



Proteomic analysis of samples from three Raphael Cartoons: Original material, repair or retouching?

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On display in the newly refurbished Raphael Court at the Victoria and Albert Museum are six cartoons by Raphael (on loan from Her Majesty the Queen). Previous conservation work (and associated technical studies) on the cartoons in the 1960s and 1990s had answered many questions regarding the materials used in their construction, but one outstanding issue was the precise composition of the paint medium, which solubility tests (and later amino acid analysis) had indicated might be animal glue. Samples taken previously from three of the cartoons; ‘The Death of Ananias’ and ‘Christ’s Charge to Peter’ (obtained during the 1960s sampling campaign) and ‘The Blinding of Elymas’ (obtained during the 1990s sampling campaign) were therefore analysed via high resolution mass spectrometry in an attempt to provide more precise information on the proteinaceous content of the paint binder.

The analysis identified peptides from a variety of different animal species in all samples, but the interpretation of the data was challenging due to the complex history of the objects; the paper cartoons had been cut into strips and reassembled and stuck onto stretched canvas at the end of the seventeenth century, for example, and by the 19th century they had undergone various campaigns of restoration involving adhesive repairs and retouching. Furthermore, the two samples from the 1960s sampling campaign had been stored in gelatine capsules – another potential source of contamination. This poster will outline how the identification of material specific proteins and diagnostic peptides at a species level, together with their ‘damage profiles’ (e.g. levels of deamidation and light-induced oxidative products), were used to try and disentangle the possible protein sources in the samples. It will also discuss the difficulties inherent in providing definitive answers when interpreting data obtained from historical objects with such a rich and complex history of interventions and will outline the remaining questions and ambiguities posed by the results.