

LS05-021 - Mg²⁺ channel proteins: Structure/function analysis and potential drug targets

Abstract

The eukaryotic Mrs2 and Alr1 proteins and their distant relative CorA in bacteria constitute a novel, highly diverse superfamily of Mg²⁺ transport proteins. They form homo-oligomeric channels with high cation selectivity.

Here we intend to perform structure/function analyses of the eukaryotic channel proteins Mrs2p and Alr1p in order to better understand their potential role as drug targets. These studies will include

- i) mutational, biochemical and structural analyses,
- ii) cation flux studies by use of single channel patch-clamping,
- iii) the use of Alr1p, the plasma membrane Mg²⁺ channel protein of lower eukaryotes, as a drug target.

Detailed knowledge resulting from these combined studies is expected to enable us to find inhibitors of Mg²⁺ flux with a biomedical potential and to understand their action in molecular terms.

Keywords:

ion channel, drug target, magnesium, fungi

Principal Investigator: Rudolf J. Schweyen
Institution: Max F. Perutz Laboratories



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Further links to the persons involved and to the project can be found under <https://www.wwtf.at/funding/programmes/ls/LS05-021/>