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FUNCTIONAL AND FUNCTIONALIZED MEMBRANES

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Cell membranes are complex dynamic structures, and their composition and structure are major determinants of pathology. It is now commonly accepted that the membranes' physical properties, such as fluidity and thickness, are determining factors for permeability, partitioning of drug molecules, and protein aggregation. Membrane-interacting molecules can in some instances be expected to have a greater therapeutic potential than traditional therapies targeting receptors or enzymes. I will provide a perspective on the basic mechanisms how physical membrane properties can affect diseases, and the therapeutic potential of changing membrane properties to target certain diseases. Red blood cell based liposomes with antiviral and antibiotic properties have great therapeutic potential because of their biocompatibility. We use these ideas also in our start-up (www.synth-med.com) that develops smart membrane-based sensors for water and food safety.

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