

## Microsymposium

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### *Structure and function of an Antiporter*

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Membrane proteins are essential to transport molecules across biological membranes. This gateway task makes them important drug targets. About 60% of all approved drugs target membrane proteins. Transport of ions across membranes is essential for every cell to maintain physiological salt concentrations and to keep pH homeostasis. In the past years X-Ray structures of various secondary transporters have provided insight into the mechanisms of membrane transport. However, difficulties in expression, purification and crystallization of membrane proteins still restrict the number of available structures. For well-characterized secondary transporters such as LeuT (1), BetP (2) and Ca<sup>2+</sup>/H<sup>+</sup>-exchangers (3) crystal structures in different conformations and substrate binding states have been obtained. However, for many important classes of transport proteins, detailed structures are urgently needed to understand their mechanism of action and to guide drug development. We report crystal structures of 2 homologues of a new secondary transporter in different states, with or without substrate bound. These structures shed light on the transport mechanism of this important class of membrane transport proteins.

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