

CASE STUDY

The SmartFigures Lab: A collaboration with EMBO and Wiley to advance discoverability and open science



WILEY

EMBO and Wiley

EMBO, the European Molecular Biology Organization, is a leading organization that promotes excellence in the life sciences. Wiley is one of the world's leading academic publishers. Its Global Research business, focused on scientific, technical, medical and scholarly (STMS) markets produces over 1600 journals, as well as the leading program of books, major reference works and databases. Wiley and EMBO have a partnership for the delivery of EMBO's leading journals.

Business challenge:

EMBO and Wiley wanted to find a way to drive discoverability to better support researchers and asked 67 Bricks as a trusted partner to help them achieve this. The challenge was to offer a different way of discovering and navigating content using the figures contained within journal articles, and to demonstrate the additional value that open science data confers.

In molecular and cell biology, most of the experimental data published in scientific journals is locked inside figures, illustrations and tables. These are not machine-readable and so they are hidden from search tools and from further examination

and reanalysis. EMBO instigated a programme to unlock this information through its SourceData initiative involving manually enriching article figures by creating granular metadata to describe each experiment succinctly and precisely.

The figures enhanced in this way are known as 'SmartFigures'. The metadata enables researchers to navigate through a series of images related by the inputs and outputs of upstream and downstream experiments, both within a specific paper and across different papers. This initial work succeeded in showing that it is possible to meaningfully tag figures describing experiments, and preliminary informal results with a small group of researchers suggested that the new discovery mechanism was useful and insightful.

The next challenge was to determine how to apply the work in a realistic setting across a much wider range of material on a public delivery platform, and to test it with a large set of users.

The solution:

67 Bricks ran an agile engagement to build a demonstration site known as the SmartFigures Lab. This site contained manually enriched articles and a wider range of automatically enriched articles taken from the Wiley Online platform. 67 Bricks built the SmartFigures Lab incorporating both manually and automatically enriched content to test the potential for large scale automation.

The manually enriched figures allow the user to navigate through a series of images connected by the inputs and outputs of the upstream and downstream experiments. To navigate through the figures, the user clicks on one of the intervention targets or assayed components in order to view a list of related 'upstream' or 'downstream' experiments.

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For the automatically enriched content 67 Bricks extracted entities both from the caption of each figure and from its detailed description provided in the body text of the article. These entities were then matched to those in the curated figures. This provided the means to display a list of automatically linked figures alongside related SmartFigures (Figure 1), thus allowing users to uncover and explore relationships between images that would not previously have been possible.

The user interface thus offers two complementary modes of discovery: one is the upstream-downstream role-based navigation, and the second is the related figure discovery functionality which, although less specific, has greater coverage.

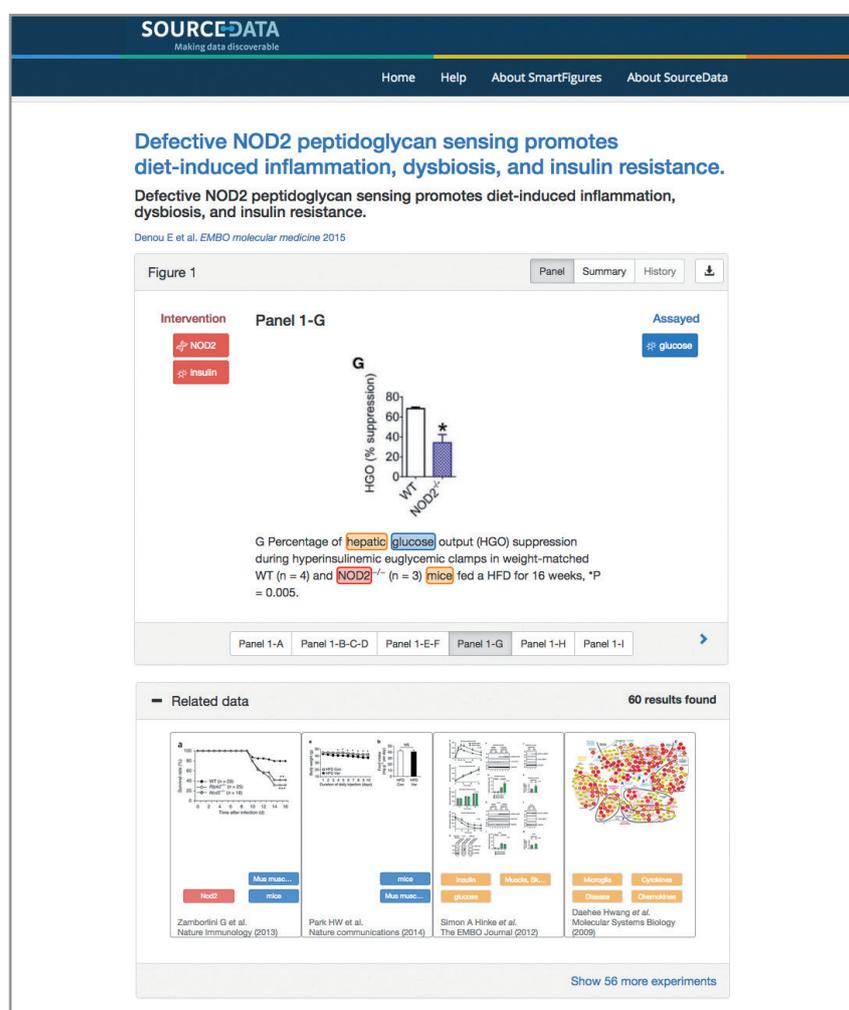


Figure 1: SmartFigure showing related figures as thumbnail images at the bottom of the screen, the left two figures are also manually enriched SmartFigures and the right two are from the wider, automated, set.

Business value:

The SmartFigures Lab (smartfigures.net), SourceData's first implementation in a publishing environment, was launched in September 2016. The initial response from researchers has been positive, and more extensive researcher feedback is being gathered to determine the next steps for the project.

The SmartFigures project demonstrates and strengthens both Wiley and EMBO's commitment to open science. It relied on excellent communication and collaboration between 67 Bricks, Wiley and EMBO.

"We believe that Open Science is the next era of scholarly communication. In this new landscape, we support the ambitions of all community stakeholders, including researchers, societies, funders and institutions – by facilitating greater discovery, sharing, and increased reproducibility. The SmartFigures Lab project is a great example of how we are meeting those needs, by making source data more searchable and reproducible"

Philip Carpenter, EVP Research, Wiley

SourceData was joint winner of the 2017 ALPSP Innovation Award.

Call Sam Herbert at 67 Bricks on +44 (0)7734 138274 or email us at contact@67bricks.com to discuss how we can help you.