

EpiLipidNET_Pan-European Network in Lipidomics and EpiLipidomics Led by UA

Tânia Melo^{1,2}, Felisa Rey^{1,2}, Diana Lopes², Tiago Conde^{1,2}, Tânia Dinis³, Pedro Domingues¹, Maria do Rosário Domingues^{1,2}

Lipids are essential for maintaining health, and their imbalance can lead to diseases. Lipidomics is emerging to explore the diversity of lipids in living organisms, their metabolic processes to identify markers of health and disease.

EpiLipidNET was established in 2020, under the COST Action (CA) 19105, as a pan-European multidisciplinary network aiming to advance knowledge and innovation in the fields of lipids, (epi)lipidomics, lipid biology, and related applications. The network led by Rosário Domingues, CESAM, accounts with +460 members from 52 countries and is making significant strides in the field.

EpiLipidNET has driven the development of advanced analytical solutions and bioinformatics tools for lipidomics, contributing to the standardization and harmonization of methodologies. The work of this CA spans diverse fields, including lipid metabolism, clinical research, food and nutrition, plant and algae studies, and microbiology. By partnering with organizations like LIPID MAPS, the International Lipidomics Society

and fostering collaboration among researchers from academia, industry, and stakeholders, EpiLipidNET has been at the forefront of innovation in lipidomics research. This network has organized over 60 meetings, workshops, and conferences, and facilitated 120 conference grants and short research grants. Nearly 100 peer-reviewed papers have been published, with many co-authored by researchers from multiple countries. Young Researchers and Innovators have played a central role in the network, taking on leadership positions and contributing to organizing initiatives and events.

EpiLipidNET has also prioritized public outreach, developing educational videos and games to raise awareness and communicate the importance of lipids to society.

Looking forward, EpiLipidNET plans to continue its work, expanding into new interest areas such as food and nutrition, plant lipids, and epilipidomics. The network will continue collaborating to advance lipidomics research and support the next generation of scientists.

1 – Mass Spectrometry Centre, LAQV-REQUIMTE & Department of Chemistry, University of Aveiro.

2 – CESAM & Department of Chemistry, University of Aveiro.

3 – CICECO & University of Aveiro.

FIGURE 1

EpiLipidNET network around the globe (<https://www.cost.eu/actions/CA19105/>).

FIGURE 2

Bridging lipids and society. Interest groups that will continue their work in the future (<https://www.epilipid.net/>).

