Johns Hopkins Technology Transfer

HUMAN PROTEIN REFERENCE DATABASE

ROI Number

4236

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Field

Tissue Engineering

Key Features

- A database, the Human Protein Reference Database (HPRD), that includes details of almost all proteins known to be involved in human diseases
- Includes detailed graphics of features on the proteins, protein classification, details on protein-protein interactions

Stage of Development

Prototype

Status

Available for licensing

Patent Status

Patent pending

Keywords

Database, protein database, human genome, disease genes, post-translational modifications, protein-protein interactions, protein interaction networks, domain architecture, function, expression, bioinformatics

Technology

The present invention is a Human Protein Reference Database (HPRD), a database of unique human proteins that includes almost all proteins known to be involved in human diseases. This database includes detailed features of each of the proteins depicted in a user friendly and graphic manner. Proteins are classified based on type of protein and their functional class. Furthermore, this encyclopedic platform includes manual annotation by biologists based on experimental data. The data has been carefully extracted from over hundreds of thousands of research papers published in scientific journals about these proteins and includes links to over 22,000 published articles. In addition, the database contains details of over 10,000 protein-protein interactions.

Benefits/Commercial Applicability

HPRD serves as a one-stop solution for human protein information and their characteristic features. This bioinformatics analysis is a cost saving tool for pharmaceutical companies' intent on narrowing down the number of potential drug targets by evaluating which proteins are relevant to a specific disease. Furthermore this tool can also serve as a federation database where development of many databases will depend on the HPRD framework

Problem Solved/Background

Biological databases are crucial for present day biomedical research. The human genome sequencing project resulted in enormous sequence data and is used to create a road map of human genes. However, the information pertaining to gene and proteins is scattered in the form of research publications. Proteins are the projects of genes and are necessary for life to perform functions. The information of protein sequences is not easily available on a single platform to carry out further research on them.