investigadores predoctorales en Investigaciones Biomédicas de Aragón

*Short informal talks given by **predoctoral researches of Aragón** with the aim to promote 2 main goals:*

1. ***Networking** between predoctoral and postdoctoral researchers in Aragón.*
2. *Improve our **communicative skills**.*

"Diving in the microbial genomes to obtain new natural drugs"

Thursday, March 14, 2024
From 9:30 to 10:30

Summary:
Microbial Natural Products (NPs) exhibit a wide range of biomedical activities, including antibacterial, antitumoral, immunosuppressive, anticholesteremic, and antiparasitic. The field of NPs research has faced numerous challenges; however, the advent of the "-omics" revolution has breathed new life into this area. This revitalization is exemplified by the research on the NPs, Nataxazole, Ferrocins, and Cyclosporine. Nataxazole is an antitumoral produced by Streptomyces sp. Tü 6176, which exhibits activity against multiple antitumoral cell lines. The biosynthesis characterization through genome mining and genetic engineering entailed the discovery of AJI9561 as the biosynthetic final product and demonstrated the first crosstalk between two pathways to produce the drug UK-1. On the other hand, ferrocins, non-ribosomal lipopeptides, were described produced by Pseudomonas sp. Despite their excellent antibacterial activity, their low production impeded their development. Characterizing the biosynthetic gene cluster provided clues to enhance their yield, and the heterologous expression of the resistance gene shed light on their uncommon mode of action. Finally, the immunosuppressor Cyclosporine, another non-ribosomal peptide, is produced by the filamentous fungus Tolypocladium inflatum. Its discovery revolutionized organ transplant and autoimmune disease treatment. Nevertheless, its synthetic chemistry is laborious and expensive. Here, the application of the diverse "-omics," Synthetic Biology tools, and heterologous expression are guiding us towards a more biosustainable and likely more affordable production approach.

Speaker: Dr. Carolina Cano-Prieto (cano.prieto.carolina@gmail.com)

Affiliation: Novo Nordisk Foundation Center for Biosustainability Tecnical University of Denmark

Principal Investigator: Dr. Jay D. Keasling.

Organizes: Institute for Health Research Aragon

Link to join the seminar:

https://us02web.zoom.us/webinar/register/WN_soqF-J12Rk-12K8rhv7-lg

CIBA and online via ZOOM

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