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by

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Database System for Storing, Annotating and Analyzing Gene Expression Data

ABSTRACT

Microarray technology is an extremely powerful tool for gene-expression profiling. It can provide huge amount of information on biological processes. It is an advantage not only in knowing which genes are turned on/off, but also in understanding the extent of expression relative to the genome in a qualitative manner. However, adopting this technology requires an understanding of challenges associated with managing and generating quality microarray data. In order to overcome such challenges a system has been developed at the University of Iowa, the University of Iowa Microarray Database System (UIMaDS). UIMaDS is a web-based database system meant for groups collaborating on large-scale cDNA and oligo microarray projects. The primary goal of UIMaDS is to enable the research community of several laboratories to store, manage, visualize and analyze gene expression data without losing the privacy and integrity of data for each project. The system 1) accepts data from several types of array platform via an interactive import wizard; 2) associates biomaterial and clinical information; 3) passes results and raw data into external software for filtering, clustering and data mining; 4) groups hybridizations into sets as microarray experiments; 5) restrict users to only access designated projects that have been given permissions to.