Sugars and sugar transporters

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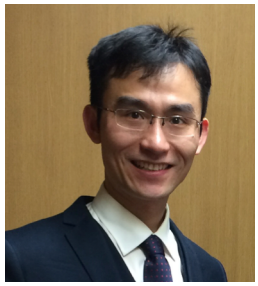

Sugars and sugar transporters are common in most biological systems. Therapeutics that target at sugars or sugar transporters are relatively under-developed. I aim to utilize normal sugars and rare sugars for the development of novel therapeutics. I am particularly interested in finding novel antibacterials to meet the increasing global challenge of drug-resistant bugs. I have initiated and led a research program that focused on the interrogation of a transporter of capsular polysaccharides Wza that is conserved in Gram-negative bacteria, which led to the discovery of the first potent Wza inhibitor. A combination of this inhibitor and a synthetic glycoconjugate vaccine based on the lipopolysaccharide has resulted in better immune clearance of bacteria from attacking the host cells. We are developing a multidisciplinary approach that combines chemistry, biochemistry, single-molecule biophysics, biology, computation, etc. to enable efficient discovery of novel therapeutics.