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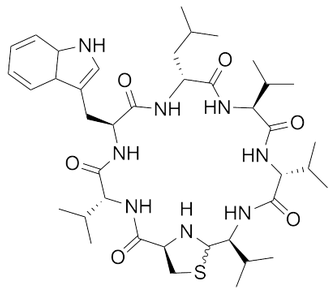
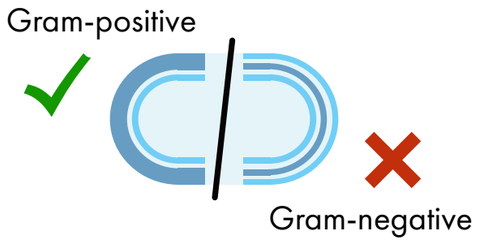
Unraveling the Membrane-Selective Mechanism of Lugdunin

Klaas Kock

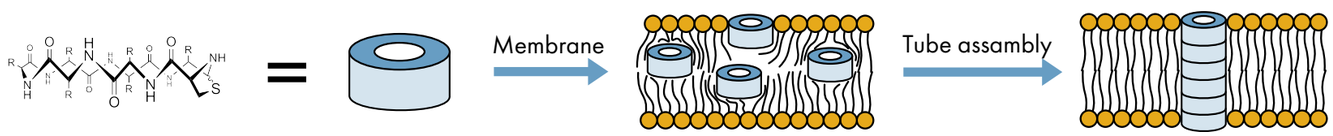


Lugdunin

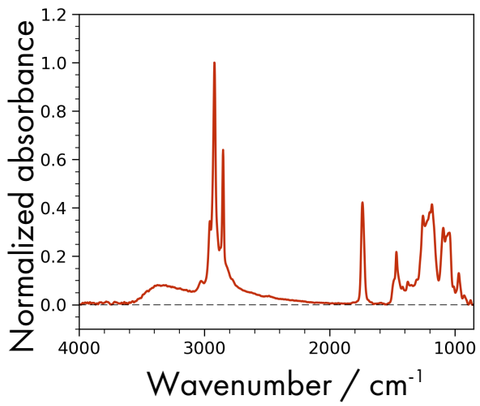
The cyclic antimicrobial fibupeptide „Lugdunin“ exhibits antibiotic activity against Gram-positive bacteria. Gram-negative bacteria and mammalian cell membranes are less susceptible or immune to lugdunin. My **objective** is to identify the characteristics of the lugdunin-membrane interaction by analyzing and comparing suitable artificial membrane models.



Lugdunin diffuses into the cell membrane and forms peptide nanotubes that traverse the hydrophobic barrier of the membrane.

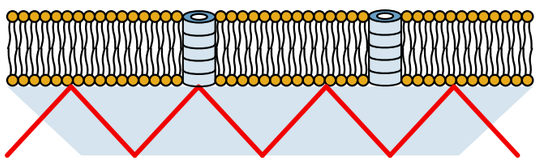


Infrared spectroscopy



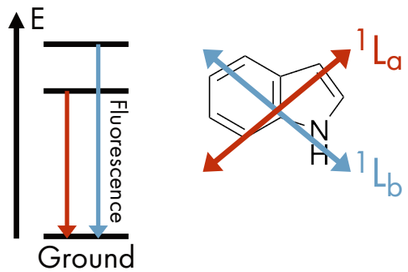
ATR - IR spectra
of Lugdunin in a DMPC Membrane

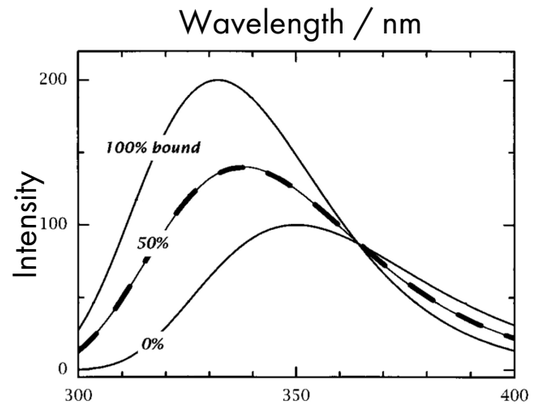
Characterization of lugdunin in various model membranes via Attenuated Total Reflection - IR.



Fluorescence spectroscopy

Determination of the partition coefficient of lugdunin in model membranes via the fluorescence property of tryptophan in polar and nonpolar environments.





Tryptophan fluorescence in polar (0%) and unpolar (100%) environment.