



## LIMaS

**The Medical Research Council (MRC) funds research in the medical and pharmaceutical aspects of the life sciences. Two MRC research units, MGU Harwell and the HGMP at the Sanger Centre, use micro-arrays in their genomics research.**

### Business Problem

Two MRC research units, MGU Harwell and the HGMP at the Sanger Centre, use micro-arrays in their genomics research. Micro-arrays allow biologists to carry out many gene expressions in parallel. The large amount of data produced must be annotated with the conditions and protocols used during the experiment. The data must then be stored in a consistent manner so that subsequent data mining is possible and meaningful.

### Tessella Solution

The MRC units decided to develop a laboratory information management system for micro-arrays (LIMaS) that would replace the traditional paper notebooks of researchers and lab staff. The electronic “notebook” would store the micro-array data and their experimental annotation in a database. The application should also be available to other MRC research units and associated university departments. In view of the heterogeneous computing environments the application would have to be portable to different operating systems and databases.

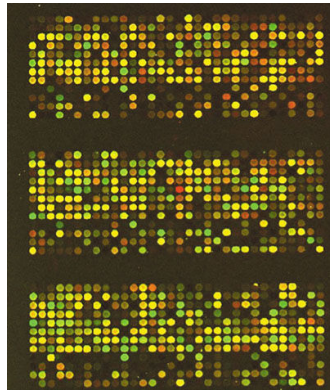
Tessella were awarded a contract to develop LIMaS. The challenges were to analyse the different requirements of the two MRC units and combine them into a flexible solution that could evolve over time. In addition, the genomics research community is developing international standards for the publication of gene expression data, which LIMaS should be able to adhere to.

Tessella developed an application written completely in Java and using standard SQL queries, which provide the necessary portability.

By storing all variable aspects of LIMaS in the database, the application is highly configurable. For example, it allows the users to define new lab protocols on-line, extend selections for drop-down lists, or store images. All LIMaS entries are uniquely identified by their database key, an important aspect for future data mining.

## Results and Benefits

The system was delivered on time in spite of the complex requirements and development at two separate sites. The system is easy to deploy and requires little administration. The design makes it easy to add a web-based interface for remote users.



LIMaS also keeps track of the use of resources since it keeps track of how much and when various resources are used during each lab experiment.

LIMaS is currently deployed at the two MRC units and will be released to other units, who have already expressed interest, once the system has been in full use.

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