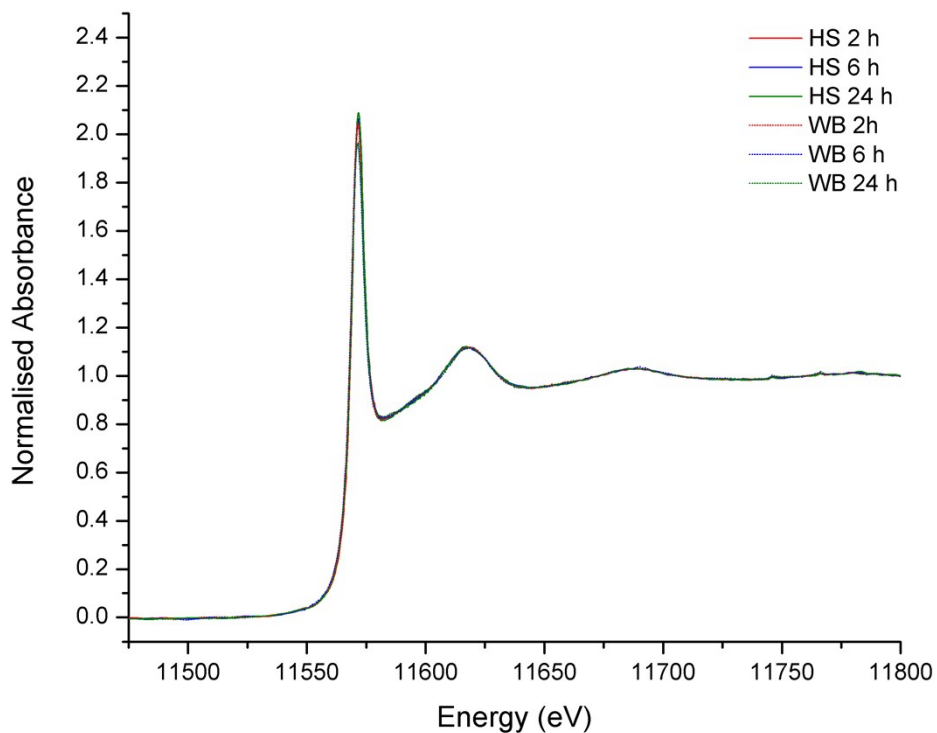


Figure S7. Normalized XANES spectra of whole human blood and blood serum incubated with *trans, cis*-[Pt(OH)₂(ox)(en)] (**V**) for 2, 6, and 24 h.

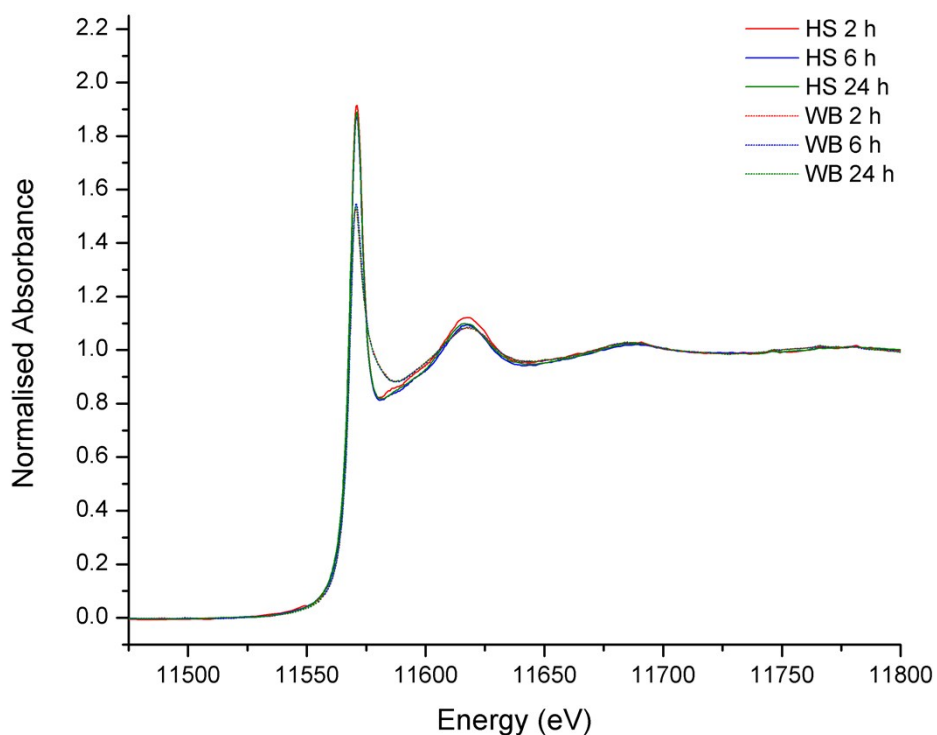


Figure S8. Normalized XANES spectra of whole human blood and blood serum incubated with *trans, cis*-[Pt(OAc)₂(ox)₂(en)] (**VI**) for 2, 6, and 24 h.

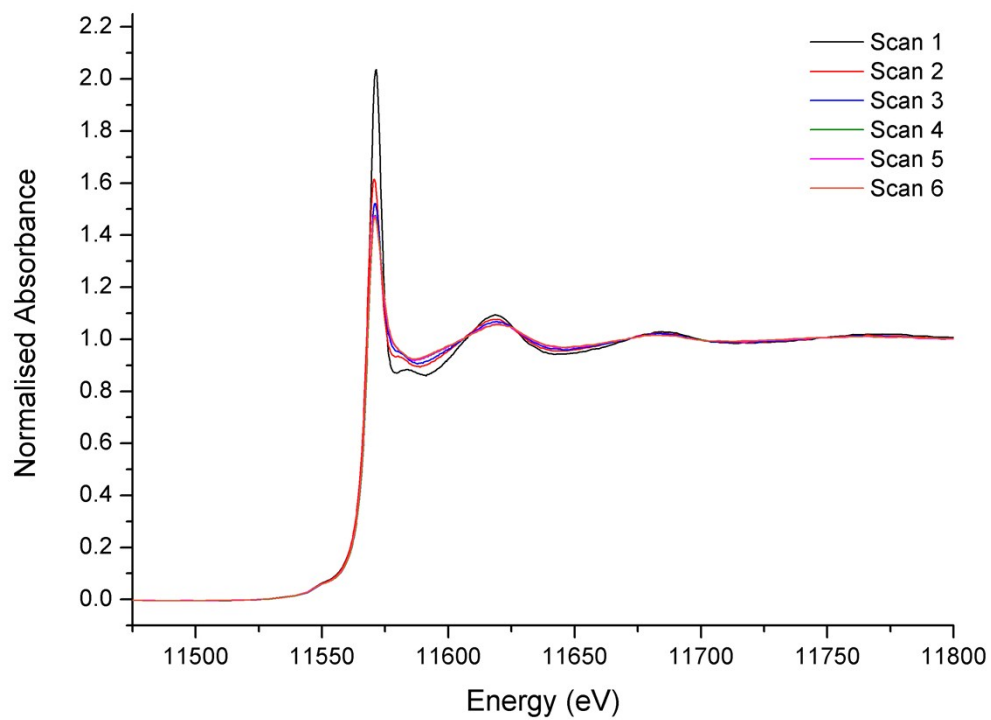


Figure S9. Radiation hardness testing of *trans*-[PtCl₂(OAc)₂(en)](II) by repeated XANES scans of the same region of the solid sample. Repeated radiation exposure resulted in the significant degradation of the sample in subsequent scans.