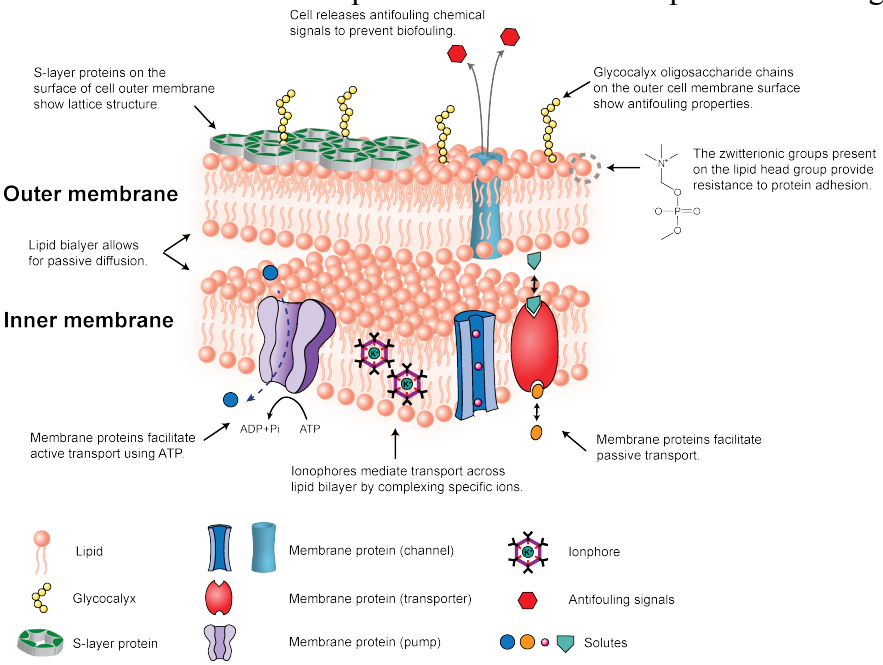
Biomimetic and Bioinspired Membranes: Opportunities, Challenges and New Directions

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Biomimetic and bioinspired membranes incorporate elements or paradigms that are inspired by biological membranes or incorporate biological elements themselves (Figure). Interest in these membranes in the membrane community has grown rapidly in recent years, from being a science-based enquiry to larger commercialization efforts. This talk will present an overview of biomimetic and bioinspired approaches to development of membranes for separations. It will focus on a few examples including several well-known classes of biomimetic and bioinspired membranes: bioinspired antifouling membrane materials, bioinspired antifouling strategies, membrane protein enhanced membranes, synthetic channel based membranes, and selective transport membranes.



This talk will also present a summary of the fundamental research needs for biomimetic and bioinspired membranes and the benefits that may accrue from such investigations. It will provide a contrasting discussion on the challenges to scale-up and use of biomimetic and bioinspired membranes in more industrial contexts.