

HORIZON
2020

Mapping The Neolithic Expansion In The Mediterranean: A Scientific Collective To Promote Archaeogenomics And Evolutionary Biology Research In Turkey

Reporting

Project Information

NEOMATRIX

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[Project website](#)

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MIDDLE EAST TECHNICAL
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Türkiye

Periodic Reporting for period 1 - NEOMATRIX (Mapping The Neolithic Expansion In The Mediterranean: A Scientific Collective To Promote Archaeogenomics And Evolutionary Biology Research In Turkey)

Reporting period: 2021-01-01 to 2022-03-31

Summary of the context and overall objectives of the project



The production of scientific knowledge is highly unequally distributed across the globe, both in quality and quantity, and Europe is no exception. Developing research capacities in regions with currently weak research activity requires investment and measures on many fronts. One step that scientists themselves can realise is sharing knowhow and cross-national collaborations. Ancient DNA (aDNA), the study of genetic material from organisms that lived in the past, is a rapidly growing field where striking regional differences can be observed in research output today. Ancient DNA research can help address questions on human history, as well as evolutionary questions on diverse species from mammoths to bacteria. This research frequently involves material collected from across the world, but the experiments and analyses are conducted only in a few labs mostly in the Global North.

The aim of this 3-year NEOMATRIX project is to create an expertise-sharing and joint research-oriented network among four European ancient DNA teams, in Ankara (Middle East Technical University and Hacettepe University), Heraklion (Foundation for Research and Technology – Hellas), Paris (Institut Jacques Monod, Université de Paris - French National Centre for Scientific Research), and Stockholm (Stockholm University Centre for Palaeogenetics).

The joint research work conducted within NEOMATRIX involves investigating Neolithic and later societies using aDNA and isotopes, especially in relation to the expansion of farming societies in the Mediterranean around 9,000-7,000 years ago, and interpreting the results in relation to current archaeological theory. The primary goal of NEOMATRIX is to help boost the development of the team in Ankara, as well as that in Heraklion, which are both relatively young groups, while those in Paris and Stockholm are long-established and renowned labs in the field. A related objective includes the training of young researchers with state-of-the-art research skills. A secondary goal is to develop novel approaches and solutions to research problems in archaeogenomics, such as improving DNA yields in lowly preserved ancient skeletal samples, or improving the accuracy of inferences made using ancient genomes, e.g. related to how much genetically related two ancient individuals are. Another objective is to seek ways to convey archaeogenomics results to the public most effectively and accurately, taking into consideration potential misunderstandings of the messages.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far



Work within the first 15 months of the project mostly involved regular online meetings on technical issues related to ancient DNA and isotope analyses (at least one meeting conducted roughly every two weeks), and joint lab meetings involving all four partners. The latter were organised online roughly every 4 months, where preliminary research results and controversial topics were discussed. We also organised one physical four-day workshop in Heraklion, with 23 participants from all four parties, on developing new computational methods to most accurately estimate genetic relatedness among ancient individuals. We also have been working on joint publications.

Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)

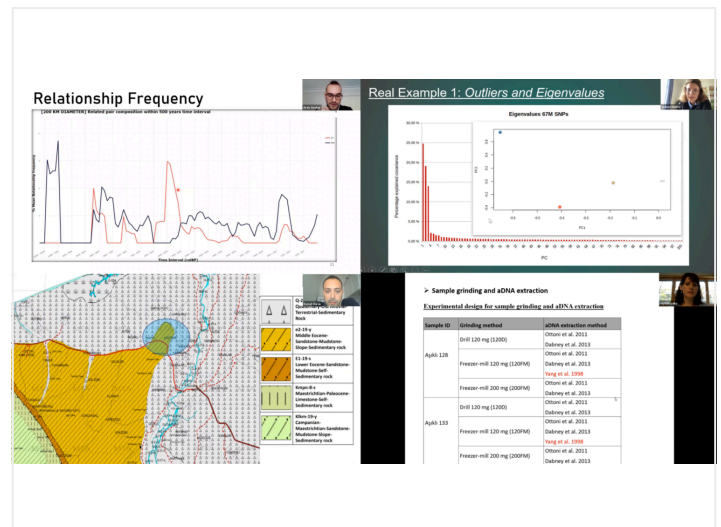


NEOMATRIX will continue through cross-lab visits among researchers to share knowhow, online joint lab meetings, two workshops (one on laboratory techniques and the other on exploring ways of effective public dissemination), and two meetings in Heraklion and in Ankara. The ongoing work will also involve collaborative analyses and joint research articles, mainly focused on the Neolithization of the Mediterranean.

In the long-run, the NEOMATRIX collaboration will contribute to efforts to expand archaeogenomics research throughout Europe, especially in regions with weaker research infrastructure and expertise, by the establishment of new local research teams with full experience into state-of-the-art methods, and with close ties to archaeology and anthropology communities. The resulting increase in the scientific production itself will be major progress beyond the current situation where most work is conducted by few rich labs. By effectively sharing this body of information with the public, we will further contribute to an improved understanding of human history and the diversity of past social traditions and dynamics, and thereby help overcome misconceptions about who we are today and how society may change.



We had a computational workshop in Heraklion, Crete, from November 29th to December 2nd 2021.



We held our second joint lab meeting on the 13th of October, 2021.



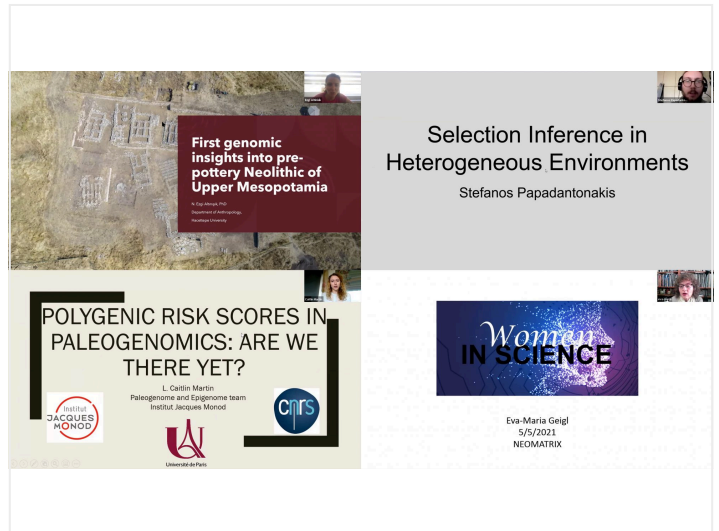
We held our third joint lab meeting on the 2nd of March.



Dr. Argyro Nafplioti from FORTH selected samples for NEOMATRIX in September 2021.



The NEOMATRIX kick-off meeting was held virtually on the 17th and 18th of February, 2021.



We held our first joint lab meeting on May 5th, 2021.

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