Staying current and modern: Overhauling an actively-used model organism database website

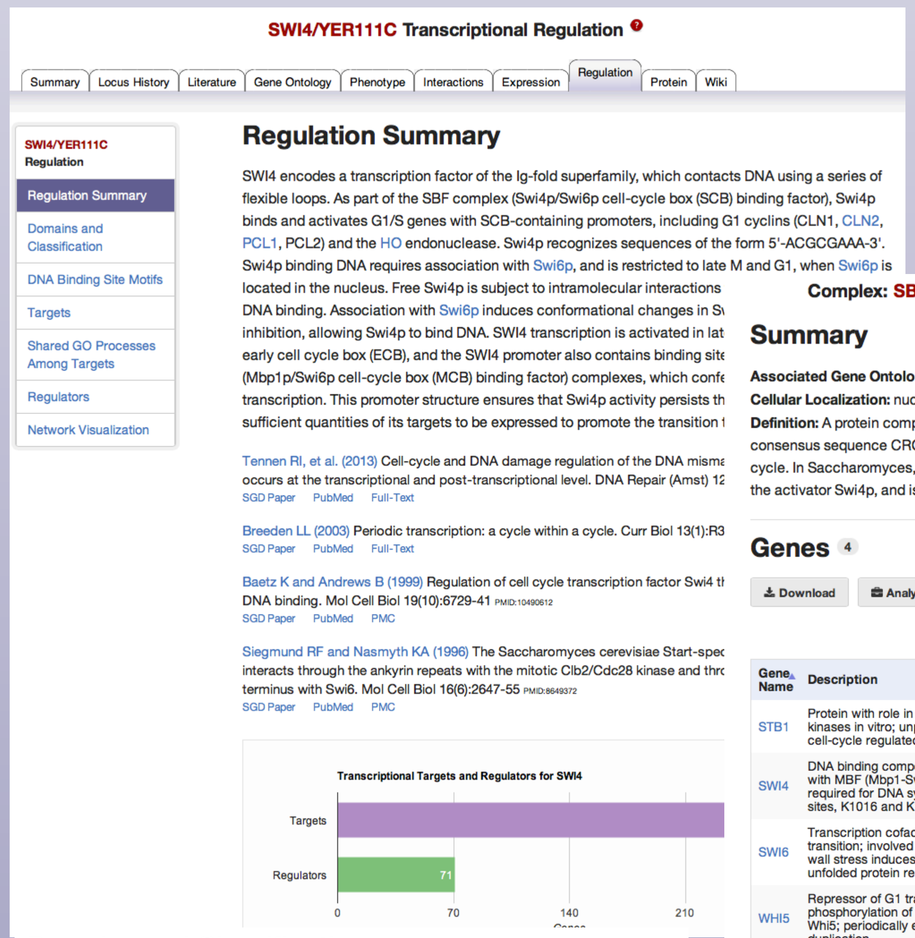
Stacia R. Engel, Kelley Paskov, Gail Binkley, J. Michael Cherry, and The SGD Project
Department of Genetics, Stanford University, Stanford, CA 94305, USA

The success of any website hinges on two things: (1) keeping content current and relevant, and (2) maintaining and extending the codebase. The Saccharomyces Genome Database (SGD; www.yeastgenome.org) is one of the most widely accessed model organism databases, averaging almost a million page views each month from almost a quarter-million unique visitors. In order to store new types of biological data and to leverage new web development tools and techniques, SGD is in the midst of a complete overhaul, both inside and out. We are restructuring pages, data transfer methods, and the underlying database schema, all while keeping the site live and actively curated. Continuing to maintain a site and its underlying database of constantly updated data, while developing a new one, presents a series of challenges. New pages must be integrated into the site to enhance usability and form a cohesive experience for the user. New data must be made available on a daily basis. Data and code must be checked for accuracy. We have addressed these challenges with several key tools, using ongoing cycles of rapid development to push new pages out in phases. The SQL toolkit, SQLAlchemy, allows us to more easily write data conversion code. Automated testing tools like Selenium help guarantee the reliability of new code. A variety of third-party tools (Pyramid, Google Charts, cytoscape.js, DataTables) allows quick design of new pages and data display. The ultimate goal is to redesign the SGD website to be faster and easier to maintain, and to provide a better user experience, without creating any downtime or curation lag for our users. Here we present an update on the implementation of the new SGD website and database that more effectively serves researchers access to experimental results. Further, the inclusion of new visualization methods with streamlined interactive features better allows general users to make sense of the wide variety of available information.

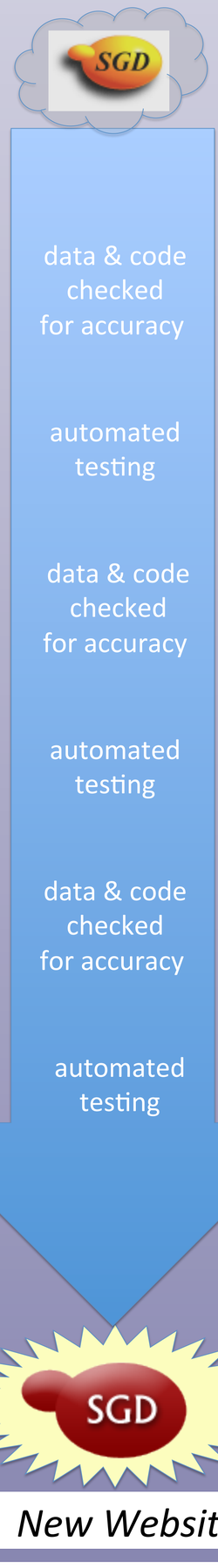
Goal: Redesign the SGD website

Keep content current • Faster and easier to maintain • Provide a better user experience • No downtime or curation lag

New Pages! New Data!



New Workflow…



Tools: SQLAlchemy, Selenium, Pyramid, Google Charts, cytoscape.js, DataTables…

Questions? Contact us! sgd-helpdesk@lists.stanford.edu

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