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SEMINAR SERIES 2026

10 March, 10:00 AM AEDT

Dr. Rosemary Cater

Institute for Molecular Bioscience, University of Queensland

Dr. Rosemary Cater is a Senior Research Fellow and Group Leader at the University of Queensland's Institute for Molecular Bioscience in Australia. She fulfilled her Ph.D. under the supervision of Prof. Renae Ryan at the University of Sydney, where she used electrophysiology and x- ray protein crystallography to understand how glutamate transporters serve a secondary function as chloride channels. She then went on to complete her post-doctoral training in the lab of Prof. Filippo Mancia at Columbia University, where she used single-particle cryo-electron microscopy and antigen-binding technology to determine structures of small membrane proteins. The overarching goal of the Cater Lab is to understand the molecular mechanisms of nutrient transport at the blood-brain barrier, and how variations to this are implicated in different diseases states.

Dr Cater is a current ARC DECRA Fellow, and has received several prestigious awards and fellowships, for her research including the New York Academy of Sciences Blavatnik Regional Award (2022) and the Eppendorf & Science Journal Award for Neurobiology (2024).

Structural and Mechanistic Insights into Nutrient Transport at the Blood Brain Barrier

The human brain is infiltrated by more than 600 km of blood vessels which are lined by endothelial cells that separate the blood from the brain parenchyma. These cells are tightly packed together and feature reduced rates of endocytosis – features which are referred to as the Blood Brain Barrier (BBB). These blood vessels and the BBB are critical for supplying our brains with essential nutrients and protecting it from noxious stimuli. Transporters play a very important role in this process. We have structurally and functionally characterized two different transporters – MFSD2A and FLVCR2 – that are highly expressed at the BBB and are critical for the import of the essential nutrients DHA and choline into the brain.