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Influencing lipid hydrolysis by minute molecular changes

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Designer lipid colloids are being increasingly studied for the delivery of drugs and nutrients. These nanoparticles can have different internal nanostructures and different lipidic composition. Cyclopropanated derivatives of commonly used monoacylglycerols show substantial differences in self-assembled structures, and formations of nanostructured nanoparticles. Most remarkably, small differences in the hydrophobic tail affect the packing of the lipids, sufficient to alter the availability of the lipid headgroups to be hydrolysed by interfacial enzymes. We employed small angle X-ray scattering and acid/base titration at the Australian Synchrotron SAXS/WAXS beamline to monitor the nanostructural changes during hydrolysis and the digestion rate. These fundamental characteristics are of interest for the smart design of lipidic nanoparticles for drug or nutrients delivery.

Salvati Manni L. et al. (2021) J. Colloid Interface Sci. 588, 767-775

Presenter Gender

Woman

Do you wish to take part in the Student Poster Slam

Condition of submission

Yes

Students Only - Are you interested in AINSE student funding

Level of Expertise

Early Career <5 Years

Pronouns

She/Her

Which facility did you use for your research

Australian Synchrotron

Primary authors: SALVATI MANNI, Livia (University of Sydney); Dr DUSS, Michael; Dr ASSENZA, Salvatore; BOYD, Ben (Monash Institute of Pharmaceutical Sciences); Prof. LANDAU, Ehud; Dr FONG, Wye-Khay

Presenter: SALVATI MANNI, Livia (University of Sydney)

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