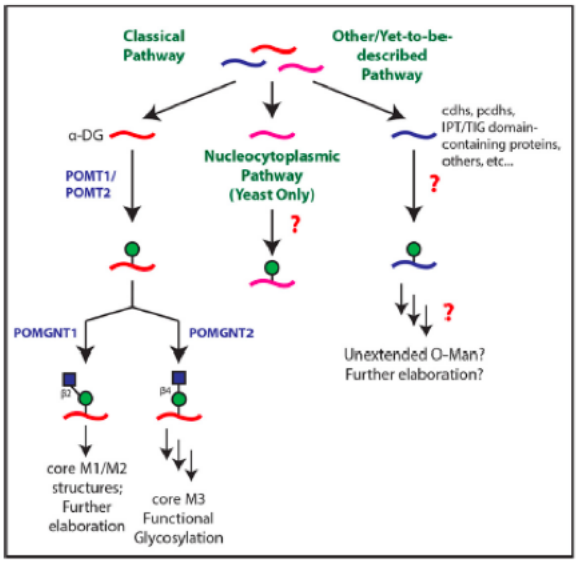
Highlights 2017

Copenhagen Center for Glycomics continues to focus on diseases caused by defects in the biosynthesis and structure of complex carbohydrates. We use a genetic approach to dissect and discover biological roles of glycosylation, and we are moving towards the second phase of our program to gain global understanding and control of glycosylation pathways in human cells. We made the groundbreaking discoveries of two novel glycosylation pathways, and reached important milestones that position our Center at the very forefront of the field. 2017 was also the year we finally moved into the 10th floor of the Mærsk Tower with state-of-the-art facilities. The output increased substantially from a dip in 2016, and results from a number of our long-term initiatives are in the process of being reported in high impact journals.

Our original hypothesis that genetic dissection of glycosylation pathways would reveal groundbreaking discoveries was again demonstrated with the finding of two novel O-mannosylation pathways in man (**JBC** and **PNAS**). We originally discovered O-mannosylation of the large families of Cadherin and Plexin adhesion and signaling receptors (PNAS 2013), and through use of genetic deconstruction we found that O-mannosylation of Cadherins is directed by a unique family of genes (TMTC1-4). Our continued dissection of GalNAc-type O-glycosylation also led to important insight into regulation of the beta1-adrenergic Receptor (**JBC**) and the δ-opioid receptor (**Cell Signal**). We reported a number of technical advances in gene engineering (**Nature Protocol**) and inducible gene expression (**Nucl Acid Res**). Finally, we continued publication of a series of studies providing a global view of glycosylation pathways and the genetic and biosynthetic regulation (**Glycobiology**), which also forms the foundation for our second phase ambition of moving towards *in silico* glycomics and turning the field into true Omics.

EDITORS' PICK HIGHLIGHT: *Unexpected protein O-mannosyl*



We achieved a number of additional scientific breakthroughs in 2017, and several of these are already published now in 2017. We are slowly forming the basis for a quantum leap in glycomics as outlined in our renewal application, and the program continues to be strong with a good momentum and the downtime with our move was minimal. In particular we are pleased with prestigious awards to our younger team including ERC, NNF, and the L'Oreal prize. We continue translational activities and our spin-out, GlycoDisplay ApS, has brought direct involvement of industry. In short, the program continues to thrive and develop.