

EpiLipidNET Newsletter December 2023

Greetings and Aims

Dear EpiLipidNET Community,

We have successfully completed the third year of EpiLipidNet networking, achieving remarkable outcomes through our active collaborative network, meaningful interactions, and friendship. We are proud to celebrate the 3rd year of success that has enriched the field of lipids and lipidomics worldwide. EpiLipidNET now is a network uniting over 450 members from 47 countries, all with a common interest in lipid research! Within 21 STSM and 24 ITC Conference Grants, we reinforced existing and started many new collaborations, and provided the opportunities to disseminate EpiLipidNET results at the scientific meetings world-wide. Thank you for your ongoing support and participation, and for being a part of this wonderful community.

Look forward to working with you in the upcoming 4th year of the EpiLipidNET COST Action.

Best wishes,

Rosário Domingues, Chair of the Action and Maria Fedorova, Vice-Chair

This Newsletter aims to present updates on the COST Action EpiLipidNET (CA 19105) as well as ideas and opportunities to further contribute to networking. In this edition we are bringing you news from several meetings and conferences in the second half of 2023 where EpiLipidNET members participated or organized session. You can see we have been very productive!

Young Researchers and Innovators (YRI) news

Science Meets Design: Elevating Presentation Skills with Sara Tortorella

With a unique blend of science and design expertise, Sara Tortorella recently gave a workshop titled "Science Meets Design," aimed at enhancing the presentation skills of our community members. Recognising the pivotal role of effective communication in scientific endeavours, this initiative sought to empower researchers with the tools and techniques to convey their findings with clarity and impact.

EpiLipidNET Discord Server: Building a Community Hub

We are delighted to share the establishment of the EpiLipidNET Discord server, a dedicated space for our community to connect, collaborate, and share insights. As we look ahead to 2024, we have exciting plans to further engage with the community on this dynamic platform. The Discord server will serve as a hub for discussions, knowledge exchange, and networking, fostering a sense of community among EpiLipidNET members.

News from the 4th General Meeting



The 4th EpiLipidNET Action Meeting and Young Researchers and Innovators (YRI) meeting took place in Toulouse (France) from the 10th to 12th of July 2023. At the YRI meeting, young EpiLipidNET scientists presented their research in sessions dedicated to sample preparation, lipid identification, lipid metabolism and bacterial lipids produced by gut microbiota. The session featured insightful presentations from YRIs, showcasing the cutting-edge research and contributions of emerging talents within our community. Additionally, the session addressed a crucial aspect of professional development with a talk on the imposter phenomenon, providing valuable insights and support for researchers navigating their careers. The YRI section not only highlighted the diverse and innovative work within EpiLipidNET but also emphasized our commitment to nurturing the next generation of leaders in lipid research. Stay tuned for more updates and opportunities to engage with our YRI community.

During the main event, sessions dedicated to Lipidomics in disease, From bench to market: Focus on patents, (epi)Lipidomics software demo sessions, Strategies for non-targeted lipidomics and lipidomes discovery, Metabolic Networks and Skin Lipidome were designed to inform participants of the latest progress made within each working group. There was also a very inspiring session on diseases with several talks on the lipidome in cancer. At the very end of the meeting was organized an EpiLipidNET educational suite for FAT (Fat Awareness Training), where Lipodrome and “Know your fats” were trialled for the first time.



https://twitter.com/epilipidnet/status/1679868889113526278?s=46&t=rEf_8xZUMKeC-7oZ96FACg



Best poster awards, went to Anne Zartmann and best oral communication award went to Zhixu Ni. Congrats! The meeting fostered lively interactions between academia and industry, as well as work package planning, formation of groups of interest and collaborative projects. For more news, pictures and comments about this great meeting, please visit:

<https://twitter.com/EpiLipidNET>
(@EpiLipidNET) and <https://www.epilipid.net/>.

News from the EpiLipidNET Working Group 5

The WG5 is preparing several exciting educational FAT board games for scientists and non-scientific community. Games are in their final stage of preparation and will be released soon!

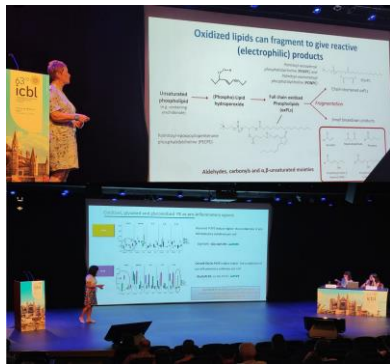
News from Conferences and Workshops



EpiLipidNET Hackathon on Model Organism Lipidome held on the 4th and 5th of September 2023 in Munich.

