



Pathway Studio® Fact Sheet

Plants with PATHWAY STUDIO

Pathway Studio Plant helps plant biologists address complex crop research challenges by integrating Arabidopsis, Maize, and Rice molecular relationship knowledgebase with powerful analytical and visualization tools. Together, these tools link information from literature and experimental data into visual biological pathways. By exploring plant breeding research through trait analysis, results enable informed decisions at critical stages of crop production and protection research and development.

- Which proteins are similar in different plants?
- Which regulatory genes control the expression of a desired plant trait?
- Which pathways are involved with flowering for sunflowers or other important crops?
- Is this gene part of the mechanism that controls drought resistance for wheat?

DEFINED CONNECTIONS

Growing content drives more informed research.

Pathway Studio Plant's growing knowledgebase uses proprietary Elsevier technology to find and extract facts within reference materials and convert these facts into structured relationship evidence. Maintained by Elsevier and updated regularly as part of the subscription agreement, the Pathway Studio knowledgebase and pathway collections encompasses Arabidopsis, Maize and Rice and summarizes the state of current research for those model organisms. In addition, the core knowledgebase centralizes key information from multiple disparate sources, thus streamlining the investigative process.

Content core:

1200+

Elsevier & other
publisher' titles

253+

PubMed abstracts

96K+

Full text articles

Knowledgebase of biological relationships:

165K

High-quality
relationships

427K

Sentence facts
all viewable

1250+

Curated pathways

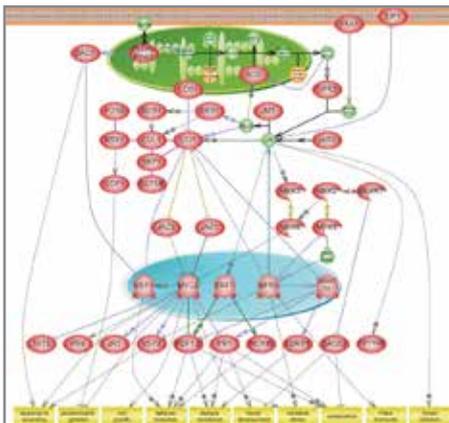


Figure 1.
Arabidopsis model acquired resistance pathway. Source: BMC Genomics 2013, 14:75.

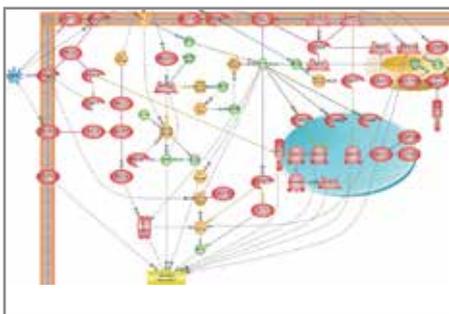


Figure 2.
Systemic acquired resistance pathway for *H. brasiliensis*. Source: BMC Genomics 2013, 14:75.

INTERPRETED BIOLOGY

Analytical tools streamline daily work.

Researchers can link out from Pathway Studio Plant through curated identifiers and ontologies to reference sources. Analysis include substantiating sentences from the literature with links to the original articles. It is this information that allows researchers to assess the applicability of each relationship to their research and use them to develop or verify a hypotheses.

Wizard-based analyses automate report generation for researcher-supplied experimental data and gene or protein lists, which saves time and provides results that cover four major investigative areas. Each summary Analysis Tool reports, across 1250+ metabolic and signaling pathways and finds most similar pathways, cellular processes and regulated genes in the dataset. Four different summary reports provide researchers with top biological changes in their experimental data to help them contextualize their findings to determine if advanced analysis is needed. Both speed up daily analysis routines and provide the basic information need to develop mechanistic-based hypotheses. Multiple advance features provide greater flexibility for visualizing and exploring your research findings.

RESEARCH EMPOWERED

Visualize how desired plant traits are regulated.

Designed to advance basic research as well as commercial applications, Pathway Studio Plant provides the flexibility to explore plant mechanisms of action. The Pathway Studio Plant knowledgebase can be used to extrapolate biological function of the target organism and annotate these proteins. Pathway Studio Plant curated pathways can be used for pathway analysis of expression or metabolic data, replacement of missing proteins with those of the well-characterized model organisms, and the creation of new pathways for the organisms of interest for trait association, yield maximization, and disease resistance research.

KEY BENEFITS

What does this mean for you?

- Rapidly annotate hundreds of proteins and infer functionality, expanding the depth and breadth of scientific inquiry.
- Reconstruct novel networks and isolate pathways that provide the context necessary to make informed decisions at critical crop research and development stages.
- Develop hypotheses to study trait associations, linkage, and marker-assisted trait selections and infer new organism protein functionality based on well-studied model organisms.
- Access direct literature evidence to substantiate conclusions



For more information on how this versatile, scalable solution can help you and your team, visit:

elsevier.com/products/solutions/pathway-studio