

## Internet URL list

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## Functional genomics

### Transcriptomics databases

Microarray Bioinformatics at EBI	<a href="http://www.ebi.ac.uk/microarray/index.html">http://www.ebi.ac.uk/microarray/index.html</a>
Arrayexpress at the EBI	<a href="http://www.ebi.ac.uk/arrayexpress/">http://www.ebi.ac.uk/arrayexpress/</a>
Expression Profiler at EBI	<a href="http://www.ebi.ac.uk/expressionprofiler/">http://www.ebi.ac.uk/expressionprofiler/</a>
Documentation for Expression Profiler	<a href="http://www.bioinf.ebc.ee/EP/EP/">http://www.bioinf.ebc.ee/EP/EP/</a>
Gene Expression Atlas - Large Scale Meta-Analysis of Public Microarray Data	<a href="http://www.ebi.ac.uk/gxa/">http://www.ebi.ac.uk/gxa/</a>
GEO Gene Expression Omnibus at NCBI	<a href="http://www.ncbi.nlm.nih.gov/geo/">http://www.ncbi.nlm.nih.gov/geo/</a>
MaRe Microarray Retriever	<a href="http://grenada.lumc.nl/HumaneGenetica/MaRe/">http://grenada.lumc.nl/HumaneGenetica/MaRe/</a>
Stanford Microarray Database	<a href="http://genome-www5.stanford.edu/">http://genome-www5.stanford.edu/</a>
Yale Microarray Database	<a href="http://info.med.yale.edu/microarray/">http://info.med.yale.edu/microarray/</a>
JCV Institute Genomics	<a href="http://www.jcvi.org/cms/research/groups/">http://www.jcvi.org/cms/research/groups/</a>
NIH ENCODE Project: ENCyclopedia Of DNA Elements	<a href="http://www.genome.gov/10005107">http://www.genome.gov/10005107</a>
NGFN German National Functional Genomics Network	<a href="http://www.ngfn.de/">http://www.ngfn.de/</a>
Genevestigator	<a href="https://www.genevestigator.ethz.ch/">https://www.genevestigator.ethz.ch/</a>
GeneCAT - Gene Co-expression Analysis Toolbox	<a href="http://genecat.mpg.de/">http://genecat.mpg.de/</a>
CATMA - A complete Arabidopsis Transcriptome MicroArray	<a href="http://www.catma.org/">http://www.catma.org/</a>
The Arabidopsis Information Resource - TAIR	<a href="http://www.arabidopsis.org/">http://www.arabidopsis.org/</a>
AFGN Arabidopsis Functional Genomics Network	<a href="http://www.uni-tuebingen.de/plantphys/AFGN/">http://www.uni-tuebingen.de/plantphys/AFGN/</a>
Microarray Gene Expression Data Society	<a href="http://www.mged.org/">http://www.mged.org/</a>
Stanford Functional Genomics Facility	<a href="http://microarray.org/sfgf/">http://microarray.org/sfgf/</a>

### Transcriptomics tools

NIH - Guide to Microarray Data analysis	<a href="http://discover.nci.nih.gov/microarrayAnalysis/Microarray.Home.jsp">http://discover.nci.nih.gov/microarrayAnalysis/Microarray.Home.jsp</a>
Microarray Tools at NCI	<a href="http://discover.nci.nih.gov/tools.jsp">http://discover.nci.nih.gov/tools.jsp</a>
HSLs: Microarray, SAGE and other gene expression data analysis tools	<a href="http://www.hsls.pitt.edu/guides/genetics/obrc/gene_expression/gene_expression_tools">http://www.hsls.pitt.edu/guides/genetics/obrc/gene_expression/gene_expression_tools</a>
J-Express microarray analysis free version	<a href="http://www.ii.uib.no/%7Ebjarted/jexpress/main.html">http://www.ii.uib.no/%7Ebjarted/jexpress/main.html</a>
MicroArray Explorer tool for Data Mining Gene Expression Patterns	<a href="http://maexplorer.sourceforge.net/">http://maexplorer.sourceforge.net/</a>
Tools from the Eisen Lab	<a href="http://rana.lbl.gov/eisen/">http://rana.lbl.gov/eisen/</a>
BioConductor Project - Open Source Software for Bioinformatics	<a href="http://www.bioconductor.org/">http://www.bioconductor.org/</a>
R and Bioconductor Manual (Thomas Girke)	<a href="http://manuals.bioinformatics.ucr.edu/home/R_BioCondManual">http://manuals.bioinformatics.ucr.edu/home/R_BioCondManual</a>
GEPAS microarray analysis pipeline	<a href="http://gepas.bioinfo.cipf.es/index.html">http://gepas.bioinfo.cipf.es/index.html</a>
Babelomics - Systems biology microarray data mining	<a href="http://babelomics.bioinfo.cipf.es/index.html">http://babelomics.bioinfo.cipf.es/index.html</a>
TIGR Microarray Software	<a href="http://www.jcvi.org/cms/research/software/">http://www.jcvi.org/cms/research/software/</a>
RNA-Seq software ERANGE	<a href="http://woldlab.caltech.edu/maseq/">http://woldlab.caltech.edu/maseq/</a>
Broad Institute Genecluster 2.0	<a href="http://www.broad.mit.edu/cancer/software/genecluster2/gc_license.html">http://www.broad.mit.edu/cancer/software/genecluster2/gc_license.html</a>
dChip Software: Gene Expression Microarray and SNP Microarray Analysis	<a href="http://biosun1.harvard.edu/complab/dchip/">http://biosun1.harvard.edu/complab/dchip/</a>
NASC Affymetrix Service: Analysis hints	<a href="http://affy.arabidopsis.info/analysisindex.html">http://affy.arabidopsis.info/analysisindex.html</a>
Analysis of Affymetrix data using Excel	<a href="http://affy.arabidopsis.info/AffyAnalysisWithExcel.html">http://affy.arabidopsis.info/AffyAnalysisWithExcel.html</a>

