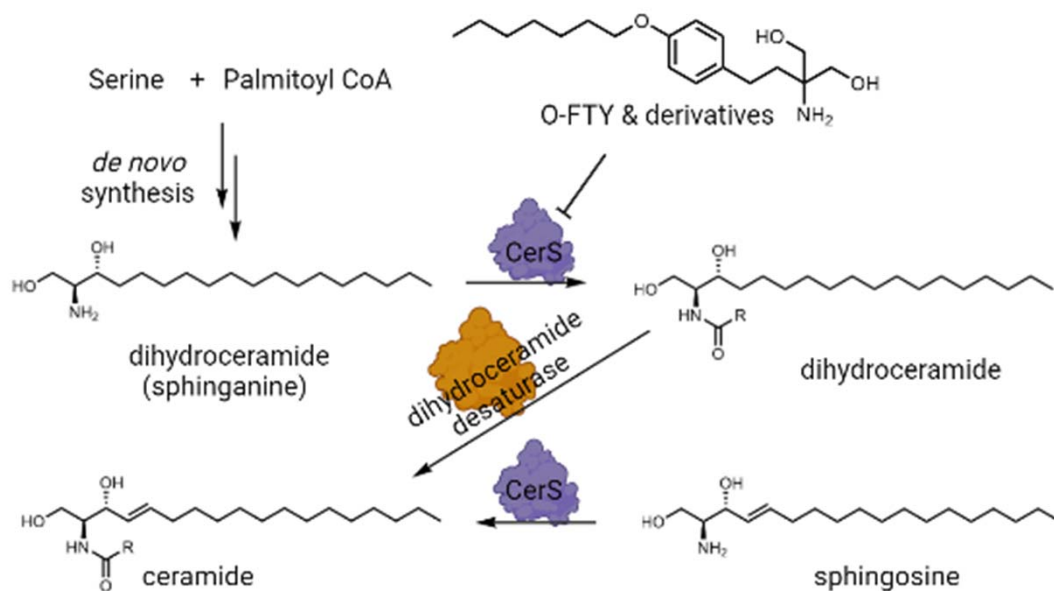


Modulating the Sphingolipid Pathway for New Antibiotics or Immunomodulatory Agents



Ceramide synthases (CerSs) are enzymes in the sphingolipid pathway that has immunomodulatory activities and anti-cancer implications. They catalyse the N-acylation of sphingosine or sphinganine to ceramides or dihydroceramides respectively. There are six different ceramide synthases, each of which catalyses ceramide synthesis with distinct acyl chain lengths. Fingolimod (tradename: Gilenya), a multiple sclerosis drug, which is a sphingosine-1-phosphate (S1P) receptor agonist was also found to inhibit CerSs non-selectively. Previous studies in our lab have identified several oxy-fingolimods (OFTYs) that target CerSs, but unselectively. My focus on this project is on the synthesis of oxy-fingolimod derivatives that confers selectivity targeting ceramide synthases.