



H.F.R.I.
Hellenic Foundation for
Research & Innovation

Description of the funded research project
1st Call for H.F.R.I. Research Projects to Support Faculty
Members & Researchers and Procure High-Value
Research Equipment

Title of the research project: Investigating molecular pathways linking inflammation to cardiovascular diseases

Principal Investigator: Ioanna Tzoulaki

Reader-friendly title: Inflammation and cardiovascular diseases

Scientific Area: Life sciences (Medical & Health Sciences)

Institution and Country: University of Ioannina, Greece

Host Institution: University of Ioannina, Greece

Collaborating Institution(s): BSRC Alexander Fleming

Budget: 178,448

Duration: 30 months



Research Project Synopsis

We propose to uncover the molecular pathways that link inflammation, lipid metabolism and cardiovascular disease using a novel application of hypothesis-free genome wide association study and high-resolution metabolic. The proposal will leverage extensive and mostly already available phenotypic, biochemical, metabolomic and genomic data from leading epidemiological resources. Our results may lead to new insights as to metabolic pathways linking lipid accumulation, immune response activation and cardiovascular disease and is likely to provide novel mechanistic pathways and treatment targets.

Project originality

The proposed project will address major gaps in knowledge concerning the interaction between lipid accumulation and immune responses in cardiovascular disease by using an innovative application of multiphenotype genome wide association analysis and un-targeted metabolomics and state-of-the-art analytic methods in the largest study of its kind. Innovative aspects include a) the high dimensional untargeted metabolomics data available and b) the novel molecular epidemiology approaches to analyze the data.

Expected results & Research Project Impact

The results of this research will can lead to new insights regarding metabolic pathways linking lipid accumulation, immune response activation and cardiovascular disease and could provide novel mechanistic pathways and treatment targets.

The importance of this funding

This funding has helped significantly my academic career as I was able to develop novel methodological approaches to biomedical research, strengthen and expand my research team, and foster new international and national collaborations.



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COMMUNICATION

185 Syggrou Ave. & 2 Sardeon St. 2
171 21, N. Smyrni, Greece
+30 210 64 12 410, 420
communication@elidek.gr
www.elidek.gr