Affymetrix - NetAffx™ Analysis Center	<a href="http://www.affymetrix.com/analysis/index.affx">http://www.affymetrix.com/analysis/index.affx</a>
MapMan - integrative view of microarray data and metabolic maps	<a href="http://gabi.rzpd.de/projects/MapMan/">http://gabi.rzpd.de/projects/MapMan/</a>
GenMAPP Gene Map Annotator and Pathway Profiler	<a href="http://www.genmapp.org/">http://www.genmapp.org/</a>

#### Proteomics databases and search engines

EXPASY Swiss 2Dpage	<a href="http://www.expasy.org/ch2d/">http://www.expasy.org/ch2d/</a>
WORLD-2DPAGE Index to 2D-PAGE databases and services	<a href="http://www.expasy.org/ch2d/2d-index.html">http://www.expasy.org/ch2d/2d-index.html</a>
EXPASY Peptide Mass Tool	<a href="http://www.expasy.org/tools/peptide-mass.html">http://www.expasy.org/tools/peptide-mass.html</a>
EXPASY Aldente Peptide Mass Fingerprinting Tool	<a href="http://www.expasy.org/tools/aldente/">http://www.expasy.org/tools/aldente/</a>
MASCOT Peptide Mass Fingerprint	<a href="http://www.matrixscience.com/search_form_select.html">http://www.matrixscience.com/search_form_select.html</a>
SEQUEST MS proteomics search engine	<a href="http://fields.scripps.edu/?q=content/software">http://fields.scripps.edu/?q=content/software</a>
Phenyx MS protein search engine (GeneBio/SIB)	<a href="http://www.genebio.com/products/phenyx/">http://www.genebio.com/products/phenyx/</a>
X! Tandem MS search engine	<a href="http://www.thegpm.org/TANDEM/index.html">http://www.thegpm.org/TANDEM/index.html</a>
OMSSA ms/ms search engine	<a href="http://pubchem.ncbi.nlm.nih.gov/omssa/">http://pubchem.ncbi.nlm.nih.gov/omssa/</a>
UCSF Mass Spectrometry Facility Protein Prospector	<a href="http://prospector.ucsf.edu/prospector/mshome.htm">http://prospector.ucsf.edu/prospector/mshome.htm</a>
Protein Prospector Server at Joint Proteomics Laboratory Melbourne	<a href="http://jpsl.ludwig.edu.au/">http://jpsl.ludwig.edu.au/</a>
PROWL protein and MS tools	<a href="http://prowl.rockefeller.edu/">http://prowl.rockefeller.edu/</a>
PRIDE - Proteomics Identifications Database	<a href="http://www.ebi.ac.uk/pride/">http://www.ebi.ac.uk/pride/</a>
PeptideAtlas	<a href="http://www.peptideatlas.org/">http://www.peptideatlas.org/</a>
GPMDDB proteomics database	<a href="http://gpmdb.thegpm.org/">http://gpmdb.thegpm.org/</a>
Human Protein Atlas	<a href="http://www.proteinatlas.org/">http://www.proteinatlas.org/</a>
Tranche - Secure P2P for Scientific Data Dissemination	<a href="http://tranche.proteomecommons.org/">http://tranche.proteomecommons.org/</a>
ISPIDER MS meta protein database search	<a href="http://www.ispider.manchester.ac.uk/cgi-bin/ispider.pl">http://www.ispider.manchester.ac.uk/cgi-bin/ispider.pl</a>
Protein Identifier Cross-Reference Service	<a href="http://www.ebi.ac.uk/Tools/picr/">http://www.ebi.ac.uk/Tools/picr/</a>
NIH Histone Sequence Database	<a href="http://genome.nhgri.nih.gov/histones/">http://genome.nhgri.nih.gov/histones/</a>
Phospho.ELM Database of phosphorylation sites	<a href="http://phospho.elm.eu.org/">http://phospho.elm.eu.org/</a>
Human Protein Reference Database	<a href="http://www.hprd.org/">http://www.hprd.org/</a>

