LABORATORY INFORMATION MANAGEMENT SYSTEM FOR MEMBRANE PROTEIN STRUCTURE INITIATIVE


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The advent of structural genomics in the UK with the newly established BBSRC MPSI consortium, demonstrates a growing need for a sophisticated LIMS suitable for academic environments.

The Membrane Protein Structure Initiative (MPSI) is a consortium formed by highly experienced and successful membrane protein research groups in order to use their collective experience and techniques to develop strategies for high throughput (HTP) expression, purification, characterisation, crystallisation and structure determination of selected integral membrane proteins. Shared data and results are entered in a common LIMS database to be made freely available to all participating labs through the web site (www.mpsi.ac.uk).

Establishing new, large, geographically distributed consortia such as MPSI introduces novel communications and data exchange problems, which, together with the wide spread of high throughput techniques, dictate a critical need for innovative information management and knowledge discovery tools to sift through these vast volumes of heterogeneous data and analysis tools.

As part of the LIMS, the BBSRC has funded the Protein Information Management System (PIMS) project to meet this need. PIMS is an adaptable and scalable information management system. The project is based on the Protein Production Data model, which was developed jointly by the EBI and CCPN. The system automates a range of tasks from protein sample preparation from selection, cloning, expression, purification, characterisation and, where applicable, crystallisation through to automated data deposition in the PDB.

The project itself provides a mechanism for the incremental development and deployment of such a system, by drawing together all the interested parties to work under a single framework which is committed to meeting the needs of the MPSI consortia and other contributing groups. An initial version with limited functionality is available for download from the project website, www.pims-lims.org.