

David Sauer

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Short biography: David Sauer is a biophysicist focusing on the structure and function of membrane channels and transporters. As a principal investigator at the University of Oxford since 2021, he has been studying the structure and function of membrane proteins for 21 years. David completed his graduate degree studying potassium channel structure and ion selectivity with Youxing Jiang at the University of Texas Southwestern Medical Center. This was followed by postdoctoral training with Da-Neng Wang at New York University School of Medicine. There, he described the transport mechanism and chemical inhibition of SLC13/DASS membrane transporters, and the structural effects of mutations in the rare SLC13A5 Epilepsy.

Since joining Oxford's CMD, David has led a group studying membrane proteins' function, pathogenesis, and chemical targeting by small molecules. This has resulted in the first detailed study of proline import by the transporter SIT1, its complex with the SARS-CoV2 (COVID-19) receptor ACE2, and the effects of mutations in retinal disease. His group has also revealed the ping-pong reaction mechanism and the product-bound, inhibited state of ceramide synthase CerS6. Finally, in a collaborative study, David's group identified the substrate-binding and transport mechanisms of the immunoregulatory SPNS2 and the pathophysiology of variants associated with hearing loss.

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