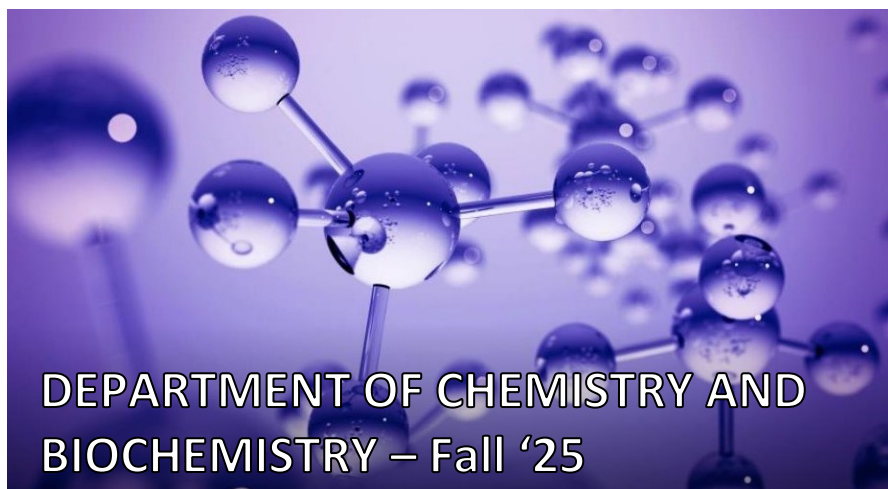




THE SALZBERG CHEMISTRY SEMINAR SERIES



The City College
of New York



Monday, October 27 2025 @ 12:00 noon – MR1027

A Small Molecule Broad Spectrum Antiviral

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Abstract: Viral pandemics continue to threaten global health and economic stability. Despite medical advances, the absence of broad-spectrum antivirals (BSAs) prevents rapid responses to emerging viral threats. This is largely due to the lack of universal drug targets across diverse viral families and high variability among viral proteins. In this study, we evaluated 57 synthetic carbohydrate receptors (SCRs) for antiviral activity in cells using pseudotyped virus particles (PVPs) from six high-risk viruses across three families: Paramyxoviridae, Filoviridae, and Coronaviridae. Four SCRs inhibited all tested PVPs, and their efficacy was confirmed against live viruses including SARS-CoV-2, MERS-CoV, EBOV, MARV, NiV, and HeV. Notably, **SCR005** and **SCR007**, which exhibited minimal toxicity, significantly reduced SARS-CoV-2 infection in a severe animal model with a single dose. Mechanistic studies suggested that SCRs bind viral envelope N-glycans, blocking viral attachment and/or fusion. These results identify conserved viral N-glycans as promising BSA targets and establish SCRs as candidate prophylactic agents against enveloped viruses with pandemic potential.

Biography: Adam Braunschweig is a Professor at the CUNY Advanced Science Research Center. He received a BA from Cornell University and a PhD in Chemistry from UCLA. His group investigates nanolithography of soft matter, photophysics of supramolecular systems, synthetic carbohydrate receptors, and the structure and properties of natural and synthetic mucins.

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