

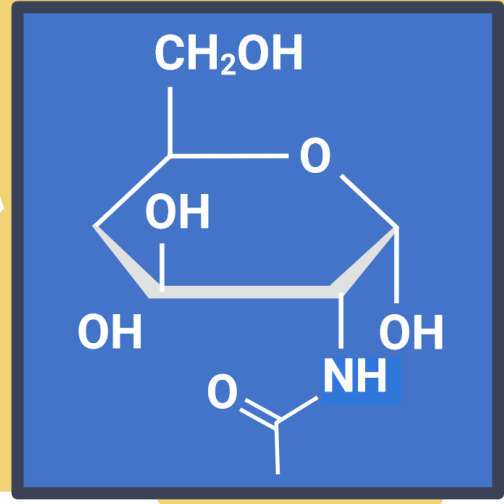


WHAT IS OGT-CDG?

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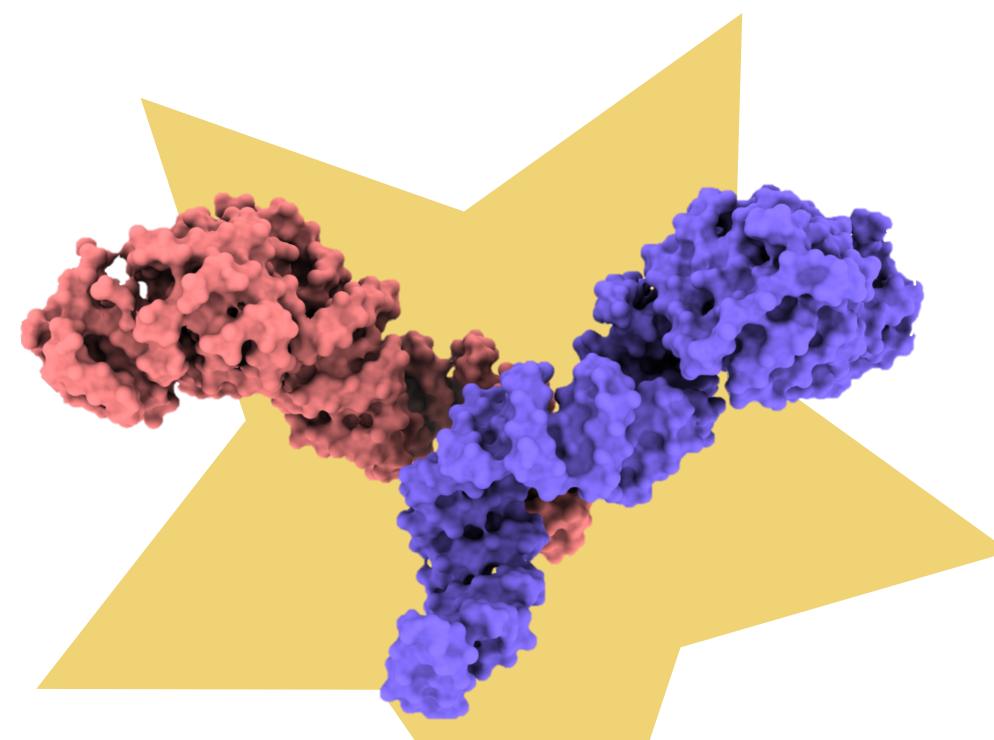