#### Proteomics post translational modifications

ExPASy - FindMod tool	<a href="http://www.expasy.ch/tools/findmod/findmod_masses.html">http://www.expasy.ch/tools/findmod/findmod_masses.html</a>
ExPASy - Popitam - MS/MS modified peptide search tool	<a href="http://www.expasy.org/tools/popitam/">http://www.expasy.org/tools/popitam/</a>
RESID Database of protein modifications	<a href="http://www.ebi.ac.uk/RESID/">http://www.ebi.ac.uk/RESID/</a>
Delta Mass PTM database (ABFR)	<a href="http://www.abrf.org/index.cfm/dm.home">http://www.abrf.org/index.cfm/dm.home</a>
Unimod database - protein modifications for MS	<a href="http://www.unimod.org/unimod_help.html">http://www.unimod.org/unimod_help.html</a>
Unimod - Modification naming guidelines	<a href="http://www.unimod.org/names.html">http://www.unimod.org/names.html</a>
PRIDE Modification Search	<a href="http://www.ebi.ac.uk/pride/modSearch.do">http://www.ebi.ac.uk/pride/modSearch.do</a>
PRIDE modification ontology lookup service (OLS)	<a href="http://www.ebi.ac.uk/ontology-lookup/browse.do?ontName=MOD">http://www.ebi.ac.uk/ontology-lookup/browse.do?ontName=MOD</a>
AutoMotif Server - Modification site prediction	<a href="http://ams2.bioinfo.pl/">http://ams2.bioinfo.pl/</a>
ExPASy - Sulfinator tool Tyr sulfination sites predictor	<a href="http://expasy.org/tools/sulfinator/">http://expasy.org/tools/sulfinator/</a>
NetPhos 2.0 Server STY phosphorylation site predictor	<a href="http://www.cbs.dtu.dk/services/NetPhos/">http://www.cbs.dtu.dk/services/NetPhos/</a>
HUPO PSI Protein Modification Documentation	<a href="http://psidev.sourceforge.net/mod/">http://psidev.sourceforge.net/mod/</a>

### Proteomics software

TPP Trans-Proteomic Pipeline	<a href="http://tools.proteomecenter.org/wiki/index.php?title=Software:TPP">http://tools.proteomecenter.org/wiki/index.php?title=Software:TPP</a>
SASHIMI MS proteomics pipeline	<a href="http://sourceforge.net/projects/sashimi">http://sourceforge.net/projects/sashimi</a>
OpenMS / TOPP open source MS proteomics pipeline	<a href="http://open-ms.sourceforge.net/news.php">http://open-ms.sourceforge.net/news.php</a>
TOPP-the OpenMS proteomics pipeline	<a href="http://open-ms.sourceforge.net/TOPP.php">http://open-ms.sourceforge.net/TOPP.php</a>
MaxQuant	<a href="http://www.maxquant.org/">http://www.maxquant.org/</a>
ICPLQuant	<a href="http://www.biochem.mpg.de/lottspeich/technologies/ICPLQuant/index.html">http://www.biochem.mpg.de/lottspeich/technologies/ICPLQuant/index.html</a>
Scaffold protein identification framework (by Proteome Software)	<a href="http://www.proteomesoftware.com/Proteome_software_prod_Scaffold.html">http://www.proteomesoftware.com/Proteome_software_prod_Scaffold.html</a>
mMass - Open Source Mass Spectrometry Tool	<a href="http://mmass.biographics.cz/">http://mmass.biographics.cz/</a>
PeptideProphet MS proteomics prediction tool	<a href="http://peptideprophet.sourceforge.net/">http://peptideprophet.sourceforge.net/</a>
ProteinProphet MS proteomics prediction tool	<a href="http://proteinprophet.sourceforge.net/">http://proteinprophet.sourceforge.net/</a>
MassNET MS proteomics annotation server	<a href="http://massnet.kr/">http://massnet.kr/</a>
MassTRIX Metabolomics mass to pathway mapper	<a href="http://www.helmholtz-muenchen.de/en/mips/workgroups/metabolomics/metabolomics-projects/masstrix/index.html">http://www.helmholtz-muenchen.de/en/mips/workgroups/metabolomics/metabolomics-projects/masstrix/index.html</a>

