



Australian Government
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SEMINAR SERIES 2025

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Assistant Prof. Rie Nygaard

Weill Cornell Medicine, New York City, USA.

Rie Nygaard is an Assistant Professor at Weill Cornell Medicine in New York City, USA. She earned her PhD from the University of Copenhagen, Denmark, focusing on the structure and dynamics of G-protein coupled receptors. She then completed a postdoctoral fellowship at Stanford University, followed by another postdoc and a Research Associate position at Columbia University in Filippo Mancia's lab.



In the Mancia lab, she worked on determining the structure of several small membrane proteins using single-particle cryo-EM, and she will present some of that work here.

In her lab, she is developing a research program focused on understanding the molecular effects of radiation therapy, focusing on targets that are regulated or modified as a response to radiation therapy.

Structural insight into glycosyltransferase function

Glycosyltransferases (GTs) catalyze the addition of sugars to diverse substrates. When embedded in or associated with the membrane, these enzymes often rely on polyisoprenyl-phosphate or -pyrophosphate (PP) lipid carriers to transfer glycan moieties. Here, Rie will present different bacterial GT structures and compare their substrate binding mechanisms. Additionally, she will present how they successfully visualized how the GtrB enzyme transitions during the catalytic cycle. Using time-resolved cryo-EM, multiple distinct conformational states: the initial substrate-bound state, a catalytically poised intermediate, and the product-bound state, were identified.