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**Determination of the Membrane-Buffer Partition Coefficient with Laurdan Labeled Liposomes**

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The lipophilicity of a drug plays a key role for its distribution and accumulation in the human organism. The analysis of the distribution behaviour between buffer and a model membrane is most suitable to ascertain the partition coefficient between hydrophilic and biological membranes. Liposomes are common membrane models and ideal systems to characterize drug-membrane interactions [1].

We verified an indirect screening method to investigate the liposome-buffer partition coefficient using the fluorescent dye 6-Lauryl-2-dimethylaminonaphtalene (Laurdan). Laurdan offers a distinctive emission spectrum which is characterized by a shoulder at 434 nm and a maximum at 486 nm. The ratio of the fluorescence intensities at these two wavelengths is termed as the membrane state parameter (MSP). MSP changes depend on the polarity of the dye’s environment. After insertion of drug molecules into the liposomal membrane, the MSP value decreases as a function of the amount of inserted drug. The calculation of the MSP for different drug concentrations and various lipid amounts enables the determination of the drug’s partition coefficient [2, 3]. This indirect method offers the possibility to analyze the partition behaviour of a broad range of different drug classes without requiring further operations like separation steps or specific drug detection.

In an initial study, we determined the membrane partition behavior of bile salts as amphiphilic model drugs.

