



## Message from the Chair

Dear Colleague,

I hope everyone is ready for the [2022 AOCS Annual Meeting & Expo](#) in Atlanta on May 1–4! We are back to in-person meetings! After two long years, we are all looking forward to reconnecting with colleagues and friends and discovering the latest research in fats and oils technologies. However, if you are not able to attend in person, you can still [register for online access](#).

Needless to say, we need to thank AOCS staff for all their invaluable work in organizing in-person meetings as well as online conferences and courses. Also, a big thank you and shout out to the always indispensable volunteers, speakers, and sponsors.

This year, we are having a short but exciting [Phospholipid \(PHO\) technical program](#) on new processes and lecithin and phospholipid products. It will include innovative technologies on purification of lecithin and phospholipid products, new sources of phospholipid-based antioxidants, and novel systems for the delivery of functional components using phospholipids. Also, as the analytical needs for new phospholipids become more sophisticated, we will be holding a joint session with the Analytical Division to showcase some of the latest developments in phospholipid analyses.

Also, please join me in welcoming our incoming Division officers: Dr. Tao Fei, our new PHO Division vice chair, from Huzhou Agricultural Bureau, Beijing, and Dr. Zifan Wan, our new PHO secretary-treasurer from the University of Wisconsin-Platteville.

I would also like to reiterate that our Division, more than ever, needs your help and involvement to further grow and improve. I would like to encourage everyone to get more involved in PHO Division activities by participating and providing leadership in next year's activities, as well as [spreading the word about the benefits](#) of being an AOCS and Phospholipid Division member.

I hope to see you in Atlanta!

Ernesto M. Hernandez, Ph.D.  
Principal Consultant  
Advanced Lipid Consultants

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## Division officers

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## Learn and connect at the 2022 AOCS Annual Meeting & Expo May 1–4 in Atlanta, Georgia, USA, and live online

Our program is rich and exciting thanks to Ozan Ciftci, the Division's vice chair, and the session chairs who worked hard to assemble a prime scientific program.

There are also other [networking events](#) to grow your professional network and events to help you [explore Atlanta](#), a city filled with rich history.



[Register](#)

### Explore the Phospholipid technical program

View the [technical program](#) to preview sessions. We will hold sessions on a number of important topics, including:

- High-throughput lipidomics
- Identifying minor lipid classes
- Differentiating animal sources of milk
- Edible oils processing
- Protecting functional components of chia oil

Notable talks include “Synthesis of complex phospholipid species” and “Identification of glycerophospholipid species in food and biological matrices by supercritical fluid chromatography coupled with high resolution mass spectrometry.”

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### Explore AOCS news and resources



#### **Congratulations to 2022 Phospholipid Division Best Paper Award winners**

We are delighted to recognize Bungo Shirouchi and co-authors for receiving the 2022 Phospholipid Division Best Paper Award. They published their [award-winning paper](#) in *Lipids*. [Get to know Bungo in this award spotlight.](#)



### Keep your career on the move

The AOCs Career Center helps you search and apply to 100+ jobs using robust filters, set up job alerts to deliver the latest jobs to your inbox and access job searching tips and tools. [Search current job opportunities](#) and resources to help you make the next move in your career.

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## Stay informed with *INFORM* magazine

### A new bio-based surfactant feedstock?

Since the early 2000s, scaling and commercializing sustainable surfactants has always been a challenge for manufacturers. With the increased demand for cleaning products, for both home and industrial use, efforts have been taken to explore low toxicity, natural alternatives to petroleum-based surfactants, which would lead to a sustainable use in household cleaning, agriculture, bioremediation, and personal care applications. Although compounds, like lecithin, have achieved some level of commercial success, the high cost hinders its commercialization. Bio-based surfactants derived from plants, such as soybean, might be a potential solution. Researchers have developed 49 epoxidized high-oleic soybean oil (HOSO) surfactant candidates that are stable over range of pHs. These new HOSO surfactants are poised to launch in different business areas. [Read the article.](#)



