

Mechanistic investigations of the mode of action of peptide structures in lipid membranes

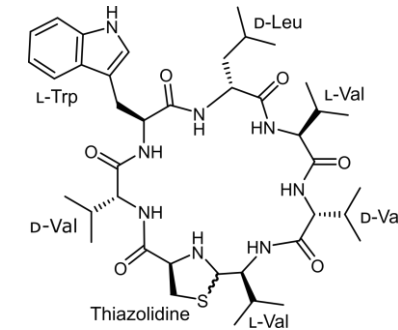


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Main objective: Biophysical characterization of the antimicrobial peptide lugdunin

Methods:

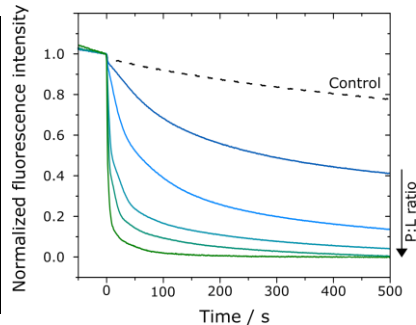
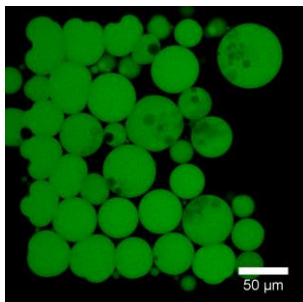
- Fluorescence spectroscopy and microscopy
- Infrared spectroscopy
- Electrochemical impedance spectroscopy



Structure of lugdunin

#1: Peptide-Membrane Interaction

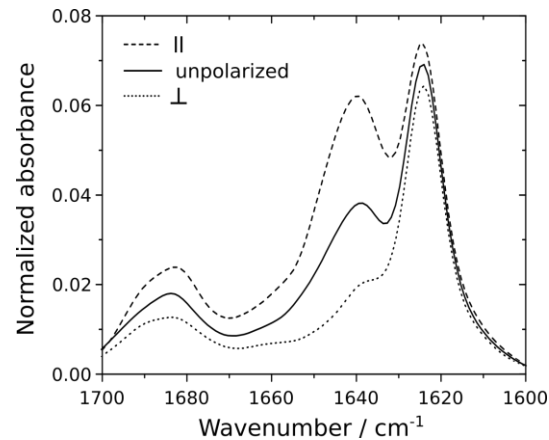
- » Quantification of the affinity of lugdunin for biomimicking lipid mixtures
- » Analysis of the ion transport capability of lugdunin



Left: Giant unilamellar vesicles filled with a pH-sensitive dye. Right: Proton transport assay.

#2: Structure of Lugdunin

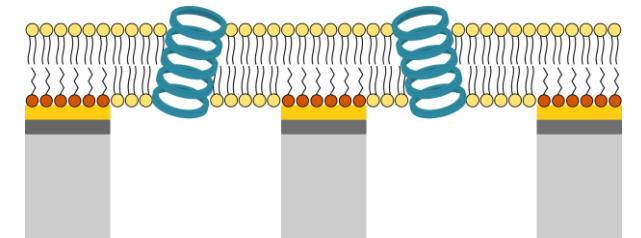
- » Determination of the active structure of lugdunin in lipid membranes



IR spectra of lugdunin in lipid bilayers.

#3: Electrophysiological characterization

- » Influence of lugdunin on electrical membrane parameters
- » Model system: Pore-spanning membranes



Top: Pore-spanning membrane. Bottom: Porous alumina substrate used for membrane preparation.

