Drug-Like Antibodies by Design and Directed Evolution

The biotech industry has seen an explosion in the development of therapeutic antibodies in the last decade, and today most of the best selling drugs are monoclonal antibodies. The advantages of antibodies as therapeutics – namely their high affinity, specificity, potency, stability, manufacturability and low toxicity – are compelling.

Nevertheless, there are many fundamental challenges associated with antibody discovery and development that require key technical advances in order to improve the rational generation of potent antibody therapeutics.

I will discuss our progress in addressing some of these challenges, including the design, evolution, selection and characterization of drug-like antibodies with high affinity, specificity, stability and solubility.

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Tessier’s research focuses on designing, optimizing, characterizing and formulating a class of large therapeutic proteins (antibodies) that hold great potential for detecting and treating human disorders ranging from cancer to Alzheimer’s disease. He has received a number of awards and fellowships in recognition of his pioneering work: Pew Scholar Award in Biomedical Sciences (2010-2014), Humboldt Fellowship for Experienced Researchers (2014-2015), Fellow of the American Institute for Medical and Biological Engineering (2018), Young Scientist Award from the World Economic Forum (2014), Biochemical Engineering Journal Young Investigator Award (2016), Young Investigator Award from the Biochemical Technology division of the American Chemical Society (2015), National Science Foundation CAREER Award (2010-2015), Rensselaer Early Career Award (2012), and Rensselaer School of Engineering Research (2012) and Teaching (2013) Awards.

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