GlcNAc



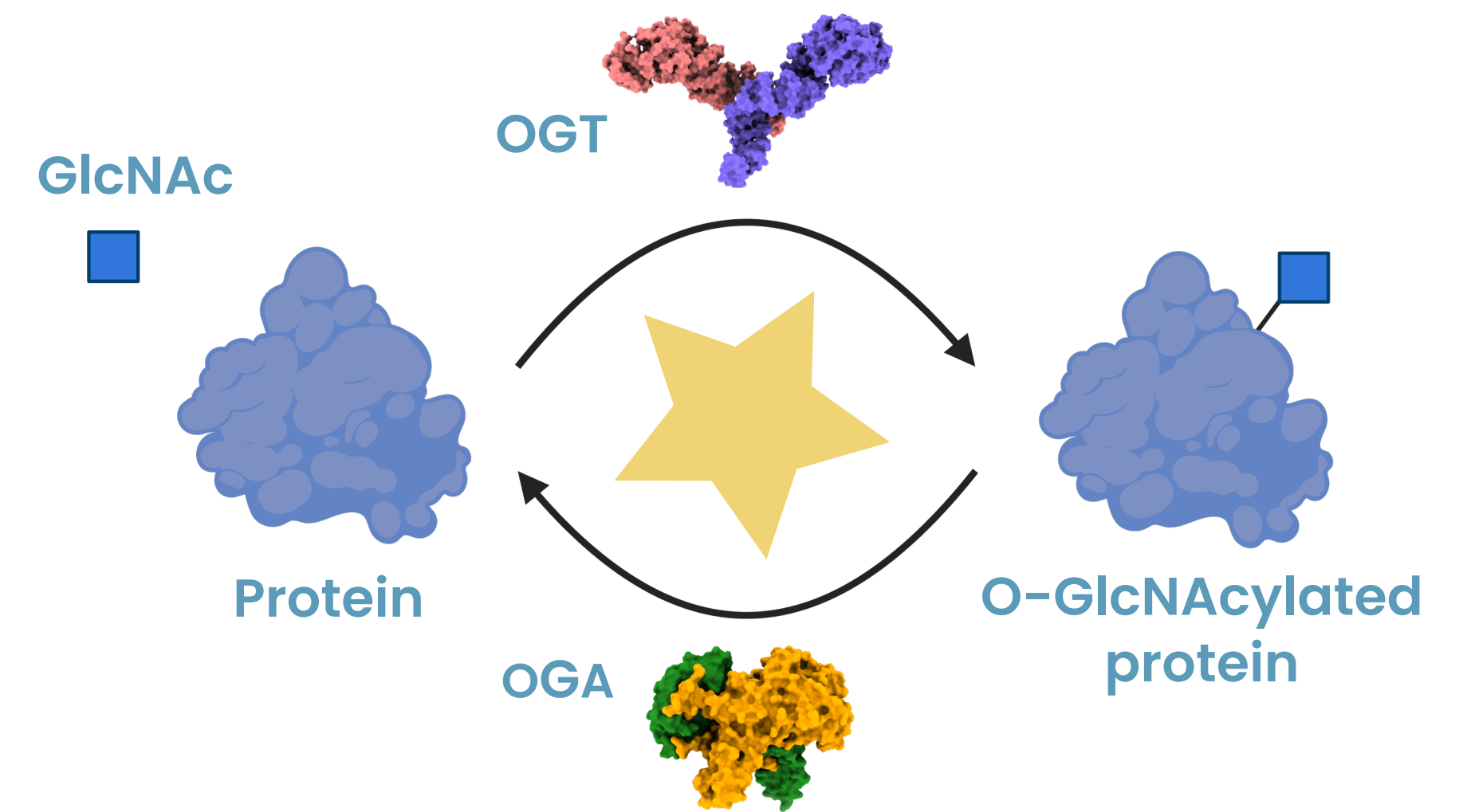
GlcNAc (N-acetylglucosamine) is a sugar synthesized from glucose. It is a PTM important for cell cycle, survival, development, and carbohydrate metabolism.

OGT (O-GlcNAc transferase) is an enzyme that O-links GlcNAc to Ser and Thr. OGT is X-linked and tissue-specific mouse KO models show a variety of phenotypes.



