Séminaire

CONFÉRENCIER INVITÉ

Vendredi 15 Décembre 2017 à 11h

Salle des séminaires

Institut de biologie structurale - 71 avenue des Martyrs CS 10090 38044 Grenoble Cedex 9 - T.+33 (0)4 57 42 85 00

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It takes two to transport across the membrane

The uric acid/xanthine H+ symporter, UapA, is a high-affinity purine transporter from the filamentous fungus Aspergillus nidulans. Over a number of years research in my group has focused on first engineering a UapA construct suitable for structural studies and then on obtaining the high-resolution structure. I will describe both our efforts to stabilize the protein and to the recently published crystal structure of a genetically modified version of UapA in complex with xanthine. The structure reveals that UapA is formed from two domains, a core domain and a gate domain, similar to the previously solved uracil transporter UraA, which belongs to the same family. The structure shows UapA in an inward-facing conformation with xanthine bound to residues in the core domain. Unlike UraA, which was observed to be a monomer, UapA forms a dimer in the crystals with dimer interactions formed exclusively through the gate domain. The UapA structure and complementary functional analysis strongly indicate that the dimer is key in transport activity. Based on comparison with the structurally related human Anion Exchanger 1, it seems likely that UapA uses an elevator mechanism to transport substrate across the membrane. Using native mass spectrometry and functional analysis we also demonstrated that lipids are important both for dimer formation and UapA function.

Hôte : E. Pebay Peyroula (IBS/Groupe MEMBRANE)

L'accès au campus EPN nécessite un avis de rendez-vous

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