



SEMINARIO

Prof.ssa Donata Luiselli

Dipartimento Beni Culturali dell'Università di Bologna

Dipartimento di Fisica, Aula Seminari “Aula Grassano”

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Invitata da Dott Gabriele Scorrano

Molecular Anthropology and Evolutionary Medicine: Insights from the Italian Case

In recent years, the application of genomics to human populations has enabled researchers to reconstruct, in remarkable detail, the complex evolutionary history of Italy, a pivotal region at the crossroads of migrations between Africa, Europe, and Asia. Studies have revealed a marked genetic structure along the Italian peninsula and its islands, shaped by successive historical layers, beginning with Upper Palaeolithic colonization, the spread of Neolithic agriculture, migrations from the Eurasian steppe, and later contributions from the Middle East and North Africa. Genomic analyses, now increasingly supplemented by data from ancient DNA have illuminated the demographic dynamics that have shaped the genetic diversity of the Italian population. These studies have also identified signals of natural selection in genes involved in lipid metabolism, immune response, and adaptation to diverse dietary practices and climatic conditions. Notably, populations in Northern Italy exhibit genetic adaptations favoring lipid metabolism in colder climates, while Southern Italy and Sicily show variants linked to heightened immune responses, possibly reflecting historically higher infectious disease burdens. This evidence supports the framework of evolutionary medicine, suggesting that the genetic makeup of modern populations, shaped by past environmental pressures, can help explain present-day susceptibilities to cardiovascular, metabolic, and autoimmune diseases. Our current health, in many respects, reflects the legacy of our evolutionary past.



Donata Luiselli is Professor of Molecular Anthropology, head of the Laboratory of ancient DNA (aDNALab). She carries out her research in the field of molecular anthropology and genomics of ancient and modern human populations. In particular, the research interests are aimed at genomic study of current human biodiversity, archaeogenetics, the study of linguistic minorities, genetic and epigenetic analysis of populations and the analysis of genes subjected to selective pressures (e.g. involved in thermoregulation, detoxification and nutrition processes). In her research she collaborates with colleagues from other disciplines (medicine, forensic genetics, linguistics, archaeology, cultural anthropology), affirming the importance of the human evolutionary approach in the different fields of investigation and privileging the multidisciplinary approach. Engaged in national and international research projects, she collaborates with several national and international universities and research centres.