

A Polar Expedition in Chemistry

Initiative: Momentum - Förderung für Erstberufene

Bewilligung: 23.03.2021

Laufzeit: 5 Jahre

Projekt-Website: <https://www.jessen-lab.uni-freiburg.de/prof>

Important building blocks of life, including genetic material, or metabolites contain phosphorus compounds like phosphate esters and anhydrides. What all these compounds have in common is that they have a significant negative charge. Highly polar compounds, which are also unstable, would not be identified in current isolation campaigns of natural products. However, there is still much potential to discover, isolate and characterize charged metabolites. In this regard, the highly unstable structures require special extraction methods as well as mild analytics that allow rare compounds to be enriched and ultimately isolated in the presence of already known charged and abundant metabolites. Sample materials will include human cells, plants, yeasts, bacteria, slime molds, viruses and parasites. A combination of different analytical techniques with extraction and purification processes will contribute to the identification of new charged phosphate-rich metabolites, whose biological importance will then be established.

Projektbeteiligte

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Open Access-Publikationen

-lapachone regulates mammalian inositol pyrophosphate levels in an NQO1-and oxygen-dependent manner

The phytase RipBL1 enables the assignment of a specific inositol phosphate isomer as a structural component of human kidney stones

Capillary electrophoresis mass spectrometry identifies new isomers of inositol pyrophosphates in mammalian tissues

