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DEGLI STUDI
DI PADOVA

DIAGENESI - A multidisciplinary investigation for the survival of pristine molecules information

The DIAGENESI project primarily aims to provide a deeper understanding of bone preservation related to ancient DNA (aDNA) survival. This will be crucial for developing, through an intersectorial transfer of knowledge, a rapid, precise, cost-effective, and affordable pre-screening protocol, enabling the precise selection of promising bone samples for genetic investigations, thus preventing unnecessary destruction of valuable samples. Post-mortem changes are complex multifactorial processes that act on the bone structure in a variable and unpredictable way over time. To date, the DNA-bioapatite or DNA-collagen interactions are poorly investigated and preferential sites for DNA preservation are still debated. This has only been partially addressed in the literature, and there is not full agreement on the topic or how the site-specific variability of aDNA yields occurs. With an innovative archaeometric methodology by means of a multianalytical approach, I will carry out a transdisciplinary study on fossil, subfossil and modern bones, their intimate interaction with soils, and their response to different paleoenvironmental conditions. Different burial and environmental conditions diagenetically affect in different ways the preservation of the bones and, consequently, of the biomolecules. Thus, various archaeological contexts subjected to different climate conditions will be selected and contextualized temporally and spatially, enabling the formulation of models and prescreening protocols of general validity. This study will provide fundamental advances in genomic, forensic, and paleoanthropological studies, allowing the profitable exploitation of the bone collections with archaeological, cultural and hystorical-medical values. The project entails a broad range of opportunities, favoring the development of new interdisciplinary research initiatives and consolidating the networking and cooperation with European and global research institutes.

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Find out more: <https://cordis.europa.eu/projects/en>