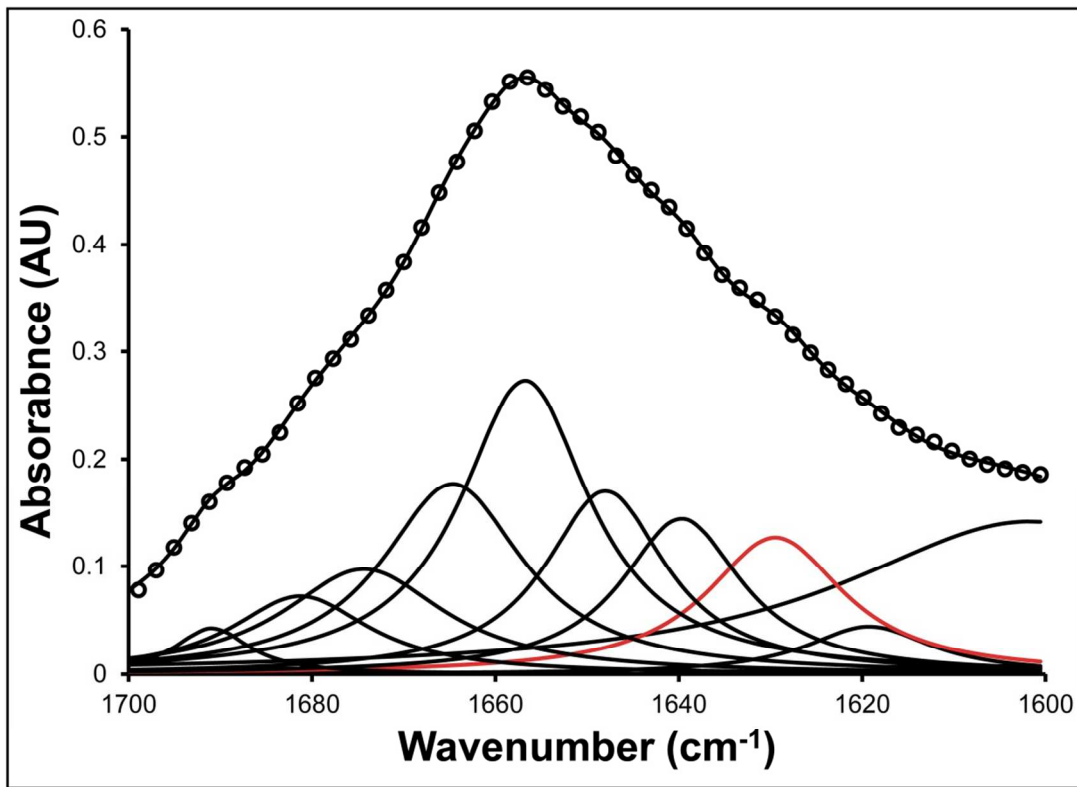**Supporting Information Figure 1:** Perls histochemistry at day 1, day 7 and day 14 post ICH. Perls positive staining (blue) is observed in tissue 7 and 14 days post ICH, but the tissue is Perls negative 1 day post ICH, in agreement with the literature.[1] The hematoma boundary can still be observed by brown colouration in the tissue 1 day post ICH, which is not specific to the Perls stain, but rather the natural pigment of blood.[1] Scale bar = 500 µm

Supporting Information Figure 2: Representative example of curve fitting approach. Black circles indicate raw data, black lines indicate individual components and fitted data. Red component is assigned to aggregated proteins, centered at 1625 cm^{-1}.

XFI Detection Limits

The minimum detection limit (MDL) was calculated for each element (P, S, Cl, K, Ca, Fe, Cu, Zn) for a 95 % confidence limit according to the following equation[2]:

$$MDL = 2 * I_{(background)} * C / I_{(standard)}$$

Where $I_{(background)}$ is the fluorescence intensity (number of counts) collected on the blank background where the element concentration is 0 (or assumed to be 0), C is the concentration of the standard (µg cm^{-2}) and $I_{(standard)}$ is the fluorescence intensity (number of counts) collected for the standard. The minimum detection limits reported to two significant figures are provided in Table 1. The minimum detection limits demonstrate that a minimum level of 0.082 µg cm^{-2} of Fe can be detected, and a difference in Fe concentration as small as 0.082 µg cm^{-2} between two experimental groups can be detected in this study with a 95 % confidence limit.

Table 1: XFI minimum detection limits of elements

Element	Minimum Detection Limit (µg cm^{-2})
P	1.7
S	2.0
Cl	2.3
K	0.88
Ca	0.24
Fe	0.081
Cu	0.022
Zn	0.0012

References

1. Liu, S., Grigoryan, M. M., Vasilevko, V., Sumbria, R. K., Paganini-Hill, A., Cribbs, D. H., and Fisher, M. J. (2014) Comparative Analysis of H&E and Prussian Blue Staining in a Mouse Model of Cerebral Microbleeds, *Journal of Histochemistry & Cytochemistry 62*, 767-773.
2. Taylor, J. R. (1997) *An Introduction to Error Analysis*, 2 ed., University Science Books, California, USA.