







NCBI FieldGuide Overview

National Center for Biotechnology Information ■ National Library of Medicine ■ National Institutes of Health ■ Department of Health and Human Services


SELECTED DATABASES

Nucleic Acids Research Database Issue:
http://nar.oxfordjournals.org/cgi/content/full/33/suppl_1/D39






Literature

	PubMed	Biomedical literature citations and abstracts
	PubMed Central	Free, full text life sciences articles
	OMIM	Online Mendelian Inheritance in Man articles on human genes and phenotypes
	Books	Online biomedical texts






Organism

	Taxonomy	Organisms represented in the NCBI sequence databases
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Sequence

	Nucleotide	GenBank, EMBL, DDBJ, PDB, RefSeq, TPA, and patented nucleotide sequences
	Protein	Translations of GenBank, EMBL, and DDBJ records, as well as PDB, PIR, PRF, SWISS-PROT and patented protein sequences
	Genome	Complete Genome records integrated with sequence, genetic and physical maps
	PopSet	Sets of sequences from population, phylogenetic and mutation studies
	Trace Archives	Raw sequence traces generated by large sequencing projects





Genome

	Genome Project	Genome project information
	dbSNP	Single nucleotide polymorphism as well as insertion, deletion and microsatellite information
	UniSTS	Sequence Tagged Site marker and mapping data
	Gene	Summary pages of Gene-centered information
	HomoloGene	Computationally-determined homologs among eukaryotic organisms with complete genomes

Expression

	GEO: Profiles & DataSets	Gene Expression Omnibus, a repository for gene expression and hybridization array data
	UniGene	Gene-based clusters of EST and mRNA sequences
	GenSat	Gene expression atlas of mouse central nervous system
	Probe	A public registry of nucleic acid reagents, effectiveness and distributors

Structure

	CDD	Conserved Domain Database for identified protein domains
	CDART	Modular domain architecture of proteins
	MMDB/Structure	Experimental 3D structure data from PDB
	PubChem: Compound, Substance & BioAssay	Information on small molecule chemical compounds and substances assayed for biological activity

SEARCH METHODS

ENTREZ	The Entrez database structure and search protocol integrates the scientific literature, taxonomy, sequence, genome, expression and structure data into a tightly interlinked system. (www.ncbi.nlm.nih.gov/Entrez/)
BLAST	Basic Local Alignment Search Tool (BLAST) is a sequence similarity search program that can be used via a web interface or as a stand-alone tool. BLAST compares combinations of nucleotide or protein queries to sequences in nucleotide or protein databases and provides statistical information to help decipher the biological significance of the alignment. (www.ncbi.nlm.nih.gov/BLAST/)
VAST	Vector Alignment Search Tool (VAST) is a structure similarity search service. VAST compares the 3D organization of secondary structures of protein structures to those in the MMDB/Structure database and allows for viewing superpositions and alignments using Cn3D. (www.ncbi.nlm.nih.gov/Structure/VAST/vastsearch.html)

SELECTED TOOLS

Sequin & BankIt	Stand-alone software and web form tools, respectively, developed by the NCBI for submitting and updating entries to the GenBank, EMBL, or DDBJ sequence databases (www.ncbi.nlm.nih.gov/Sequin/ and www.ncbi.nlm.nih.gov/BankIt/)
Genome Workbench	A stand-alone application integrating the ability to view and analyze sequence data in many ways, including graphical sequence, varied alignment, phylogenetic tree and tabular views of data (http://www.ncbi.nlm.nih.gov/projects/gbench/).
MapView	Integrated views of sequence, genetic and physical chromosome maps for eukaryotic organisms (www.ncbi.nlm.nih.gov/mapview/)
Model Maker	View evidence for gene annotations on assembled genomic sequence, and create your own model transcripts (www.ncbi.nlm.nih.gov/mapview/static/ModelMakerHelp.html)
Splign	A stand-alone or web application that aligns cDNA with genomic sequences (http://www.ncbi.nlm.nih.gov/sutils/splign/splign.cgi)
ORFinder	Predictions of all possible ORFs in an RNA sequence (www.ncbi.nlm.nih.gov/gorf/)
DDD	Comparisons of mRNA levels in different cell-lines, tissues and organs (www.ncbi.nlm.nih.gov/UniGene/info_ddd.html)
OMSSA	A stand-alone or web application that identifies MS/MS peptide spectra by searching libraries of known protein sequences (http://pubchem.ncbi.nlm.nih.gov/omssa/).
Cn3D	A helper application for web browsers that allow for simultaneous viewing of 3D structures with sequence alignments. Also has powerful annotation and alignment editing features. (www.ncbi.nlm.nih.gov/Structure/CN3D/cn3d.shtml)
The BLAST Suite	The NCBI BLAST ftp site provides standalone blast, client server blast, and wwwblast packages for different platforms. It also provides commonly used blast databases in preformatted as well as FASTA format. (ftp://ftp.ncbi.nih.gov/blast/)

Programming Tools & Information

Batch Entrez	Upload a file of UIDs or accession numbers to retrieve records (www.ncbi.nlm.nih.gov/entrez/batchentrez.cgi?)
E-Utilities	Guidelines for Entrez "URL calls" used to access data at NCBI by scripts (eutils.ncbi.nlm.nih.gov/entrez/query/static/eutils_help.html)
NCBI Toolkit	The NCBI Software Development Toolkit was developed for the production and distribution of GenBank, Entrez, BLAST, and related services by NCBI. Source code is provided as well as information on NCBI's data model, data encoding and programming libraries. (www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=toolkit)
Creating Weblinks	General Entrez Links www.ncbi.nlm.nih.gov/entrez/query/static/linking.html OMIM page Links www.ncbi.nlm.nih.gov/Omim/omimhelp.html#HowToLink UniGene page Links www.ncbi.nlm.nih.gov/UniGene/FAQ.html Structure page Links www.ncbi.nlm.nih.gov/Structure/MISC/linking.html#mmdbsrv Taxonomy page Links www.ncbi.nlm.nih.gov/Taxonomy/taxonomyhome.html/index.cgi?chapter=howlink

NCBI Handbook

Individual chapters describing databases, major search algorithms and data processing pipelines; each describes the database design or how the resource works and how the different databases and resources relate to each other, along with a brief overview on using the resource. (www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=handbook)

NCBI Training

Education www.ncbi.nlm.nih.gov/Education/
FieldGuide Home www.ncbi.nlm.nih.gov/Class/FieldGuide/

HELP!

General Help info@ncbi.nlm.nih.gov
BLAST-specific Help blast-help@ncbi.nlm.nih.gov
GenBank Submissions/Updates Help gb-admin@ncbi.nlm.nih.gov
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