### Proteomics organisations and standards

HUPO - Human Proteome Organisation	<a href="http://www.hupo.org/">http://www.hupo.org/</a>
SwissProt HPI - Human Proteome Initiative	<a href="http://www.expasy.org/sprot/hpi/hpi_stat.html">http://www.expasy.org/sprot/hpi/hpi_stat.html</a>
HUPO Proteomics Standards Initiative	<a href="http://www.psidev.info/">http://www.psidev.info/</a>
MASC Arabidopsis Proteomics Standards Subcommittee	<a href="http://www.arabidopsis.org/portals/masc/Subcommittees.jsp">http://www.arabidopsis.org/portals/masc/Subcommittees.jsp</a>
mzML Specification   HUPO Proteomics Standards Initiative	<a href="http://www.psidev.info/index.php?q=node/257">http://www.psidev.info/index.php?q=node/257</a>
Mass spectrometry data formats - Wikipedia	<a href="http://en.wikipedia.org/wiki/Mass_spectrometry_data_formats">http://en.wikipedia.org/wiki/Mass_spectrometry_data_formats</a>
gabi Arabidopsis Proteomics Data	<a href="http://gabi.rzpd.de/projects/Arabidopsis_Proteomics/">http://gabi.rzpd.de/projects/Arabidopsis_Proteomics/</a>
Proteomics from Angelika Görg	<a href="http://www.weihenstephan.de/blm/deg/">http://www.weihenstephan.de/blm/deg/</a>
Boston University Biology Proteomics Resource	<a href="http://genomics10.bu.edu/jtullai/proteomics_resources/">http://genomics10.bu.edu/jtullai/proteomics_resources/</a>
Deutsche Gesellschaft für Proteomforschung	<a href="http://www.dgpf.org/">http://www.dgpf.org/</a>
Swiss Proteomics Society	<a href="http://www.swissproteomicsociety.org/">http://www.swissproteomicsociety.org/</a>
SWISS Proteomics Society Proteomics Links	<a href="http://www.swissproteomicsociety.org/links.html">http://www.swissproteomicsociety.org/links.html</a>
Proteome commons	<a href="http://www.proteomecommons.org/index.jsp">http://www.proteomecommons.org/index.jsp</a>
ISB NHLBI Seattle Proteome Center	<a href="http://www.proteomecenter.org/">http://www.proteomecenter.org/</a>
IonSource Proteomics Resource Links	<a href="http://www.ionsource.com/links/proteolinks.htm">http://www.ionsource.com/links/proteolinks.htm</a>

### Protein-Protein Interactions

<b>EBI IntAct Project</b>	<a href="http://www.ebi.ac.uk/intact/index.jsp">http://www.ebi.ac.uk/intact/index.jsp</a>
DIP - Database of Interacting Proteins	<a href="http://dip.doe-mbi.ucla.edu/">http://dip.doe-mbi.ucla.edu/</a>
BOND - Biomolecular Object Network Databank	<a href="http://bond.unleashedinformatics.com/">http://bond.unleashedinformatics.com/</a>
MIPS Mammalian Protein-Protein Interaction Database	<a href="http://mips.helmholtz-muenchen.de/proj/ppi/">http://mips.helmholtz-muenchen.de/proj/ppi/</a>
BioGRID - General Repository for Interaction Datasets	<a href="http://www.thebiogrid.org/">http://www.thebiogrid.org/</a>
HPID Human Protein Interaction Database	<a href="http://wilab.inha.ac.kr/hpid/">http://wilab.inha.ac.kr/hpid/</a>
The JCB Protein-Protein Interaction Website	<a href="http://www.imb-jena.de/jcb/ppi/">http://www.imb-jena.de/jcb/ppi/</a>
MIPS Yeast Protein-Protein-Interaction and Complex Viewer	<a href="http://mips.helmholtz-muenchen.de/proj/yeast/CYGD/interaction/">http://mips.helmholtz-muenchen.de/proj/yeast/CYGD/interaction/</a>
Yeast Protein complex database	<a href="http://yeast-complexes.embl.de/">http://yeast-complexes.embl.de/</a>
MINT - Molecular Interactions database	<a href="http://mint.bio.uniroma2.it/mint/">http://mint.bio.uniroma2.it/mint/</a>
Complexpander - Predicting protein complexes	<a href="http://llama.med.harvard.edu/cgi/Complexpander/Complexpander.pl">http://llama.med.harvard.edu/cgi/Complexpander/Complexpander.pl</a>
PathBlast - Comparison of interaction networks between organisms	<a href="http://www.pathblast.org/">http://www.pathblast.org/</a>

