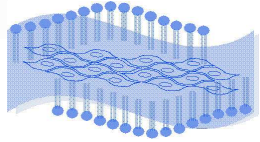




**Center for Biologically Inspired Materials and
Material Systems (CBIMMS)**



**Center for Biomolecular and Tissue
Engineering (CBTE)**

SEMINAR

Bruce Sullenger, PhD

**Professor of Surgery and Chief of Experimental Surgery, Duke
University Medical Center**

“Aptamer-antidote Pairs: A Novel Approach to Safer Drug Design”

Therapeutic agents can often elicit untoward side effects in patients.

In particular, administration of anticoagulant agents to thin blood comes with an increased risk of bleeding in patients. To provide physicians additional control over therapeutic agents, we have recently developed a novel approach to drug design that exploits molecular properties of RNA to generate not only new drugs but simultaneously create matched antidotes for these drugs. Using such molecular engineering, we have been able to generate the first rationally designed anticoagulant-antidote pair. The anticoagulant is an RNA aptamer that binds coagulation factor IXa with high affinity and specificity and inhibits factor IXa activity both in vitro and in swine. Moreover, the antidote can rapidly and effectively reverse the blood thinning activity of the aptamer in the test tube and in animals. Current efforts are focused upon evaluating the factor IXa aptamer-antidote pair in phase I clinical trials as well as developing other novel drug-antidote pairs.

Thursday, March 10 – 203 Teer Building – 3:05–5:00 PM