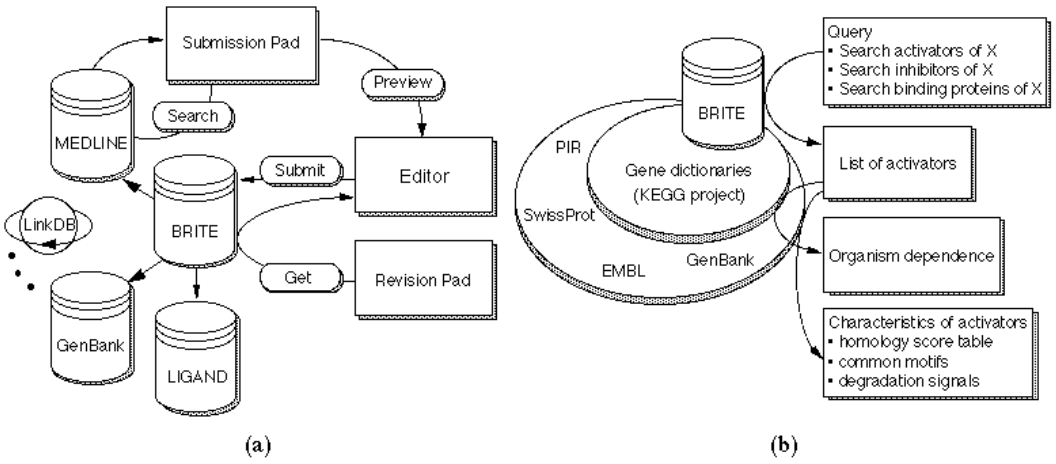

Figure 1: System overview of "*BriteExPress*"

GenBank. On submission, *BriteExPress* searches the MEDLARS server at the National Center for Biological Information and reference information such as author names and journal title are filled out automatically. Simultaneously, links to GenBank and LIGAND (enzyme reaction database) databases are also embedded.

As a sample of BRITE, we have constructed a database for cell cycle controls in mammals, fission yeast, and budding yeast. One entry is assigned to one entry of MEDLINE, and contains information on reference, source, experiment, synonyms of molecules, and molecular reactions.

3 Query and Analysis

BriteExPress also has a query pad. Users can execute such a query as asking activators of a specified protein, and can obtain a list of activators. In the KEGG (Kyoto Encyclopedia of Genes and Genomes) project, gene dictionaries for several organisms have been developed. From the obtained list, *BriteExPress* searches the gene dictionary and utilizes link information to the sequence databases, then sequences for the activators are returned. Furthermore, users are able to extract characteristics of these molecules via sequence analysis programs called by this tool.

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A WWW Tool for Organizing Knowledge of Biomolecular Reaction Pathways

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Abstract

We are developing a new database named BRITE (Biomolecular Reaction pathways for Information Transfer and Expression), which contains knowledge of interacting molecules and/or genes. Since construction of BRITE requires cooperation with specialists in the respective fields of molecular biology, we have developed a BRITE construction tool named "BriteExPress" that can be utilized easily by WWW. Here, we report an overview of this tool and actual database construction for cell cycle controls.

1 Introduction

Most of the molecular biology databases currently available, such as GenBank, consist of information about individual molecules. These databases are not sufficient to express how these molecules interact in living organisms. Thus, we are trying to express biological information in a hierarchic manner by constructing a new database named "BRITE", which contains knowledge of interactions between molecules, on the basis of organization of sequence and motif databases. Construction of BRITE for selected fields of molecular biology requires collaboration with specialists in those fields. For this reason, we have developed a database management tool, especially for submission, on the World Wide Web (WWW).

2 Database Construction

BriteExPress is composed of submission pad, revision pad, data retrieval tool (Figure 1(a)), and query pad (Figure 1(b)). Submission pad is a fill-out form just like the BankIt for the

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