

Instituto de Biología Funcional y Genómica

Programa de Seminarios Externos

"Dionisio Martín Zanca"

2023 - 2024

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Stage for lipids in genome stability maintenance

Abstract: *Along with nucleic acids, proteins, and carbohydrates, lipids are one of the four major biomolecules in living organisms. Cellular processes are mediated by the concerted action of these biomolecules, thus giving rise to complex interaction networks. Yet, while two-thirds of the cell proteome is in constant interaction with multiple lipid species, there is a poor definition of this type of interaction specifically within the nucleus, and almost none of lipid-nucleic acid interactions. This disequilibrium relates to historical reasons, but also to the difficulty of applying classical lipid-related techniques to a territory such as a nucleus. As a consequence, the limited research in this domain translates into scarce and rarely gathered information, further discouraging new initiatives. Yet, the nucleus is delimited by a double membrane bilayer, and envelope-derived lipid structures, namely the nucleoplasmic reticulum and the nuclear lipid droplets, occupy the nucleoplasm. Nuclear condensate organelles such as the nucleoli, the splicing speckles and DNA repair foci harbor phosphoinositide species, and the biology of chromatin (and of chromosomes) is profoundly modulated by physical and genetic interactions with phospholipids. Additionally, we recently discovered that the signaling and repair of DNA double strand breaks is controlled by a sterol-phosphoinositide loop. By building on that knowledge, I will present new findings on the impact of lipid circuits in the response to replicative stress, replication fork processing, lesion repair and cell viability. Our research aims at creating awareness of the importance, and the potential, of considering the lipid dimension in the field of genome integrity.*

Viernes **14**²⁰²⁴
Junio **20**²⁰²⁴

Hora: 12:00 pm

Lugar: Salón de actos del IBFG

Web: <https://ibfg.usal-csic.es/semext.php>

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