iHOP - Information Hyperlinked over Proteins	<a href="http://www.ihop-net.org/UniPub/iHOP/">http://www.ihop-net.org/UniPub/iHOP/</a>
String: functional protein association networks	<a href="http://string.embl.de/">http://string.embl.de/</a>
BioPAX - data exchange for biological pathway data	<a href="http://www.biopax.org/">http://www.biopax.org/</a>
Graphviz - Open Source Graph Visualization Software	<a href="http://www.graphviz.org/">http://www.graphviz.org/</a>
Cytoscape - open source software for interaction visualization and integration	<a href="http://www.cytoscape.org/">http://www.cytoscape.org/</a>
visANT - Visual Analysis Tool for Biological Networks and Pathways	<a href="http://visant.bu.edu/">http://visant.bu.edu/</a>
aiSee - commercial Graph layout software	<a href="http://www.aisee.com/">http://www.aisee.com/</a>

### miRNA

RNA Molecular Biology Tuschl Lab	<a href="http://www.rockefeller.edu/labheads/tuschl/">http://www.rockefeller.edu/labheads/tuschl/</a>
miRBASE microRNA database Sanger Institute	<a href="http://microrna.sanger.ac.uk/">http://microrna.sanger.ac.uk/</a>
Rfam RNA families database of alignments and CMs Sanger Institute	<a href="http://www.sanger.ac.uk/Software/Rfam/">http://www.sanger.ac.uk/Software/Rfam/</a>
The siRNA user guide - Tuschl Lab	<a href="http://www.rockefeller.edu/labheads/tuschl/sirna.html">http://www.rockefeller.edu/labheads/tuschl/sirna.html</a>
microRNA.org: A resource for predicted microRNA targets and expression	<a href="http://www.microrna.org/">http://www.microrna.org/</a>
OligoWalk Web Server for siRNA design	<a href="http://rna.urmc.rochester.edu/cgi-bin/server_exe/oligowalk/oligowalk_form.cgi">http://rna.urmc.rochester.edu/cgi-bin/server_exe/oligowalk/oligowalk_form.cgi</a>
AsiDesigner siRNA design pipeline	<a href="http://sysbio.kribb.re.kr:8080/AsiDesigner/menuDesigner.jsf">http://sysbio.kribb.re.kr:8080/AsiDesigner/menuDesigner.jsf</a>

### Systems Biology

#### System Biology Information Resources

BioModels.NET	<a href="http://www.biomodels.net/">http://www.biomodels.net/</a>
The Reactome Project	<a href="http://www.reactome.org/">http://www.reactome.org/</a>
Panther Classification Systems - Panther Pathways	<a href="http://www.pantherdb.org/pathway/">http://www.pantherdb.org/pathway/</a>
Human Metabolome Database	<a href="http://www.hmdb.ca">http://www.hmdb.ca</a>
KDBI - Kinetic Data of Biomolecular Interactions	<a href="http://xin.cz3.nus.edu.sg/group/kdbi/kdbi.asp">http://xin.cz3.nus.edu.sg/group/kdbi/kdbi.asp</a>
SBML Systems Biology Markup Language	<a href="http://sbml.org/index.psp">http://sbml.org/index.psp</a>
SBGN Systems Biology Graphical Notation Standardization	<a href="http://sbgn.org/">http://sbgn.org/</a>
The International Society for Systems Biology	<a href="http://issb.org/">http://issb.org/</a>
Systems Biology Portal <a href="http://www.systems-biology.org">www.systems-biology.org</a>	<a href="http://www.systems-biology.org/">http://www.systems-biology.org/</a>
The Systems Biology Institute - Tokyo	<a href="http://sbi.jp/">http://sbi.jp/</a>
US National Centers for System Biology	<a href="http://www.nigms.nih.gov/Initiatives/SysBio/">http://www.nigms.nih.gov/Initiatives/SysBio/</a>
Systems Biology at UC San Diego	<a href="http://systemsbiology.ucsd.edu/">http://systemsbiology.ucsd.edu/</a>
Systems Biology in Germany	<a href="http://www.systembiologie.de/">http://www.systembiologie.de/</a>
HepatoSys - Network Systems Biology	<a href="http://www.hepatosys.de/">http://www.hepatosys.de/</a>
SystemsX - The Swiss Initiative in Systems Biology	<a href="http://www.systemsx.ch/">http://www.systemsx.ch/</a>
YSBN The Yeast Systems Biology Network	<a href="http://www.gmm.gu.se/YSBN/">http://www.gmm.gu.se/YSBN/</a>
Nature web focus: Systems biology: a user's guide	<a href="http://www.nature.com/focus/systemsbiologyuserguide/index.html">http://www.nature.com/focus/systemsbiologyuserguide/index.html</a>
Systems Biology Wikipedia	<a href="http://en.wikipedia.org/wiki/Systems_biology">http://en.wikipedia.org/wiki/Systems_biology</a>