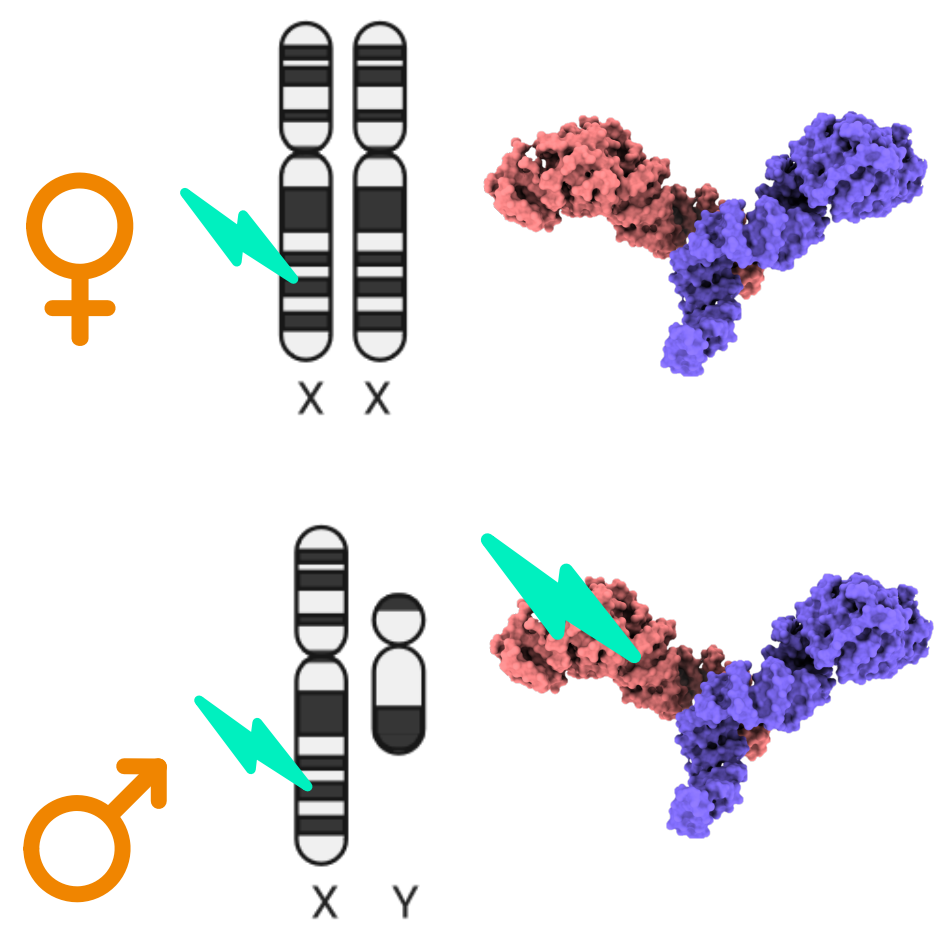
OGT

O-GlcNAcylation

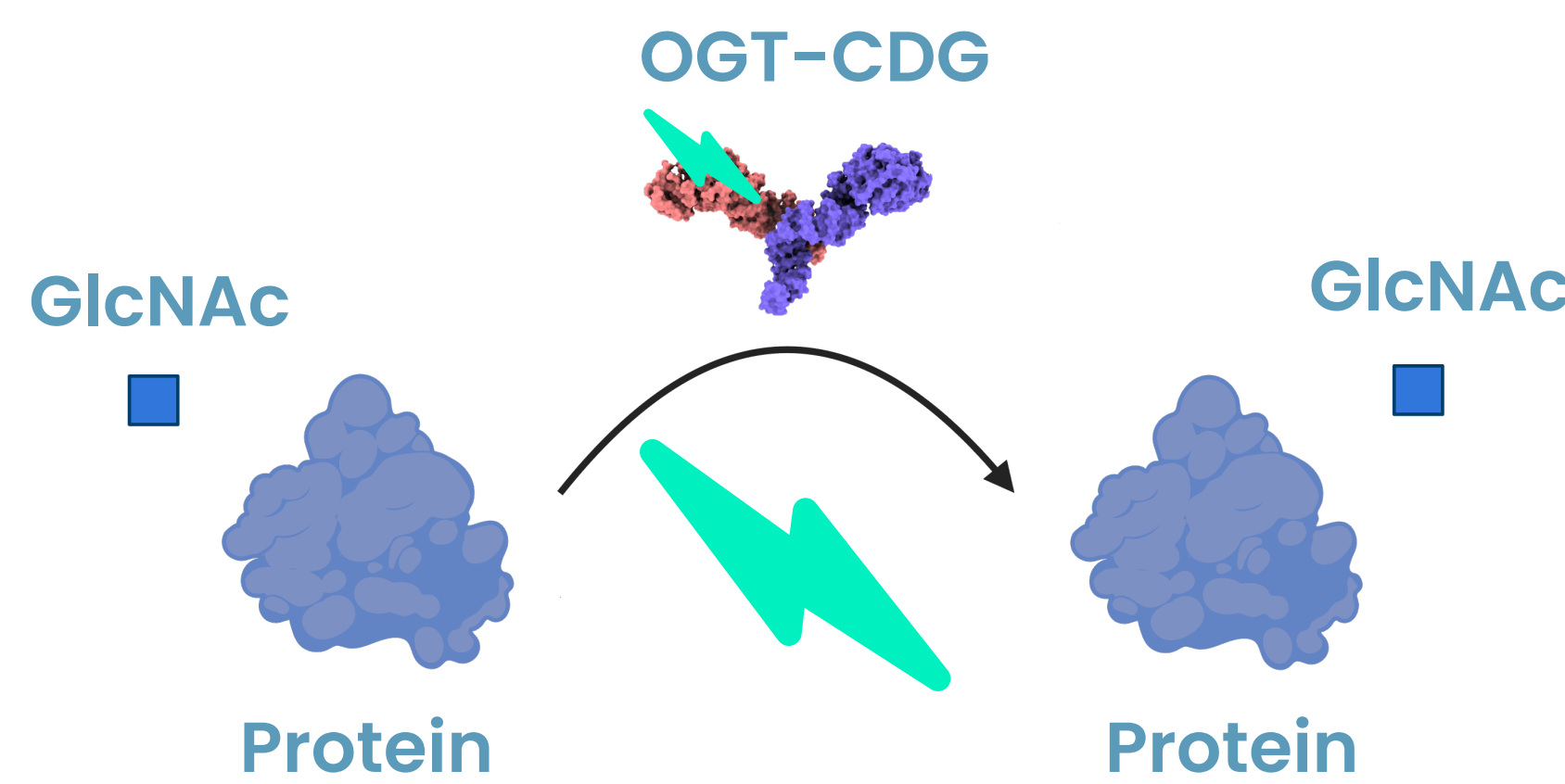


O-GlcNAcylation is the dynamic process of transferring O-GlcNAc to proteins. This modification can be removed by another enzyme, OGA.

