Pathway Studio v12.1 release, January 2018

The latest Pathway Studio release includes an update to the baseline data, new pathways and enhanced Sub-Network Enrichment Analysis (SNEA) functionality. In addition, Web Mammal subscribers will be migrated to MammalPlus, benefitting from additional insights coming from ChemEffect®, DiseaseFx®, Anatomay and Genetic Variants content!

Baseline update to all databases

As with any update to the baseline data, new relationships have been added as well as additional curation of existing data that helps to improve the accuracy of the database. This means there are changes to the core data and customers can choose to re-run key data stored in their Project Folders or not. Keep in mind when updating, some relationships may be lost, and others added as a result of the update and additional curation.

Updates include:

- Genetic Variants data (250K relations)
- New Pathways:
  - Additional Disease PWs (190 PWs)
  - Cancer Hallmarks PWs (hallmarks 9 and 10, 28 PWs)
  - Biomarkers: Anatomy-specific (81 PWs)
- Human Protein Atlas Expression Ontology
- In addition, data was pre-released earlier in 2018 for drug-target relationships (1.3M relations) and anatomy

Data for this release was produced by a new version of MedScan that, in addition to updates to the protein/gene dictionary and support for spelling variants, includes:

- Over 2,000 new PS-relevant concepts added from Emtree* (over 1,000 are new cell lines)
- Over 300 human phenotypes from Human Phenotype Ontology (https://hpo.jax.org/) added as Clinical Parameters, Diseases, and Biological Functions
- Addition of over 300 drug brand-names from FDA Orange Book
- Improvements:
  - Antibiotics branch – more than 1,100 compounds classified as antibiotics.
  - Autoantibodies branch
  - Rare Diseases branch – over 3,000 rare diseases classified
  - Recognition of drug Brand Names – by moving from CASDictionary to curNames

* For more information on Emtree, see https://www.elsevier.com/__data/assets/pdf_file/0011/58952/R_DSolutions_Embase_Fact-Sheet_Emtree-DIGITAL.pdf

With this latest release, Pathway Studio now includes **11.6M relations** and **2,411 pathways and groups** to provide even greater insights to your biology research!
Enhanced SNEA capabilities

Experienced users will be aware that Sub-Network Enrichment Analysis (SNEA) can already be performed in Pathway Studio to identify and prioritize the targets and regulators most implicated in a list of genes or experimental dataset. With the latest release, the options of entity type and relationships that can be analyse for enrichment has been greatly expanded. A wizard has been added to guide users step-by-step in building the search.

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Web Mammal subscribers will be automatically migrated to MammalPlus, benefitting from additional insights provided by the ChemEffect®, DiseaseFx®, Anatomay and Genetic Variants content.

DiseaseFx is a knowledgebase derived from peer-reviewed research findings that link human disease with molecular observations such as changes in the activity of proteins, gene expression, the concentration of metabolites, gene mutations, gene deletions and epigenetic methylation observed in disease.

The ChemEffect database links published information on small molecules, chemicals, and approved drugs to their effects on proteins, pathways, and cellular processes. For example, this enables identification of compounds affecting target pathway(s) or proteins or targets affected by compounds similar to one(s) under investigation. Users can also survey known side-effects associated with compounds and use in-house experimental data to build hypothetical associations between a compound and potential phenotypical outcomes (efficacy, side effects, and drug-drug interactions).

The ChemEffect database also includes CellEffect, a database with cell-centered information that covers broad range of cell types with a particular focus on immune cells.

Notice to Pathway Studio Web Plant subscribers

As was previously communicated, the current version of the Pathway Studio Plant database will not be supported moving forward and v12.1 will not be released to Pathway Studio Web Plant.

We are instead offering a new version of the Plant database available from https://profservicesplant.pathwaystudio.com. Pathway Studio Web subscribers will be migrated to this new version, which has more relations due to improved NLP, additional collections of curated pathways, and a “Predict pathway by homology” tool that allows users to map pathway data from one organism to another.

A separate communication will be sent to Pathway Studio Web Plant subscribers with more information.

For more information, please go to www.elsevier.com/pathwaystudio.