### Fatty acid production from coffee waste

Researchers have taken actions to develop sustainable and integrated bioprocesses. A promising approach is by converting renewable biological resources and waste streams into value-added products. While coffee is the most traded commodity in the world, the industrial production of coffee results in serious environmental concerns due to the huge amount of residues generated as husks, pulp, coffee silverskin, etc. Coffee silverskin is rich in dietary fiber, protein, minerals, and antioxidants, and it has recently gained attention as a source of residual oil to produce free fatty acids. Researchers are able to directly use crude coffee silverskin oil in enzymatic hydrolysis catalyzed by non-specific lipase for free fatty acids or enriched polyunsaturated fatty acids production. [Read the article.](#)

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## Recent journal articles

**DHA-enriched phospholipids and EPA-enriched phospholipids alleviate lipopolysaccharide-induced intestinal barrier injury in mice via a sirtuin 1-dependent mechanism.** (subscription required), *Journal of Agricultural and Food Chemistry*.

Du et al. have recently published a paper on using DHA- and EPA- enriched phospholipids to alleviate lipopolysaccharide-induced intestinal barrier injury.

In this paper, the authors have examined the effect and mechanism of DHA-enrich phospholipids (DHA-PL) and EPA-enriched phospholipids (EPA-PL) on protecting against lipopolysaccharide (LPS)-induced intestinal barrier injury. The results demonstrated that DHA-PL and EPA-PL pretreatment balanced apoptosis and autophagy in intestinal epithelial cells and maintained intestinal tight junction integrity. Overall, DHA-PL and EPA-PL was able to alleviate LPS-mediated intestinal barrier injury via the inactivation of the NF- $\kappa$ B and MAPKs pathways and the activation of Nrf2 pathway by up-regulating sirtuin 1. [Read the paper.](#)

**Prebiotic protocell membranes retain encapsulated contents during flocculation, and phospholipids preserve encapsulation during dehydration** (subscription required), *Langmuir*.

Cohen et al. have recently published a paper on evaluating the function of fatty acids and phospholipids on prebiotic protocell membranes, in which they observe that phospholipids preserve encapsulation during dehydration.

In this paper, authors tested whether fatty acids vesicles retain encapsulated contents after flocculation and after drying. They observed that 30 minutes of complete dehydration disrupted encapsulation by fatty acid vesicles, whereas phospholipids vesicles maintained encapsulation. This work demonstrates a selective pressure for protocells to incorporate phospholipids, in which fatty acid membranes can retain encapsulated contents during periods of dilute and saturating salts, but phospholipids are essential for encapsulation during dry periods. [Read the paper.](#)



[AOCS Webinars](#) are your opportunity to connect with researchers, industry experts and thought-leaders from across the globe. Invest an hour of your day and be inspired. AOCS members have exclusive access to the [AOCS Member Webinar Library](#) to watch past webinars.

## Past webinars of interest

### The future of food

**Presenter:** Brad McKay, president of McKay Consulting

With the world's population expected to grow by 2 billion by 2050, we will need new and innovative means of safely producing, manufacturing, and delivering food in a manner that supports the sustainability of the earth's environment and our species. This webinar looks at human evolution and the history of food and then addresses the future of food and food manufacturing. [Watch the recording.](#)

### Saturated fat and cardiovascular disease

**Presenters:** Fabian M. Dayrit, Department of Chemistry, Ateneo de Manila University, Philippines; Mary T. Newport, M.D., physician, caregiver, author, international speaker, and certified ketogenic nutrition specialist; and Susan J. Hewlings, Ph.D., science director, Nutrasource.

Current dietary recommendations suggest that we limit saturated fats to avoid cardiovascular disease. Should the recommendations be reconsidered based on new research? The presenters discuss how chain length, molecular structure, and food matrix should be considered when evaluating the impact of saturated fat on human health, particularly cardiovascular disease. [Watch the recording.](#)

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## Share your thoughts

Have the PHO newsletters been a useful resource to you? Was your interest area missing from the list of resources? If you have any comments or ideas of additional topics to cover in upcoming communications, please reach out to Newsletter Editor [Zifan Wan](#).

STAY CONNECTED



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