Katedry genetiky a biochémie PriF UK
a občianske združenie *NATURA*

Vás pozývajú na 140. prednášku v rámci Kuželových seminárov:

Dr. Cunqi Ye

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SPATIOTEMPORAL LOGIC OF THE MEMBRANE GLYCEROPHOSPHOLIPIDOME

ktorá sa uskutoční **1. júna 2026** (pondelok) o **15:00**
v miestnosti **CH1-222** Prírodovedeckej fakulty UK

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Hostiteľ: Dr. Mária Balážová

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2026-present	**Senior Investigator** Life Sciences Institute Zhejiang University, Hangzhou, China
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Synopsis of the talk

Lipids, the fundamental building blocks of all cellular membranes, exhibit extraordinary chemical diversity. This diversity, dominated by glycerophospholipids in eukaryotes, is not a stochastic occurrence but a finely tuned product of evolutionary adaptation. These distinct chemical compositions confer specific biophysical properties to membranes, regulating functions from the organismal level down to specialized sub-membrane domains. Despite their importance, the spatiotemporal regulation of lipids during cell division remains poorly understood. In my talk, I will present our recent discoveries using a single-celled eukaryotic yeast model coupled with high-precision mass spectrometry. Taking a holistic approach, we have resolved the dynamics of the glycerophospholipidome throughout the cell cycle. I propose the 'Spatiotemporal Inconsistency Hypothesis,' which suggests that cellular deterioration stems from the asymmetric transmission of lipids and a subsequent failure to rejuvenate the lipidome following cell division.

Selected publications:

1. Zhang T, Wang Y, **Ye C**. Adaptive regulation of glycerophospholipid metabolism. *Journal of Cell Science*, 2026.
2. Yang S, Wang Y, Huang S, Xu P, Jiang C, **Ye C**. Temporal oscillation of phospholipids promotes metabolic efficiency. *Nature Chemical Biology*, 2025.
3. Qiu H, Miao C, **Ye C**. An adaptive organelle triad houses lipid droplets for dynamic regulation. *Cell Reports*, 2025.
4. Zhu Y, Tong X, Xue J, Qiu H, Zheng D, Zheng DQ, Tu ZC, **Ye C**. Phospholipid biosynthesis modulates nucleotide metabolism and reductive capacity. *Nature Chemical Biology*, 2024.
5. Fang W, Jiang L, Zhu Y, Yang S, Qiu H, Cheng J, Liang Q, Tu ZC, **Ye C**. Methionine restriction constrains lipoylation and activates mitochondria for nitrogenic synthesis of amino acids. *Nature Communications*, 2023.
6. Fang W, Zhu Y, Yang S, Tong X, **Ye C**. Reciprocal regulation of phosphatidylcholine synthesis and H3K36 methylation programs metabolic adaptation. *Cell Reports*, 2022.
7. **Ye C**, Sutter BM, Wang Y, Kuang Z, Tu BP. A metabolic function for phospholipid and histone methylation. *Molecular Cell*, 2017.