#### Systems Biology Modeling Tools

Systems Biology WorkBench SWB package	<a href="http://sbw.kgi.edu/research/sbwIntro.htm">http://sbw.kgi.edu/research/sbwIntro.htm</a>
JDesigner: A Biochemical Network Layout Tool	<a href="http://sbw.kgi.edu/software/jdesigner.htm">http://sbw.kgi.edu/software/jdesigner.htm</a>
Jarnac biochemical simulation package	<a href="http://sbw.kgi.edu/software/jarnac.htm">http://sbw.kgi.edu/software/jarnac.htm</a>
Pasadena Twain ODE solver of the SWB package	<a href="http://sbw.sourceforge.net/sbw/software/">http://sbw.sourceforge.net/sbw/software/</a>

CADLIVE - network construction system	<a href="http://www.cadlive.jp/">http://www.cadlive.jp/</a>
Dizzy stochastic simulations tool	<a href="http://magnet.systemsbiology.net/software/Dizzy/">http://magnet.systemsbiology.net/software/Dizzy/</a>
CellDesigner - a modeling tool for biochemical networks	<a href="http://www.celldesigner.org/">http://www.celldesigner.org/</a>
SBMLsqueezer: A CellDesigner plug-in to generate kinetic rate equations for bio	<a href="http://www.biomedcentral.com/1752-0509/2/39">http://www.biomedcentral.com/1752-0509/2/39</a>
Cellware - Modeling and Simulation Tool	<a href="http://www.bii.a-star.edu.sg/achievements/applications/cellware/">http://www.bii.a-star.edu.sg/achievements/applications/cellware/</a>
E-Cell project	<a href="http://www.e-cell.org/">http://www.e-cell.org/</a>
COPASI - Complex Pathway Simulator	<a href="http://www.copasi.org/">http://www.copasi.org/</a>
Gepasi - Biochemical Kinetics Simulator	Basis Gillespie Stochastic Simulator
Dynetica - a simulator of dynamic networks	<a href="http://www.duke.edu/~you/Dynetica_page.htm">http://www.duke.edu/~you/Dynetica_page.htm</a>
PLAS Power Law Analysis and Simulation tool	<a href="http://www.dqb.fc.ul.pt/docentes/aferreira/plas.html">http://www.dqb.fc.ul.pt/docentes/aferreira/plas.html</a>
JSim - a Java based simulation system	<a href="http://nsr.bioeng.washington.edu/jsim/">http://nsr.bioeng.washington.edu/jsim/</a>
STOCKS - Stochastic kinetic simulations	<a href="http://www.sysbio.pl/stocks/index.html">http://www.sysbio.pl/stocks/index.html</a>
Basis Gillespie Stochastic Simulator	<a href="http://www.basis.ncl.ac.uk/Software.html">http://www.basis.ncl.ac.uk/Software.html</a>
CaliBayes - Bayesian calibration of biological simulators	<a href="http://www.calibayes.ncl.ac.uk/">http://www.calibayes.ncl.ac.uk/</a>
JWS Online - Online Cellular Systems Modelling	<a href="http://jjj.bio.vu.nl/index.html">http://jjj.bio.vu.nl/index.html</a>
PyBioS - web server for modeling and simulation of cellular systems	<a href="http://pybios.molgen.mpg.de/">http://pybios.molgen.mpg.de/</a>
Virtual Cell Internet simulation server at NRCAM	<a href="http://www.nrcam.uchc.edu/">http://www.nrcam.uchc.edu/</a>

