

MF C-35 A Database of Membrane Spanning Protein Segments

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A database of all protein segments that are reported to span a membrane has been extracted from SwissProt 22. This sub-database consists of several tables that can be used with any relational database management system. The information stored within the database contains besides the sequence itself both annotational items extracted from SwissProt and additional data fields calculated from the sequence or taken from other sources. Important data fields include, for example, the putative transmembrane sequence, the sequence of the flanking regions, taxonomic information, the presumed orientation of the segment, calculated values for hydrophobicity and hydrophobic moment, and grouping into families by either functional or sequence relatedness of the proteins.

This database together with a set of related programs has been used to analyze the presumed transmembrane segments for positional preferences of amino acid residues. The influences of neighbouring residues, membrane protein classification, taxonomic classification and segment orientation on these positional preferences have been studied.