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Using cryo-electron microscopy to understand the biology and drug binding at clinically relevant targets, Porcupine and 12-lipoxygenase.

Dr Alisa Glukhova

CSL Centenary Fellow

Lab Head, Structural Biology Division

The Walter and Eliza Hall Institute of Medical Research

Dr. Alisa Glukhova is a laboratory head in the Structural Biology Division at WEHI and a Senior Research Fellow in the Department of Biochemistry and Pharmacology at the University of Melbourne. She earned her Ph.D. in Chemical Biology in 2014 from the University of Michigan, where she worked on solving structures of lipid-modifying enzymes using x-ray crystallography. During her postdoctoral training at Monash Institute of Pharmaceutical Sciences, she used x-ray crystallography, cryo-electron microscopy, and pharmacology techniques to study different G protein-coupled receptors.



Since joining WEHI in 2020, Alisa has focused on understanding the structural and biochemical aspects of the Wnt signalling pathway, an important pharmacological target for treating many cancers. Using structural biology, her team captures snapshots of different stages in the Wnt signalling cascade to understand the atomic picture and gain insights into various aspects of signal transmission through Wnt pathways. Key areas of interest include Wnt acylation by acyl-transferase Porcupine, Wnt secretion and transport outside cells, and the initiation of the Wnt signalling cascade through Wnt interactions with its receptors, Frizzled, and co-receptors. Alisa ultimately hopes to use this atomic-level information to develop better therapies for devastating human conditions, such as cancer.