### **Small molecules**

Human Metabolome Database	<a href="http://www.hmdb.ca">http://www.hmdb.ca</a>
KEGG Drug Database	<a href="http://www.genome.ad.jp/kegg/drug/">http://www.genome.ad.jp/kegg/drug/</a>
KEGG Ligand Database	<a href="http://www.genome.ad.jp/kegg/ligand.html">http://www.genome.ad.jp/kegg/ligand.html</a>
ChEBI - Chemical Entities of Biological Interest	<a href="http://www.ebi.ac.uk/chebi/">http://www.ebi.ac.uk/chebi/</a>
MSD Ligand Chemistry in PDB	<a href="http://www.ebi.ac.uk/msd-srv/msdchem/cgi-bin/cgi.pl">http://www.ebi.ac.uk/msd-srv/msdchem/cgi-bin/cgi.pl</a>
NCBI PubChem Compound	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pccompound">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pccompound</a>
NCBI PubChem Substance	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pcsubstance">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pcsubstance</a>
NLM SIS Chemical Information	<a href="http://sis.nlm.nih.gov/chemical.html">http://sis.nlm.nih.gov/chemical.html</a>
NCI-3D Search	<a href="http://chem.sis.nlm.nih.gov/nci3d/">http://chem.sis.nlm.nih.gov/nci3d/</a>
ChemIDplus	<a href="http://chem.sis.nlm.nih.gov/chemidplus/">http://chem.sis.nlm.nih.gov/chemidplus/</a>
CHEMINFO: Chemical Information Sources from Indiana University	<a href="http://www.indiana.edu/~cheminfo/">http://www.indiana.edu/~cheminfo/</a>
FAF-Drugs: Free ADME/tox Filtering	<a href="http://bioserv.rpbs.jussieu.fr/Help/FAFDrugs.html">http://bioserv.rpbs.jussieu.fr/Help/FAFDrugs.html</a>
OpenBabel format conversion tool for drugs	<a href="http://mobylye.rpbs.univ-paris-diderot.fr/cgi-bin/portal.py?form=OpenBabel">http://mobylye.rpbs.univ-paris-diderot.fr/cgi-bin/portal.py?form=OpenBabel</a>
Java Molecular Editor at RPBS	<a href="http://mobylye.rpbs.univ-paris-diderot.fr/cgi-bin/portal.py?form=JME">http://mobylye.rpbs.univ-paris-diderot.fr/cgi-bin/portal.py?form=JME</a>
JME Molecular Editor by Peter Ertl	<a href="http://www.molinspiration.com/jme/">http://www.molinspiration.com/jme/</a>
SuperPred Drug Target Prediction Server	<a href="http://bioinformatics.charite.de/superpred/">http://bioinformatics.charite.de/superpred/</a>

## Annotation

### Gene Function Resources

Gene Ontology (GO) Consortium	<a href="http://www.geneontology.org/">http://www.geneontology.org/</a>
QuickGO - GO Browser at EBI	<a href="http://www.ebi.ac.uk/ego/GSearch?q=Quick+GO">http://www.ebi.ac.uk/ego/GSearch?q=Quick+GO</a>
AmiGO - GO Browser	<a href="http://amigo.geneontology.org/cgi-bin/amigo/go.cgi">http://amigo.geneontology.org/cgi-bin/amigo/go.cgi</a>
<b>Ontology Lookup Service (OLS)</b>	<a href="http://www.ebi.ac.uk/ontology-lookup/">http://www.ebi.ac.uk/ontology-lookup/</a>
GOA - Gene Ontology Annotation Project at EBI	<a href="http://www.ebi.ac.uk/GOA/index.html">http://www.ebi.ac.uk/GOA/index.html</a>
GOSTat - find statistically overrepresented GO terms	<a href="http://gostat.wehi.edu.au/">http://gostat.wehi.edu.au/</a>
Gene Ontology Tools for Gene Expression Analysis	<a href="http://www.geneontology.org/GO.tools.microarray.shtml#serbgo">http://www.geneontology.org/GO.tools.microarray.shtml#serbgo</a>
Online Mendelian Inheritance in Man	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM</a>
GeneCards Weizmann	<a href="http://www.genecards.org/index.shtml">http://www.genecards.org/index.shtml</a>
Genetic Association Database	<a href="http://geneticassociationdb.nih.gov/">http://geneticassociationdb.nih.gov/</a>

