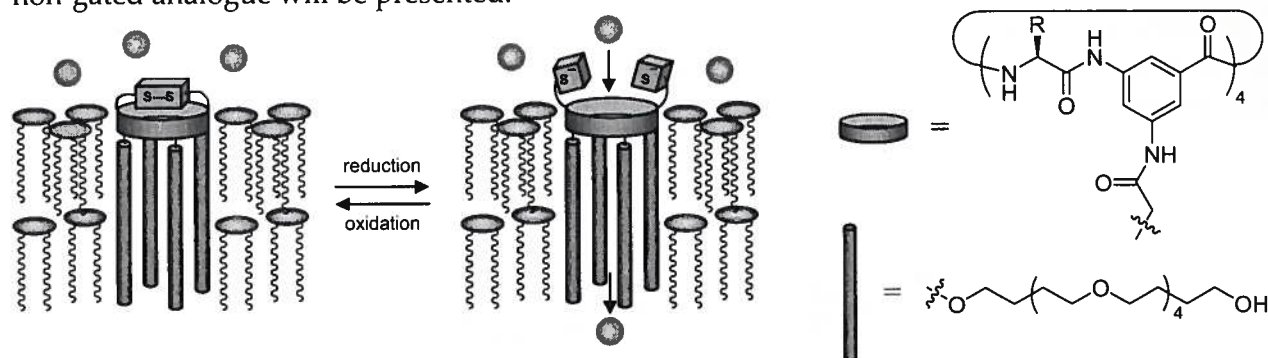


Efforts Toward a Redox-Gated Synthetic Ion Channel

Emily G. Schmidt and Mary S. Gin

Synthetic ion channels that open and close in response to specific signals are of interest for the development of new materials such as biosensors and therapeutics. Our goal is to achieve redox gated transmembrane ion transport through monomolecular channels. The target channel includes a pore-forming cyclic peptide with membrane-spanning chains attached to one face. Two α -amino acids with thiol-terminated side chains comprise the redox-active gate. Initial efforts toward the synthesis of the target channel as well as ion transport studies with a non-gated analogue will be presented.



Sequence Specific Janus Type Binders Targeting DNA Internal Loops Containing T-T Mismatches

Jonathan F. Arambula and Steven C. Zimmerman

Mismatch and sequence specific DNA internal loop binders based on Janus type hydrogen bonding are currently being developed. Melamine, which may act as a Janus wedge (JW), contains two DAD motifs (D = hydrogen bond donor, A = hydrogen bond acceptor) that are complimentary to those of a T-T DNA mismatch. Non-specific binding of the ligand was increased through attachment of acridine (a known DNA intercalator). Flanking mismatch optimization, along with T-T selectivity, were determined through thermal denaturation studies with 23-mers incorporating symmetric 6-base internal loops at varying concentrations of ligand.

