

Resource Summary Report

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Bioinformatics Toolkit

RRID:SCR_010277

Type: Tool

Proper Citation

Bioinformatics Toolkit (RRID:SCR_010277)

Resource Information

URL: <http://toolkit.tuebingen.mpg.de/>

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Description: A platform that integrates a great variety of tools for protein sequence analysis. Many tools are developed in-house, and several public tools are offered with extended functionality. Most frequently used tools HHpred Sensitive protein homology detection and structure prediction by HMM-HMM-comparison. Starting from a query sequence, HHpred builds a multiple sequence alignment using HHblits and turns it into a profile HMM. This is then compared it with a database of HMMs representing proteins with known structure (e.g. PDB, SCOP) or annotated protein families (e.g. PFAM, SMART, CDD, COGs, KOGs). The output is a list of closest homologs with alignments. HHpred can also build 3d homology models using the identified templates in the PDB database. It can optimize template picking and query-template alignments for homology modeling. The HHblits software is part of the open source package HHsuite. HHblits Remote homology detection method based on iterative HMM-HMM comparison. HHblits can build high-quality MSAs starting from single sequences or from MSAs. It transforms these into a query HMM and iteratively searches through uniprot20 or nr20 databases by adding significantly similar sequences from the previous search to the updated query HMM for the next search iteration. Compared to PSI-BLAST, HHblits is faster, up to twice as sensitive and produces more accurate alignments. The HHblits software is part of the open source package HHsuite. Quick2d Quick2D gives you an overview of secondary structure features like alpha-helices, extended beta-sheets, coiled coils, transmembrane helices and disorder regions. Predictions by PSIPRED, JNET, Prof(Rost), Prof(Quali), Coils, MEMSAT2, HMMTOP, DISOPRED2 and VSL2. Modeller A Program for Comparative Protein Structure Modelling by Satisfaction of Spatial Restraints. Coils/PCoils This server compares a single sequence (COILS) or a sequence alignment (PCOILS) to a database of known coiled-coils and derives a similarity score. The program then calculates the probability that the sequence will adopt a coiled-coil conformation. PSI-Blast Search with an amino acid sequence against protein databases for locally similar sequences. Similar to ProteinBLAST but more sensitive. PSI-BLAST first performs a BLAST search and builds an alignment from the best local hits. This alignment is then used as a query for the next

round of search. After each successive round the search alignment is updated.

Resource Type: software toolkit, software resource

Defining Citation: [DOI:10.1038/NMETH.1818](https://doi.org/10.1038/NMETH.1818)

Keywords: bio.tools

Resource Name: Bioinformatics Toolkit

Resource ID: SCR_010277

Alternate IDs: nlx_156936, OMICS_28407, biotools:bioinformatics_toolkit

Alternate URLs: https://bio.tools/bioinformatics_toolkit,
<https://sources.debian.org/src/hhsuite/>

Record Creation Time: 20220129T080257+0000

Record Last Update: 20260803T040541+0000

Ratings and Alerts

No rating or validation information has been found for Bioinformatics Toolkit.

No alerts have been found for Bioinformatics Toolkit.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 235 mentions in open access literature.

Listed below are recent publications. The full list is available at [ASWG](#).

Zhang HS, et al. (2025) Exploring the recombinant evolution and hosts of crucivirus based on novel oyster-associated viruses. *Frontiers in microbiology*, 16, 1454079.

Yefsah K, et al. (2025) Crosstalk between cohesins and axis proteins determines meiotic chromosome architecture in *Sordaria macrospora*. *PLoS genetics*, 21(12), e1012001.

Zhang W, et al. (2025) SGBP-B-like bimodular cellulose-binding protein CHU_1279 is essential for cellulose utilization by *Cytophaga hutchinsonii*. *Applied and environmental microbiology*, 91(4), e0247124.

Troshin K, et al. (2025) Pseudomonas Phage Lydia and the Evolution of the Mesyanzhinoviridae Family. *Viruses*, 17(3).

Hida S, et al. (2025) Genome analysis of dark-adapted variants identifies the phosphatase gene phsP involved in the regulation of photosynthetic and dark-heterotrophic growth in the cyanobacterium *Leptolyngbya boryana*. *Plant & cell physiology*, 66(7), 1102.

Benner L, et al. (2025) Programmed meiotic errors facilitate dichotomous sperm production in the silkworm, *Bombyx mori*. *bioRxiv : the preprint server for biology*.

Zhou X, et al. (2025) Cas9 senses CRISPR RNA abundance to regulate CRISPR spacer acquisition. *Nature*, 647(8091), 1054.

Debat H, et al. (2025) RNA Virus Discovery Sheds Light on the Virome of a Major Vineyard Pest, the European Grapevine Moth (*Lobesia botrana*). *Viruses*, 17(1).

Neuman BW, et al. (2025) Giant RNA genomes: Roles of host, translation elongation, genome architecture, and proteome in nidoviruses. *Proceedings of the National Academy of Sciences of the United States of America*, 122(7), e2413675122.

Diep DTV, et al. (2024) A metabolically controlled contact site between vacuoles and lipid droplets in yeast. *Developmental cell*, 59(6), 740.

Ma SQ, et al. (2024) [Rare VPS33B gene mutation combined with GP1BA mutation causes severe decrease in plasma VWF levels: a case report and literature review]. *Zhonghua xue ye xue za zhi = Zhonghua xueyexue zazhi*, 45(6), 602.

Dubois E, et al. (2024) Canonical and noncanonical roles of Hop1 are crucial for meiotic prophase in the fungus *Sordaria macrospora*. *PLoS biology*, 22(7), e3002705.

Chia KS, et al. (2024) The N-terminal domains of NLR immune receptors exhibit structural and functional similarities across divergent plant lineages. *The Plant cell*, 36(7), 2491.

Karlin DG, et al. (2024) The Adeno-Associated Virus Replication Protein Rep78 Contains a Strictly C-Terminal Sequence Motif Conserved Across Dependoparvoviruses. *Viruses*, 16(11).

Fu X, et al. (2024) Restorer of fertility like 30, encoding a mitochondrion-localized pentatricopeptide repeat protein, regulates wood formation in poplar. *Horticulture research*, 11(9), uhae188.

Schou KB, et al. (2024) Exploring the structural landscape of DNA maintenance proteins. *Nature communications*, 15(1), 7748.

Panmanee J, et al. (2024) A Complex Interplay Between Melatonin and ROR?: ROR? is Unlikely a Putative Receptor for Melatonin as Revealed by Biophysical Assays. *Molecular neurobiology*.

Köbler C, et al. (2024) Two KaiABC systems control circadian oscillations in one cyanobacterium. *Nature communications*, 15(1), 7674.

Silverio MP, et al. (2024) Metagenome-derived SusD-homologs affiliated with Bacteroidota bind to synthetic polymers. *Applied and environmental microbiology*, 90(7), e0093324.

Urbanus ML, et al. (2024) A random mutagenesis screen enriched for missense mutations in bacterial effector proteins. *G3 (Bethesda, Md.)*, 14(9).