Resource Summary Report

Generated by dkNET on Apr 17, 2025

Small Molecule Pathway Database

RRID:SCR_004844
Type: Tool

Proper Citation

Small Molecule Pathway Database (RRID:SCR_004844)

Resource Information

URL: http://www.smpdb.ca/

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Description: An interactive, visual database containing more than 350 small molecule pathways found in humans. More than 2/3 of these pathways (>280) are not found in any other pathway database. SMPDB is designed specifically to support pathway elucidation and pathway discovery in metabolomics, transcriptomics, proteomics and systems biology. It is able to do so, in part, by providing exquisitely detailed, fully searchable, hyperlinked diagrams of human metabolic pathways, metabolic disease pathways, metabolite signaling pathways and drug-action pathways. All SMPDB pathways include information on the relevant organs, subcellular compartments, protein cofactors, protein locations, metabolite locations, chemical structures and protein quaternary structures. Each small molecule is hyperlinked to detailed descriptions contained in the HMDB or DrugBank and each protein or enzyme complex is hyperlinked to UniProt. All SMPDB pathways are accompanied with detailed descriptions and references, providing an overview of the pathway, condition or processes depicted in each diagram. The database is easily browsed and supports full text, sequence and chemical structure searching. Users may query SMPDB with lists of metabolite names, drug names, genes / protein names, SwissProt IDs, GenBank IDs, Affymetrix IDs or Agilent microarray IDs. These queries will produce lists of matching pathways and highlight the matching molecules on each of the pathway diagrams. Gene, metabolite and protein concentration data can also be visualized through SMPDB"s mapping interface. All of SMPDB"s images, image maps, descriptions and tables are downloadable.

Abbreviations: SMPDB

Synonyms: SMPDB (The Small Molecule Pathway Database), Small Molecule Pathway Database (SMPDB)

Resource Type: image, data analysis service, database, data or information resource, analysis service resource, production service resource, service resource

Defining Citation: PMID:19948758

Keywords: metabolomics, transcriptomics, proteomics, systems biology, small molecule, pathway, human, metabolic pathway, metabolic disease pathway, metabolite signaling pathway, drug-action pathway, bio.tools, FASEB list

Funding: Genome Alberta ;
Genome Canada

Resource Name: Small Molecule Pathway Database

Resource ID: SCR_004844

Alternate IDs: nlx_143926, biotools:smpdb

Alternate URLs: https://bio.tools/smpdb

Record Creation Time: 20220129T080226+0000

Record Last Update: 20250417T065207+0000

Ratings and Alerts

No rating or validation information has been found for Small Molecule Pathway Database.

No alerts have been found for Small Molecule Pathway Database.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 93 mentions in open access literature.

Listed below are recent publications. The full list is available at dkNET.

Tabata S, et al. (2024) Metabolic Hallmarks for Purine Nucleotide Biosynthesis in Small Cell Lung Carcinoma. Molecular cancer research : MCR, 22(1), 82.

Elaimy AL, et al. (2024) SLC4A11 mediates ammonia import and promotes cancer stemness in hepatocellular carcinoma. JCI insight, 9(21).

Hou R, et al. (2024) Stabilization of SQLE mRNA by WTAP/FTO/IGF2BP3-dependent manner in HGSOC: implications for metabolism, stemness, and progression. Cell death & disease, 15(12), 872.

Okinaka Y, et al. (2024) Metabolomic profiling of cancer-related fatigue involved in cachexia and chemotherapy. Scientific reports, 14(1), 8329.

Tanasi D, et al. (2024) Multianalytical investigation reveals psychotropic substances in a ptolemaic Egyptian vase. Scientific reports, 14(1), 27891.

Nakasuka F, et al. (2024) The role of cytidine 5'-triphosphate synthetase 1 in metabolic rewiring during epithelial-to-mesenchymal transition in non-small-cell lung cancer. FEBS open bio, 14(9), 1570.

Razavi SA, et al. (2024) Metabolite signature of human malignant thyroid tissue: A systematic review and meta-analysis. Cancer medicine, 13(8), e7184.

Zhang X, et al. (2024) Fibroblast growth factor 21 alleviates diabetes-induced cognitive decline. Cerebral cortex (New York, N.Y. : 1991), 34(2).

Rejali L, et al. (2024) Comprehensive analysis identifies endocrine fibroblast growth factors as promising prognostic markers for colorectal carcinoma. Scientific reports, 14(1), 28754.

Course CW, et al. (2024) Similarities of metabolomic disturbances in prematurity-associated obstructive lung disease to chronic obstructive pulmonary disease. Scientific reports, 14(1), 23294.

Yoon CK, et al. (2023) Vitreous Fatty Amides and Acyl Carnitines Are Altered in Intermediate Age-Related Macular Degeneration. Investigative ophthalmology & visual science, 64(3), 28.

Xu FR, et al. (2023) The hypothalamic steroidogenic pathway mediates susceptibility to inflammation-evoked depression in female mice. Journal of neuroinflammation, 20(1), 293.

Wang Q, et al. (2023) Metabolic heterogeneity in adrenocortical carcinoma impacts patient outcomes. JCI insight, 8(16).

Li M, et al. (2023) Supraphysiologic doses of 17?-estradiol aggravate depression-like behaviors in ovariectomized mice possibly via regulating microglial responses and brain glycerophospholipid metabolism. Journal of neuroinflammation, 20(1), 204.

Sajid MI, et al. (2023) Untargeted metabolomics analysis on kidney tissues from mice reveals potential hypoxia biomarkers. Scientific reports, 13(1), 17516.

Sungthong R, et al. (2023) How do prolonged anchorage-free lifetimes strengthen non-small-cell lung cancer cells to evade anoikis? - A link with altered cellular metabolomics. Biological research, 56(1), 44.

Milano M, et al. (2022) Challenges and Limitations of Biological Network Analysis. Biotech

(Basel (Switzerland)), 11(3).

Shi M, et al. (2022) CRISPR/Cas9-mediated knockout of SGLT1 inhibits proliferation and alters metabolism of gastric cancer cells. Cellular signalling, 90, 110192.

Zhang Y, et al. (2022) Comprehensive review of composition distribution and advances in profiling of phenolic compounds in oilseeds. Frontiers in nutrition, 9, 1044871.

He MJ, et al. (2022) Spatial metabolomics on liver cirrhosis to hepatocellular carcinoma progression. Cancer cell international, 22(1), 366.