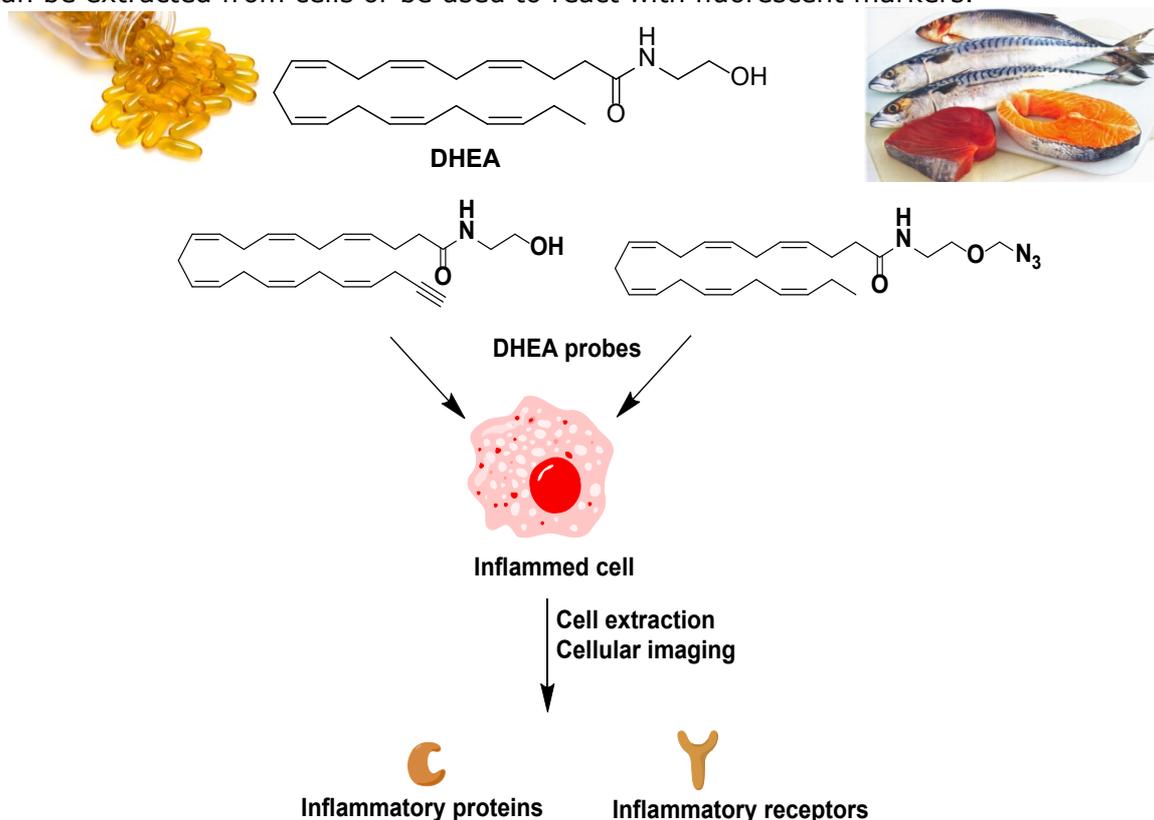


Group : Nanochemical Biology & Nutrition and Pharmacology
Project : **Fishing for endogenous inhibitors of inflammation derived from 'omega-3 fatty acids'; unravelling the interactions between N-docosahexaenoyl ethanolamide (DHEA) and cyclooxygenase (COX-2)**
Supervisors : Ian de Bus, Bauke Albada, Michiel Balvers, Han Zuilhof, Renger Witkamp

Keywords: omega-3 fatty acids, inflammation, COX-2, chemical probes, ambient pressure MS

Docosahexaenoyl ethanolamide (DHEA) is a 'so-called' endocannabinoid with high cellular anti-inflammatory behaviour. DHEA is metabolised from its docosahexanoic acid precursor, which is prevalently present in fatty fish (tuna, salmon, mackerel) and fish oil supplements. The exact cellular anti-inflammatory mechanism is studied in this project, using endocannabinoid probes, that can be extracted from cells or be used to react with fluorescent markers.



Goal

In this project various DHEA derived probes will be synthesized to specifically target 'new' receptors and other proteins that might be involved in the anti-inflammatory response of either DHEA or its metabolites. The project involves the synthesis of endocannabinoid probes, and biological studies to investigate the metabolic fate and anti-inflammatory mechanism of the endocannabinoids.

Topics to be covered

Synthesis of endocannabinoid probes and determination of the cellular anti-inflammatory mechanism induced by the endocannabinoids. The project can be specified into the organic synthetic or biological field depending on the interests of the student.

Techniques to be used

General organic synthesis techniques such as reaction set-up, TLC, column chromatography, NMR and more specific analytical techniques like HPLC, LC-MS/MS and will be performed. Also cell culture experiments, PCR, and various biological arrays can be performed.

Interested? For more info

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