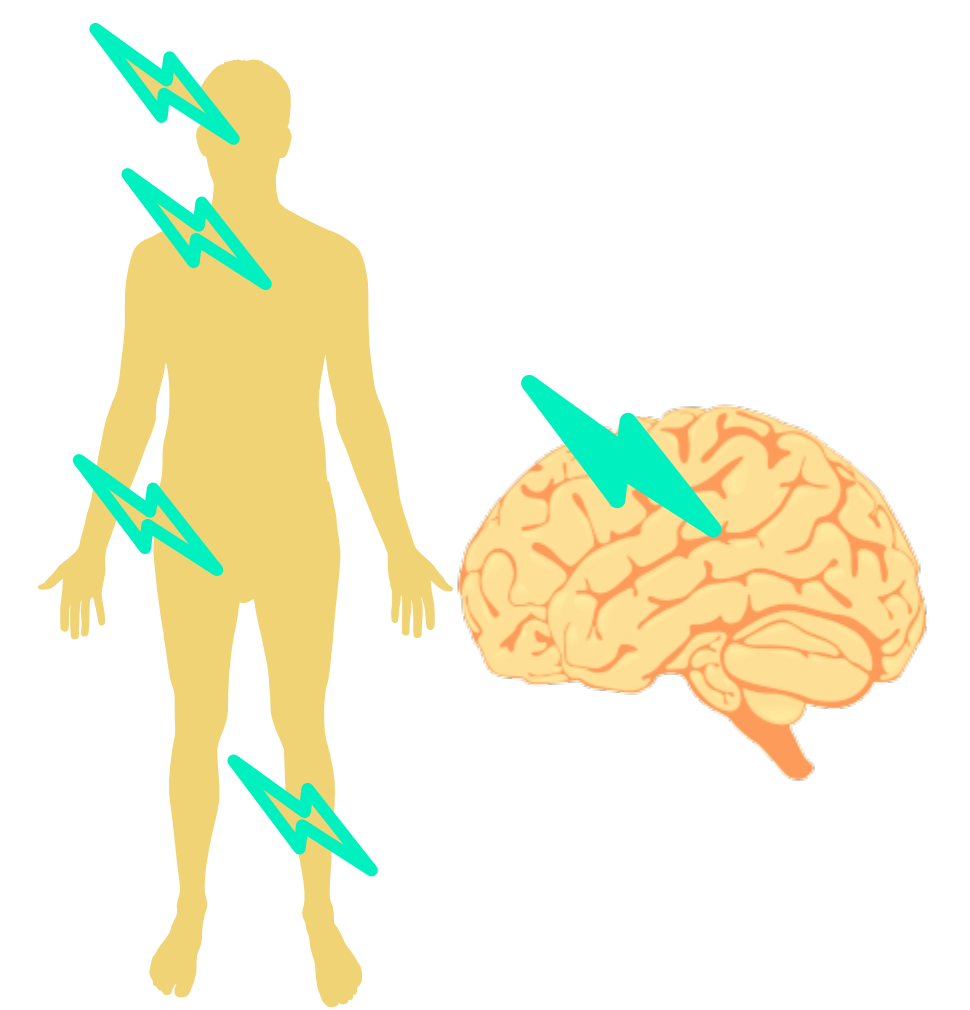
OGT mutations are associated with a newly described X-linked intellectual disability syndrome: OGT-CDG (Congenital Disorder of Glycosylation)



