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TITLE

Search for ancient proteins: the present & the future of palaeoproteomics

ABSTRACT

In the last decades ancient biomolecule research has revolutionised the science of archaeology and palaeontology, uncovering even the smallest details from the past. And the interest is still growing. The result speaks for itself - in 2022 the Nobel prize in Medicine was awarded to a palaeogeneticist, who developed the ancient DNA research. But how much more is there to explore and what can we learn from tiny archaeological artefacts that often are left unnoticed?

In this seminar dr. Jorūnė Sakalauskaitė will present a brief history of ancient biomolecule research, with a special focus on ancient protein studies, known as palaeoproteomics. Proteins preserve better than DNA and may be recovered in samples over millions of years. While the majority of research is being carried out to study human history, she will aim to show a diversity of applications that can help us to better understand our environment, human practices, prehistoric societies and... perhaps spur innovative ideas on palaeo- bioinspired materials. A special focus will be devoted to the biominerals of mollusc shells (including their colours!), whose study becomes even more important in the times of climate change. She will discuss the backstage of ancient biomolecule analysis and the potential to bridge with the latest biotechnological tools, such as gene editing. Palaeoproteomics may allow us to look deep in time, as long as we look forward.

Bio-sketch

Jorūnė Sakalauskaitė is a biomolecular scientist specialised in ancient protein research (palaeoproteomics) and studies archaeological samples. She has a background in Chemistry (Universities of Vilnius, Lille1 & Helsinki) and she received her PhD in biological sciences and palaeontology from the Universities of Turin (Italy) and Burgundy (France). In 2021 she worked at the GLOBE institute, University of Copenhagen (Denmark) where she further explored palaeoproteomic approaches to study ancient biominerals and mollusc shells. In 2022 she started a new project 'Shell Archaeochrome' based at LSC centre and funded by EMBO to explore the biochemistry of molluscan shell colours, including with the use of gene editing technologies.