BIOCHEMISTRY SEMINAR

Small-Molecule Modulators of Protein Raft Affinity and Raft Stability

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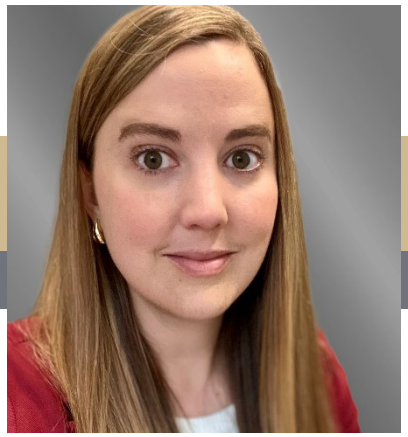

Abstract: Membrane nanodomains colloquially known as “lipid rafts” remain an active area of cell membrane research but due to their nanoscale size and theorized short lifetime their exact cellular functions have yet to be clarified. A lack of pharmacological tools has stymied our ability to study the functions of lipid rafts in cells and functional consequences of proteins partitioning into rafts. One such protein, peripheral myelin protein (PMP22) shows a high affinity for rafts. Genetic defects in PMP22 cause Charcot-Marie-Tooth disease. I conducted a high-throughput screen for modulators of the affinity of PMP22 for rafts in giant plasma membrane vesicles (GPMVs). Three different classes of compounds were discovered and classified based on their effects on protein raft affinity and raft stability. I will discuss the differing modalities of the compounds in biophysical assays, their effects on live cell membranes, and raft-dependent signaling. These compounds provide new evidence regarding the nature of lipid rafts and may provide new information about disease etiology and be therapeutic leads.

Monday, January 13, 2025 | 3:30 pm | BRWN 4102

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