Glucose is an important source of energy for the body to function effectively. The maintenance of blood glucose concentration within the normal range of 4-6 mM is maintained by two pancreatic hormones – insulin and glucagon. Interestingly, inositol glycans (IGs), a group of natural molecules stimulate insulin-sensitive cells in the absence of insulin. The structural similarity of IGs and glycosylphosphatidylinositol (GPI) enabled design and synthesis of IGs. The hydrolytic products of GPIs can act as second messengers of insulin, promoting glycogenesis and lipogenesis. Excitingly, IG-1, an analogue of IG has selectively killed cultured tumor cells by stimulating normal glucose metabolism in them (by reversing the Warburg effect). Due to instability of IG-1, Dr. d’Alarcao’s lab has synthesized an analogue of IG-1, a disaccharide which exhibited insulin-mimetic activity and reversed Warburg effect in cancer cells. After careful study of various IG-1 analogues, it is assumed that a palmitoyl group at C-2 position of myo-inositol has crucial role in insulin-mimetic activity. Thus, this led to an idea to synthesize 2-palmitoyl-myoinositol. But, the ester linkage in 2-palmitoyl-myoinositol is sensitive under physiological conditions. So, it was proposed to synthesize 2-hexadecyl-myoinositol by incorporating an ether linkage in place of the hydrolysable ester moiety. After successful synthesis of the two molecules, each would be tested for its insulin-mimetic activity and its effect on cancer cells. Any positive result of these compounds would allow us to develop low molecular weight compounds with fewer synthetic steps compared to IG-1.