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Orylink: A Personalized Integrated System For Functional Genomic Analysis

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Plant functional genomics requires data integration from several sources. A classical example is the need for cross-references between gene location and the corresponding mutant lines, a feature already present in reverse genetic databases like OryGenesDB or T-DNA express. We recently developed three plant databases specifically designed for rice functional genomics: OryGenesDB, OryzaTagLine, and GreenPhylDB. OryGenesDB is a reverse genetics and genomic database and works together with OryzaTagLine, which contains the corresponding phenotypic description of the mutant lines. GreenPhylDB is designed for comparative functional genomics and links the two model plant species *Oryza sativa* and *Arabidopsis thaliana* through ortholog predictions. We developed Orylink to run web queries on remote databases. Using Orylink, biologists can speed up information retrieval across these three databases including FST, mutant phenotypes and *Arabidopsis* orthologs. The interface supports user logins and profiles. Any user can personalize the system using specific forms to display relevant information synthesized from many data sources. Furthermore, we developed and registered some Web services on the BioMOBY registry that can be used to retrieve genomic location, gene information, germplasm name, phenotype description, and information on *Arabidopsis thaliana* and rice gene orthologs independently of Orylink. The application is available with many other tools at <http://orygenesdb.cirad.fr>.