The Potential of Analyzing DNA from Ancient and Historic Works of Art

Nathan Wales

Thanks to the "genomic revolution" of the past decade, geneticists have the capability to quickly and inexpensively characterize massive amounts of DNA sequences. The powerful sequencing platforms and vast DNA databases that drove this revolution have opened the door to numerous applications, including high-resolution DNA analyses of archaeological, historic, and other degraded specimens. In this presentation I will summarize my research on DNA from archaeological plants tissues and historic barkcloth textiles to demonstrate what conditions encourage DNA preservation and what ultimately can be learned from the DNA fragments contained in organic remains. I will then discuss how genomic techniques can be applied to fine art collections and how collaborations between art researchers and geneticists could lead to the identification of the plant and animal populations used to produce specific works of art. In addition, I will explain how cutting-edge sequencing technologies may reveal new information about suspected forgeries using microbial genetic fingerprints. Last, I will discuss how existing forensics-based approaches could provide an unprecedented avenue of research on past artists though traces of human DNA imbedded in works of art.