TLdb: TARGETS AND LIGANDS DATABASE

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Protein kinases are a ubiquitous enzymes that catalyze the cleavage of phosphate group to a ligand as a substrate. Phosphorylation is directed onto serine and threonine amino acid residues, but it also occurs on tyrosine. Protein kinases coordinate the orchestration of cellular signaling that acts in transcription, translation and neuronal signaling and apoptosis. The malfunction of signaling cascades leads to pathological situations and abnormal stress response. Over 400 diseases are related to defects. In plants the resistance proteins are serine/threonine kinases responsible to the pathogenicity interaction and stress response. Therefore, these proteins constitute important biotechnological targets for therapeutic intervention in wide range diseases. Our work presents TLdb - a database for kinase targets/ligands in order to provide structural, sequence and literature information about ligands and a given target. The data are collected from UniProt/Swiss-prot, and ligands data are collected from PubChem as well. We import literature information from PubMed and other databases in order to make systematic analysis, these data are stored in a relational database. The TLdb uses a relational database management system (RDBMS), PostgreSQL, and a web-based interface to display results. The tikiwiki technology has been used to gather the community and information related to TLdb (http://asparagin.cenargen.embrapa.br/tldb). The database is stored at Bioinformatics Lab in Embrapa Genetic Resources and biotechnolgy.