OGT-CDG variants have reduced catalytic activity or changed substrate preference, leading to decreased O-GlcNAcylation.



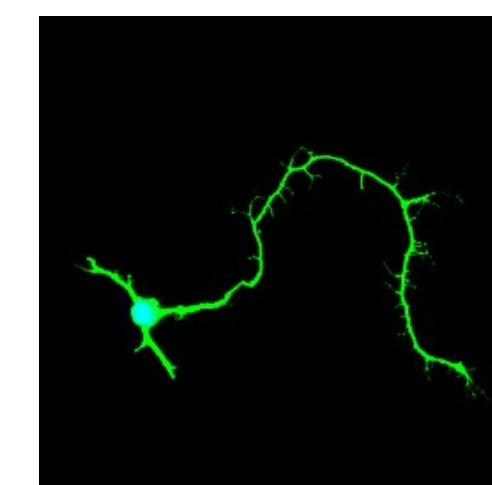
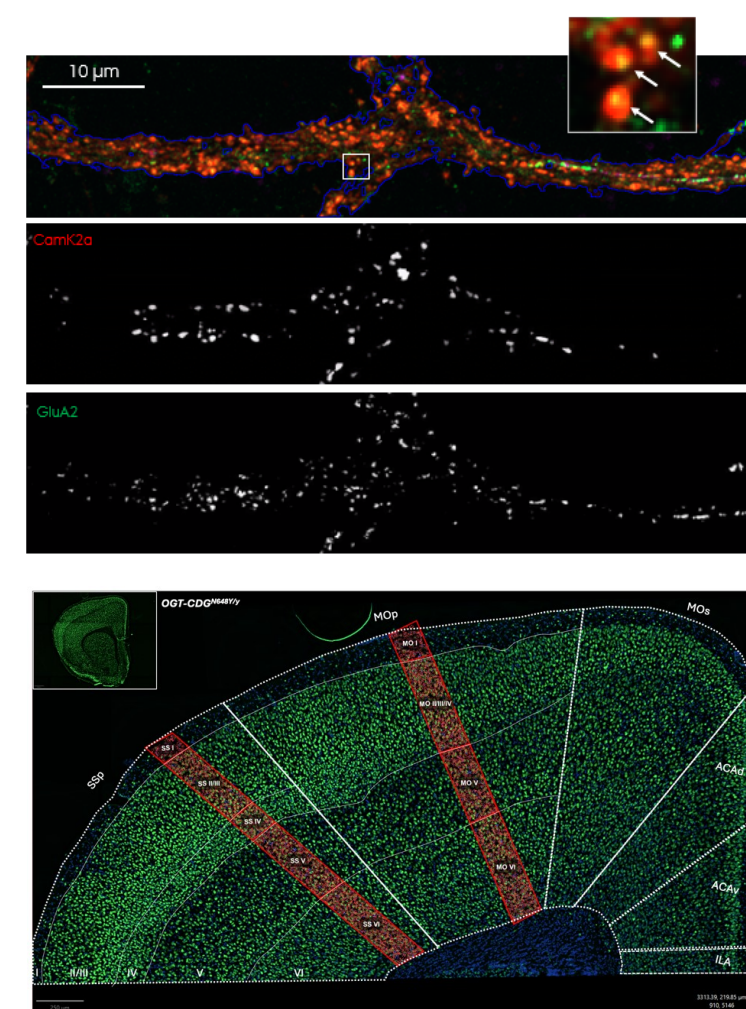
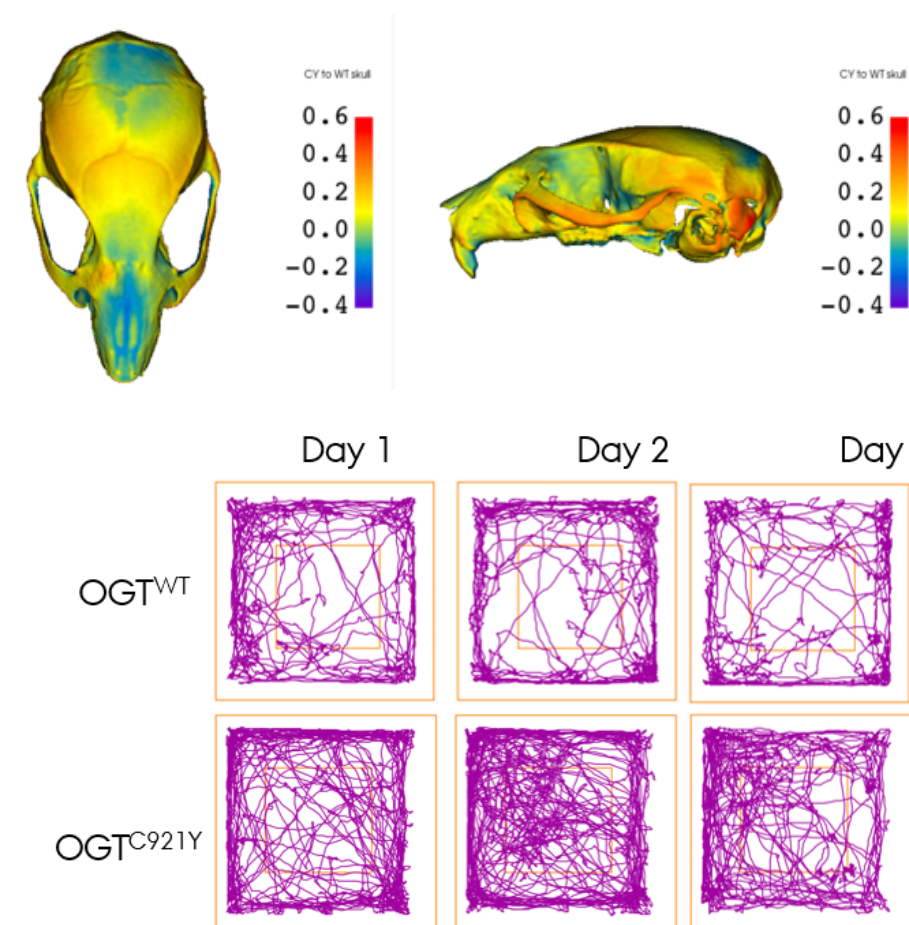
Patients present diverse symptoms, most commonly some degree of intellectual disability and delayed development.



Florence Kevin Iria



OGT-CDG mouse model characterization - How does OGT-CDG variants affect mouse behaviour? Are there physical phenotypes or craniofacial dysmorphias?

