Correlating Drug Efficacy and Microarray Analyses in Cancer Research Using Web Database Applications

Research Infomation Technology Systems

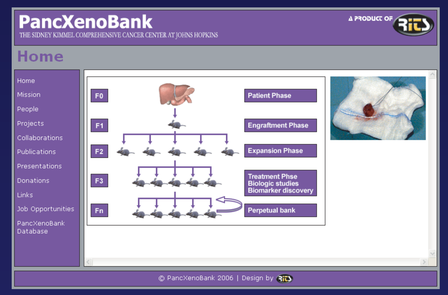
JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND

Alla Guseynova, Michael Fox, L. Allan Grimm

https://www.rig.onc.jhmi.edu

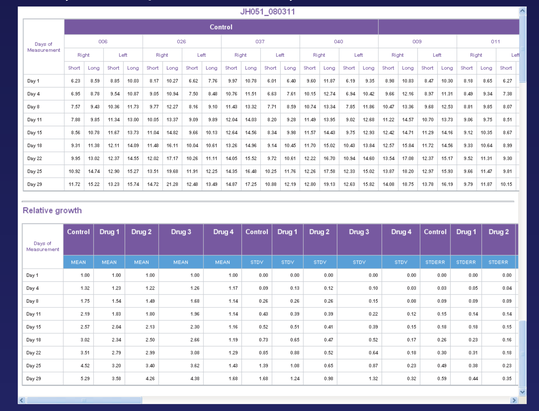
Introduction:

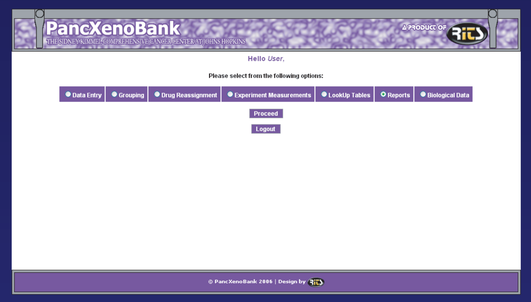
A web application acts as the control center in this two part translational research study. In part one, human tumors are implanted into mice and treated with a variety of drugs. In part two the same human tumor undergoes microarray testing and analysis. The application links the results of both experiments via the gene and probe set ontologies, with all experimental data maintained in this secure web-based database driven application.



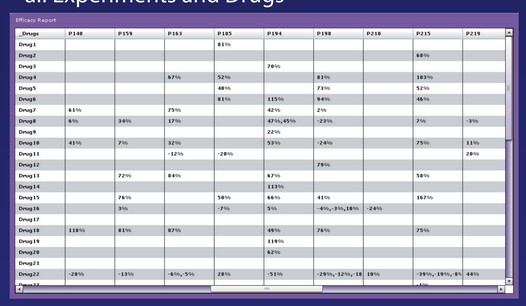
RITS

Daily SAS Experiment Analysis

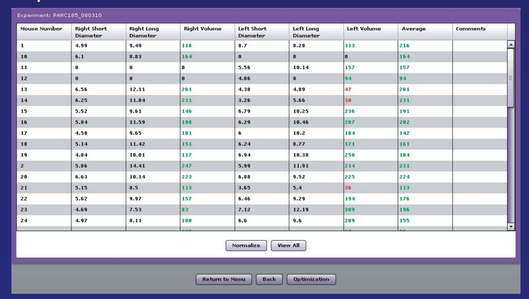




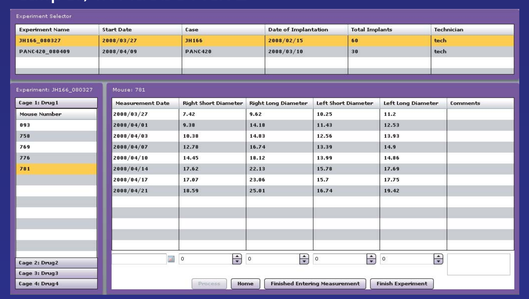
Drug Efficacy SAS Report (in XML, XLS, Flex 2) for all Experiments and Drugs



Optimal Distribution of Tumors

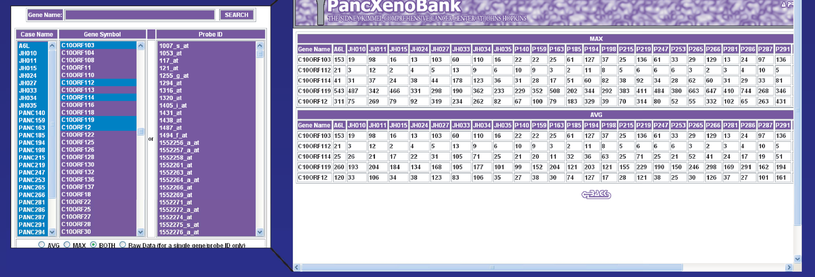


Measurement Entry Interface (technicians use USB caliper) in Adobe Flex 2



All data is stored in an Oracle database. The web interface was created using ColdFusion and Flex, which are available from and supported by Adobe, all communication with users is encrypted through the use of SSL, and the web server used is IIS from Microsoft. The application can be accessed by any authenticated user and any browser, as long as they are running the Flash Player, which is a free download from Adobe.

Correlation of Affymetrix Genomic Data with Local Experiments



Conclusion:

Using the web authenticated users can run canned or ad hoc queries to tease out the casual relationships. This system is an example of a customized web application helping to better automate and integrate translational research.