

ITRANS database - sorting structural motifs in cellular transporters

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Cells interact with their surroundings via molecular transporters located in the cellular membrane. These transporters are fundamental for the uptake of nutrients and release of toxic compounds and its malfunction has been correlated with different diseases.

Over the last five decades great advances have been taken in understanding the mechanism behind ions and solutes transport. A key tool that triggered the understanding at atomic level of this mechanism was the determination of high resolution structures.

Currently, over 2000 high resolution structures of molecular transporters are deposited in the Protein Data Bank and available to researchers.

In this work we present the ITRANS database. ITRANS is a relational database focusing on ion and solute transporters for which high resolution structures were experimentally obtained. The database contains: classification, structural, motifs, functional and sequential information on cellular membrane transporters providing the end user a novel tool to study the mechanism of these proteins.

The database spans information of different species and different families of ion and solute transporters, allowing the user to organize molecular transporters using different structural motifs and biophysical properties.

ITRANS is accessible via a web interface that provides the user community several methods to access and organize the different datasets available. ITRANS is an end user driven database, thus the flexibility and characteristics of EGI Federated Cloud will be the best solution for an ITRANS Cloud deployment.

Additional information

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