

## Exploring the Glycolipidome via Chemical Mimicry

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Based on the traditions and skills of total synthesis, the chemical mimicry and targeting of the primary components of cells is gaining significant success in our understanding of diseases. Today, for example, the synthesis of exactly connected and stereochemically defined lipidated and glycan conjugates can be achieved to provide pure homogeneous materials for biological study. This is particularly important since closely related bioconjugated structures exist within cells and, within that dynamic cellular milieu, the unambiguous assignment of a molecular entity to a particular function (either singly or as a multivalent assembly) is an important goal to achieve. In our modest contributions to the field, we are exploring glycolipid tools to analyze infection, generate antibodies, and identify enzymes. In this talk, we shall highlight two projects: (1) the development of more specific variants of Orlistat (tetrahydrolipstatin, THL) to target the lipogenic activity of fatty acid synthase (FAS) and (2) the metabolic incorporation of an azido-*myo*-inositol into the phosphatidylinositols (PIs) of Baker's yeast (*S. cerevisiae*).