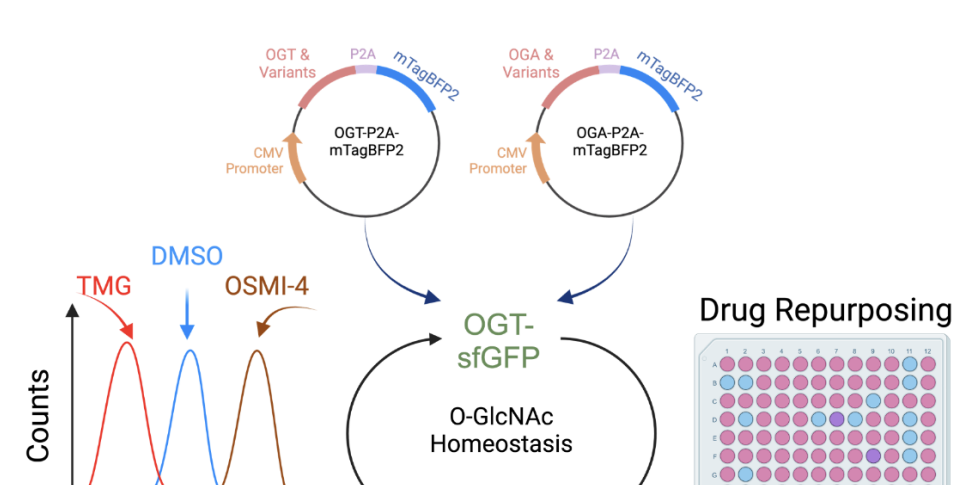


Oscar Shagana Lilian Sergio A Islam Asad Jan

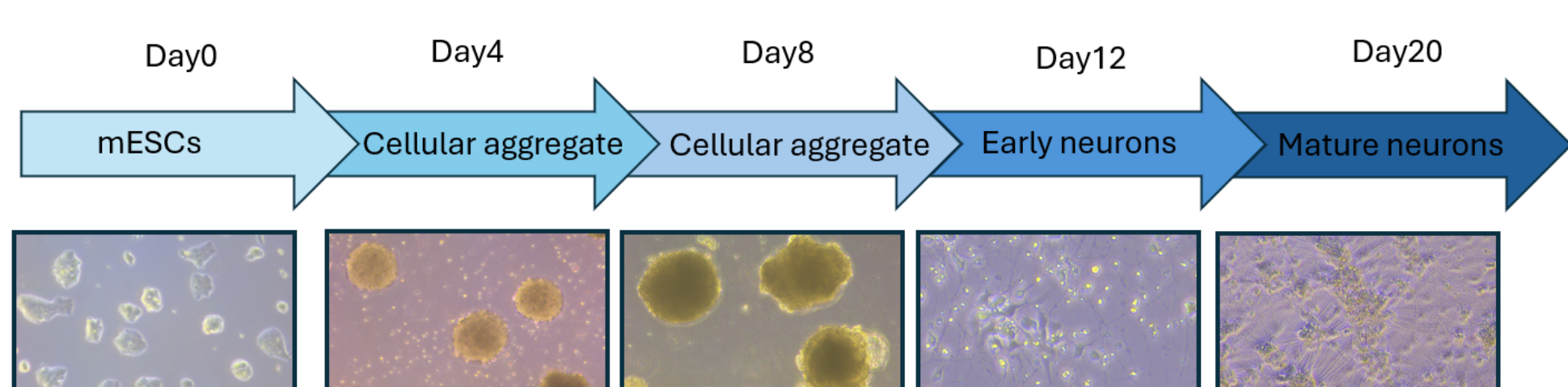
Molecular mechanisms - Studying how OGT-CDG affects neurobiology at a cellular and molecular level. How are synaptogenesis and synaptic communication affected? What are the mechanisms behind impaired learning?



Andrew Huijie Benedetta Marie Manuel

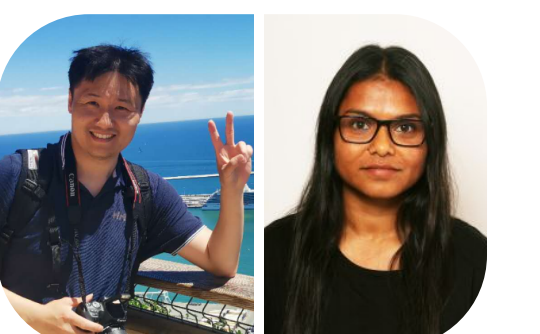
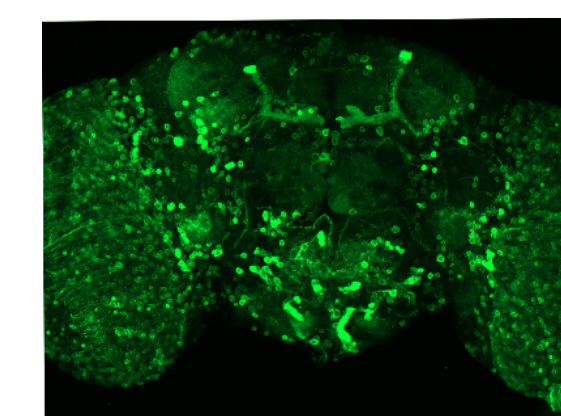