Model organisms are important for the understanding of lipid metabolism and its regulation. However, almost no database of model organism lipidomes exist. Therefore EpiLipidNet organized a “hackathon” to

curate lipids detected in different model organisms from the literature at the Metabolomics and Proteomics Core, Helmholtz Munich. The event was organized by Dr. Michael Witting. Organisms included: *Caenorhabditis elegans*, *Danio rerio*, *Drosophila melanogaster*, *Mus Musculus* and *Saccharomyces cerevisiae*. Over 15 participants discussed and curated lipids from over 50 papers. The entire hackathon was supported by presentations from Lucila Aimo (SIB) and Matthew Conroy (LipidMaps), giving insights on lipid curation in SwissLipids and LipidMaps. The event will be followed up early 2024 in a virtual manner to continue curation, normalize lipid naming and adding additional organisms. The curated data will be made available to lipidomics community after final corrections and normalization.



The **International Conference on the Bioscience of Lipids (ICBL)** is intended for scientists who have an interest in any aspect of the lipid research. Since its founding 70 years ago, it has served as a well-known platform for idea sharing, the dissemination of cutting-edge research, and discussions of a wide range of lipid bioscience-related topics. Several members of EpiLipidNET are also part of this community. This year ICBL was held in Palma de Mallorca, Spain, between the 2nd and 5th of October 2023. A total of 175 participants from 25 countries on 4 different continents attended this year's edition. On this occasion, a Satellite meeting on Spatially Resolved Omic Techniques was organized

wherein the most advanced techniques in Spatial Lipidomics, Proteomics, and Transcriptomics were discussed in an integrative mode. The “van Deenen opening lecture” was given by Prof. Edward Dennis, from UCSD. The talks covered six topics: Lipids in Metabolic Disorders, Lipids in Immunology, Lipid enzymes as new drug targets, Clinical Analysis and System Biology, Modified lipids in pathophysiology, Lipids and Cancer. The session on Modified lipids in pathophysiology illustrated the contribution of EpiLipidNET, with plenary talks by Rosário Domingues, Corinne M. Spickett and Dolores Pérez-Sala.



We are happy to share with you a webinar presented at Dubai Climate Conference 2023 - COP28: Roadmap to Net Zero, a webinar on #SustainableNutrition was co-organized by our colleague Isabel Medina, CSIC, Vigo, Spain. You can see the webinar at the following link: https://www.youtube.com/watch?v=czTmHUh_x0c

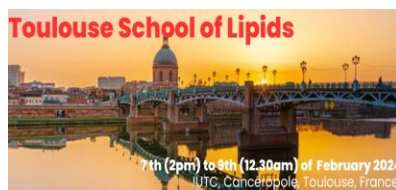
Upcoming EpiLipidNET General Meeting and Toulouse School of Lipids



The 5th EpiLipidNET Management Committee and Action Meeting will take place in Dresden, Germany from 13th to 15th of May 2024. At our Annual Meeting in Dresden, we will cover different fields of lipid research – from basic biochemistry and cell biology, to lipidomics technologies and clinical translation. Over three days, the program will include 7 scientific sessions with oral presentations, 2 dedicated poster sessions, and several social events to support networking and knowledge exchange. Dresden

is especially great place to host EpiLipidNET Meeting, considering its long and highly successful history in lipid research. We are also excited to share that the opening lecture will be given by Dr. Kai Simons! We already have booked a very nice location at the Medical Campus of TU Dresden, with spacious lecture hall and ample space for the sponsor exhibitions (Center for Regenerative Therapies Dresden (CRTD) at TUD Dresden, Fetscherstraße 105, 01307 Dresden). We are looking forward to welcoming you for an exciting Meeting, with three days full of lipid-related research and networking in the beautiful city of Dresden!

Registration and abstract submission website will open in mid-January. Stay tuned!



EpiLipidNET is organizing a **Toulouse School of Lipids** from 7th to 9th of February 2024 in Toulouse (France). It will provide courses on lipid biochemistry with each family of lipids described with its biosynthetic pathway, its roles in (patho)physiology. There will also be a focus on the analytical methods.

EpiLipidNET STSM and ITC Grantees news

The EpiLipidNET (CA19105) provides grants to support **Short Term Scientific Missions (STSM)** to enable researchers to stay at foreign research institutions and to facilitate networking and knowledge exchange as well as the establishment of new collaborations in the field of lipid and epilipid research. Since June 2023, 9 STSMs with a total budget of €16,145.50 have been granted. The duration of the approved STSMs varied between 9 and 36 days and the approved budgets to support travel, accommodation and meals ranged from € 1010 to € 2350 (STSM Coordinator Julia Kuligowski & Grant Awarding Coordinator Joanna Godzien).

