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Expression Databases for Three Crop Species: Maize, Rice and Potato

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Short Abstract: We have been funded to develop databases for expression data for three crop species: potato, rice and maize. We have constructed relational databases and accept expression data associated with these arrays from the public. We have developed a suite of web-based data mining tools for all projects.

Long Abstract:
We have been funded by the National Science Foundation to develop databases for expression data for three crop species: potato, rice and maize (corn). These projects utilize both spotted cDNA platforms (potato) and spotted 50-70mer oligonucleotides (rice and maize). The current potato cDNA arrays (www.tigr.org/tdb/potato) are composed of ~12,000 cDNA clones that represent ~10,000 unique sequences. The rice oligonucleotide array (www.ricearray.org) released on March 2006 is composed of ~41,000 oligomers that represent ~45,000 rice gene models.

The maize oligonucleotide array released in Fall 2004 (www.maizearray.org) contains ~57,000 oligonucleotides and represents a non-redundant set of maize transcripts and predicted open reading frames. We have constructed relational databases for each of these projects and accept expression data associated with these arrays from the public. We have developed a suite of web-based data mining tools for all projects. The Solanaceae Gene Expression Database currently contains 1212 hybridizations representing 39 studies, whereas in the Maize Oligo Array Project, there are currently 196 hybridizations representing 7 studies. In the Rice Oligo Array Project, there are currently 114 hybridizations from 3 studies that were done using different array platforms. All rice and maize expression data are also linked to the TIGR Rice Genome Annotation project (www.rice.tigr.org) and the TIGR Maize Database (www.tigr.org/tdb/tgi/maize/) which will allow for computational exploration of coordinated expression patterns and regulatory networks. In addition, we are providing service free of charge to deposit the data in our database into Gene Expression Omnibus (www.ncbi.nlm.nih.gov/geo) for publications.