Cellular and molecular tools - Using CRISPR to generate biomarkers and tools to characterize OGT variants and predict its pathogenicity. How does OGT-CDG alter cells transcriptome and neuronal differentiation in mESC lines? How are OGT and OGA regulated in O-GlcNAc homeostasis disruption? Can OGT/OGA mRNA or protein ratio be used as a biomarker for OGT-CDG diagnosis?



Daan

Neurodevelopmental or neurophysiological?



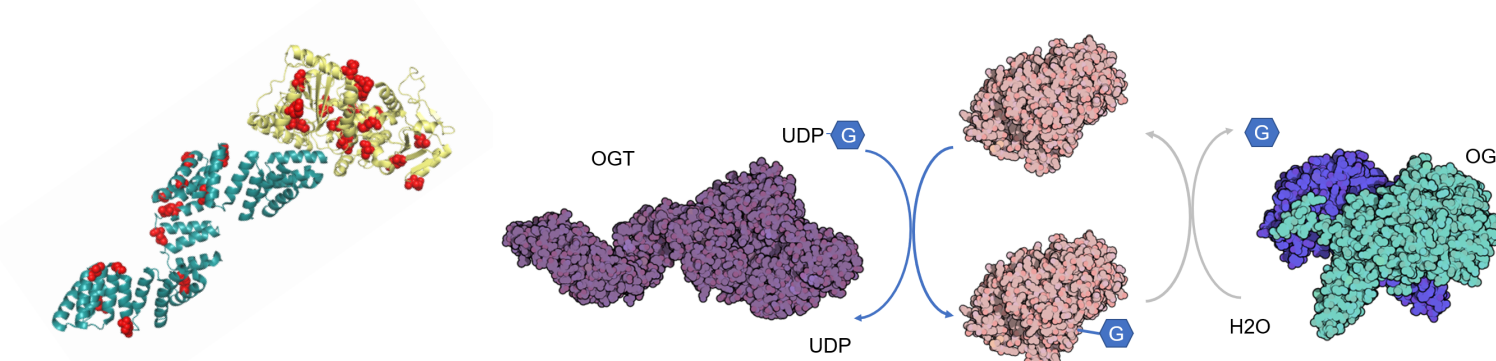
Jiawei Biji

OGT-CDG *Drosophila* model - Characterizing the molecular mechanisms underlying the *Drosophila* OGT-CDG behaviour phenotype. Is OGT involved in glutamatergic neuron development?



Carsten Jithin Steffen Dorte

Technical team and facility managers

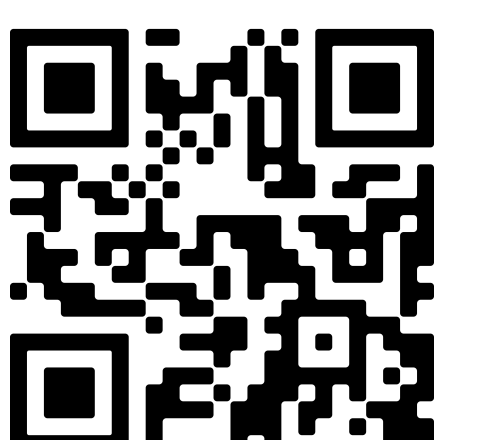


Sergio B Sara Martin

Biochemistry and structural biology - What are the mechanisms of OGT substrate recognition? Can OGT transfer other compounds?



We are a multicultural, multidisciplinary, and dynamic research group, always happy to connect with motivated scientists. For collaborations or formal enquiries about open positions, feel free to send us a message.



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