The new call for proposals for STSM will be open soon!

In the period from July to December 2023, nine **ITC Grantees**, from institutions from Portugal, the Czech Republic, Slovak Republic and Germany, have attended diverse conferences, in Europe or in the United States, and presented poster or oral communications.

Special Issues guest edited by EpiLipidNET members

International Journal of Molecular Sciences (ISSN 1422-0067) Special Issue: "Probing the Role of Metabolomics to Unveil the Molecular Landscape of Cardiovascular Diseases". Guest Editors: Sílvia O. Diaz & Antonio Barros. Submission deadline: 30th April 2024. [Website](#)

Antioxidants (ISSN 2076-3921) Special Issue: "Polyphenol-Lipid Interactions in Nutrition and Health". Guest Editors: A. Reis & M. Karonen. Submission deadline: 15st July 2024 . [Website](#)

We look forward to your contributions for the EpiLipidNET Special Issue. Please fill out the form by January 10, 2024: <https://forms.gle/rR34nTbujbHHEXi39>

Recent EpiLipidNET Publications

Two review papers were organized by EpiLipidNET community:

Sarmento MJ, Llorente A, Petan T, Khnykin D, Popa I, Nikolac Perkovic M, Konjevod M, Jaganjac M. The expanding organelle lipidomes: current knowledge and challenges. *Cell Mol Life Sci.* 2023;80(8):237.

Tietel Z, Hammann S, Meckelmann S.W, Ziv C, Pauling JK, Wölk M, Würf V, Alves E, Neves B, Domingues MR. An overview of food lipids toward food lipidomics. *Compr Rev Food Sci Food Saf.* 2023;22(6):4302-4354.

Research publications:

Kovács D, Camera E, Póliska S, Cavallo A, Maiellaro M, Dull K, Gruber F, Zouboulis CC, Szegedi A, Törőcsik D. Linoleic Acid Induced Changes in SZ95 Sebocytes-Comparison with Palmitic Acid and Arachidonic Acid. *Nutrients.* 2023;15(15):3315.

Vondrackova M, Kopczyński D, Hoffmann N, Kuda O. LORA, Lipid Over-Representation Analysis Based on Structural Information. *Anal Chem.* 2023;95(34):12600-12604.

Jusović M, Starič P, Jarc Jovičić E, Petan T. The Combined Inhibition of Autophagy and Diacylglycerol Acyltransferase-Mediated Lipid Droplet Biogenesis Induces Cancer Cell Death during Acute Amino Acid Starvation. *Cancers (Basel).* 2023;15(19):4857.

Ferreira HB, Melo T, Guerra IMS, Moreira ASP, Laranjeira P, Paiva A, Goracci L, Bonciarelli S, Domingues P, Domingues M.R. Whole Blood and Plasma-Based Lipid Profiling Reveals Distinctive Metabolic Changes in Systemic Lupus Erythematosus and Systemic Sclerosis. *J Proteome Res.* 2023;22(9):2995-3008.

Gaspar L, Ricardo F, Melo T, Domingues P, Domingues MR, Calado R, Rey F. Lipidomics of common octopus' (*Octopus vulgaris*) arm muscle using untargeted high-resolution liquid chromatography-mass spectrometry. *J Food Compos Anal* 2023;115:104871.

Monteiro FL, Góis A, Direito I, Melo T, Neves B, Alves M.I, Batista I, Domingues MDR, Helguero LA. Inhibiting SETD7 methyl-transferase activity impairs differentiation, lipid metabolism and lactogenesis in mammary epithelial cells. *FEBS Lett.* 2023;597(21):2656-2671.

González-Jiménez P, Duarte S, Martínez AE, Navarro-Carrasco E, Lalioti V, Pajares MA, Pérez-Sala D. Vimentin single cysteine residue acts as a tunable sensor for network organization and as a key for actin remodeling in response to oxidants and electrophiles. *Redox Biol.* 2023;64:102756.

Biernacki M, Conde T, Stasiewicz A, Surażyński A, Domingues MR, Domingues P, Skrzydlewska E. Restorative Effect of Microalgae *Nannochloropsis oceanica* Lipid Extract on Phospholipid Metabolism in Keratinocytes Exposed to UVB Radiation. *Int J Mol Sci.* 2023;24(18):14323.

