



**Supplementary Figure 2.** MSA analysis results showing the regions of the spectral image analyzed, where red is Y (L and K), green is Ti-K, and blue is Si (not rendered in the color overlay inset). The regions intervening the Si-K/Y-L, Ti-K, and Y-K, including the Cu-K secondary fluorescence peak, have been excluded from MSA analysis and thus no longer contribute or influence the subsequent quantification.