Rey F, Cartaxana P, Cruz S, Melo T, Domingues MR. Revealing the polar lipidome, pigment profiles, and antioxidant activity of the giant unicellular green alga, *Acetabularia acetabulum*. *J Phycol.* 2023;59(5):1025-1040.

Conde T, Aveiro S, Melo T, Santos T, Neves B, Domingues P, Varela J, Pereira H, Domingues MR. Cross-stress lipid response of *Tetraselmis striata* CTP4 to temperature and salinity variation. *Algal Res.* 2023;74:103218.

da Silva KM, Wölk M, Nepachalovich P, Iturrospe E, Covaci A, van Nuijs ALN, Fedorova M. Investigating the Potential of Drift Tube Ion Mobility for the Analysis of Oxidized Lipids. *Anal Chem.* 2023;95(36):13566-13574.

Jovičić EJ, Janež AP, Eichmann TO, Koren, Brglez V, Jordan PM, Gerstmeier J, Lainšček D, Golob-Urbanc A, Jerala R, Lambeau G, Werz O, Zimmermann R, Petan T. Lipid droplets control mitogenic lipid mediator production in human cancer cells. *Mol Metab.* 2023;76:101791.

Couto D, Conde TA, Melo T, Neves B, Costa M, Silva J, Domingues R, Domingues P. The chemodiversity of polar lipidomes of microalgae from different taxa. *Algal Res.* 2023;70:103006.

Rey F, Cartaxana P, Aveiro S, Greenacre M, Melo T, Domingues P, Domingues MR, Cruz S. Light modulates the lipidome of the photosynthetic sea slug *Elysia timida*. *Biochim Biophys Acta Mol Cell Biol Lipids.* 2023;1868(2):159249.

Stasiewicz A, Conde T, Gęgotek A, Domingues MR, Domingues P, Skrzydlewska E. Prevention of UVB Induced Metabolic Changes in Epidermal Cells by Lipid Extract from Microalgae *Nannochloropsis oceanica*. *Int J Mol Sci.* 2023;24(14):11302.

Social Media Activities

EpiLipidNET WG5 is actively working to improve the presence of the Action in Social media. Please contact WG5 members (<https://www.epilipid.net/wg5/>) for posting the most exciting news about our Action:

Twitter: <https://twitter.com/epilipidnet>

LinkedIn: <https://www.linkedin.com/company/epilipidnet/>

Expert map at <https://www.epilipid.net/directory/>

Newsletter: <https://www.epilipid.net/dissemination-outreach/>

News from the “EpiLipidNET constellation”



Glycolipid and Sphingolipid Biology
Gordon Research Conference

The Role of Sphingo- and Glyco-Lipids in Physiology and Diseases, February 18 - 23, 2024. <https://www.grc.org/glycolipid-and-sphingolipid-biology-conference/2024/>

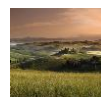


5–8 March 2024
Lipidomic Technologies
and Applications

iSLS 12, 12th International Singapore Lipid Symposium, March 5th–8th, 2024. <https://sling.sg/news-events/isls/>



The first-ever **Molecular Life Sciences Education and Training Conference** in Europe, March 20-23, 2024, organized by FEBS. This three-day event will be held in Antalya, Türkiye, and will bring together senior and junior scientists from all over the world to share their expertise and learn from each other.



Lipidomics
Gordon Research Conference

Toward Functional Lipidomics: Structure Elucidation, Quantification, Data Integration and Clinical Translation will be held in Barga, Italy, May 5 - 10, 2024.

<https://www.grc.org/lipidomics-conference/2024/>



The **2024 SFRR-E annual meeting** will be held from June 5-7, 2024, at the Movenpick Hotel in Kurtköy, Istanbul. The meeting will focus on the theme "From Molecules to Tissues: Redox Biology in Action". <https://www.redoxistanbul2024.com/>



The **64th International Conference on the Bioscience of Lipids (ICBL)** will be held from October 15 – 18, 2024, at Taipei, Taiwan. <https://www.icbl2024.tw/>

* GERLI 19TH LIPIDOMICS meeting 2024., “Lipids: from Sea to fork” September 23 - 26, 2024, European Institute for Marine Studies (IUEM), Plouzané, France (<https://www.gerli.com/congress/?lang=en>)



Happy holidays and the best for 2024!!

Stay tuned for the new sections on WG groups and Young Researchers and Innovators.
If you wish to be featured in the newsletter, either in the existing sections or proposing a new section, or wish to send feedback and information for upcoming Newsletters please contact:

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Dolores Pérez-Sala (dperezsala@cib.csic.es)

Evelina Charidemou, YRI section (charidemou.evelina@lucy.ac.cy)

Thank you!