### Integrated annotation services

<b>NIH - DAVID Annotation tools</b>	<a href="http://david.abcc.ncifcrf.gov/home.jsp">http://david.abcc.ncifcrf.gov/home.jsp</a>
eFamily Project - Grid integrating of protein database annotations	<a href="http://www.efamily.org.uk/">http://www.efamily.org.uk/</a>
DAS - Distributed Annotation System	<a href="http://biodas.org/">http://biodas.org/</a>
DAS registry server at Sanger - available DAS servers	<a href="http://das.sanger.ac.uk/registry/listServices.jsp">http://das.sanger.ac.uk/registry/listServices.jsp</a>
SPICE - DAS Client	<a href="http://www.efamily.org.uk/software/dasclients/spice/">http://www.efamily.org.uk/software/dasclients/spice/</a>
<b>Ensembl Genome Browser DAS client</b>	<a href="http://www.ensembl.org/">http://www.ensembl.org/</a>
Dasty - DAS client	<a href="http://www.ebi.ac.uk/dasty/">http://www.ebi.ac.uk/dasty/</a>
Protein Information and Property Explorer (FEWB)	<a href="http://pipe.systemsbiology.net/pipe/#Summary">http://pipe.systemsbiology.net/pipe/#Summary</a>

### Gene prediction services

Glimmer Microbial Gene-Finding System	<a href="http://cbscb.umd.edu/software/glimmer/">http://cbscb.umd.edu/software/glimmer/</a>
GrailExp Grail Experimental Gene Discovery Suite	<a href="http://compbio.ornl.gov/grailexp">http://compbio.ornl.gov/grailexp</a>
BCM Gene Feature Searches	<a href="http://searchlauncher.bcm.tmc.edu/seq-search/gene-search.html">http://searchlauncher.bcm.tmc.edu/seq-search/gene-search.html</a>
CBS HMMgene server	<a href="http://www.cbs.dtu.dk/services/HMMgene/">http://www.cbs.dtu.dk/services/HMMgene/</a>
<b>CBS NetGene2 server</b>	<a href="http://www.cbs.dtu.dk/services/NetGene2/">http://www.cbs.dtu.dk/services/NetGene2/</a>
CBS NetPlantGene server	<a href="http://www.cbs.dtu.dk/services/NetPGene/">http://www.cbs.dtu.dk/services/NetPGene/</a>
CBS Genome Atlas	<a href="http://www.cbs.dtu.dk/ws/ws.php?entry=GenomeAtlas">http://www.cbs.dtu.dk/ws/ws.php?entry=GenomeAtlas</a>
GeneMark	<a href="http://opal.biology.gatech.edu/GeneMark/">http://opal.biology.gatech.edu/GeneMark/</a>
<b>WebGeneMark</b>	<a href="http://opal.biology.gatech.edu/GeneMark/genemark24.cgi">http://opal.biology.gatech.edu/GeneMark/genemark24.cgi</a>
<b>Eukaryotic WebGeneMark</b>	<a href="http://opal.biology.gatech.edu/GeneMark/eukhmm.cgi">http://opal.biology.gatech.edu/GeneMark/eukhmm.cgi</a>
<b>GENSCAN (C. Burge)</b>	<a href="http://mobyle.pasteur.fr/cgi-bin/MobylePortal/portal.py?form=genscan">http://mobyle.pasteur.fr/cgi-bin/MobylePortal/portal.py?form=genscan</a>
<b>SplicePredictor</b>	<a href="http://deepc2.psi.iastate.edu/cgi-bin/sp.cgi">http://deepc2.psi.iastate.edu/cgi-bin/sp.cgi</a>
<b>ESTScan: a program for detecting, evaluating, and reconstructing potential coding regions</b>	<a href="http://www.ch.embnet.org/software/ESTScan2.html">http://www.ch.embnet.org/software/ESTScan2.html</a>
<b>EBI Wise2 matches protein to genomic DNA</b>	<a href="http://www.ebi.ac.uk/Wise2/">http://www.ebi.ac.uk/Wise2/</a>
Lowelab tRNAscan-SE Search Server	<a href="http://lowelab.ucsc.edu/tRNAscan-SE/">http://lowelab.ucsc.edu/tRNAscan-SE/</a>

### Promotor prediction services

CBS NetStart 1.0 server Translation Start	<a href="http://www.cbs.dtu.dk/services/NetStart/">http://www.cbs.dtu.dk/services/NetStart/</a>
CBS Promoter 2.0 server	<a href="http://www.cbs.dtu.dk/services/promoter/">http://www.cbs.dtu.dk/services/promoter/</a>
WWW Promotor Scan Pol II	<a href="http://www.bimas.cit.nih.gov/molbio/proscan/index.html">http://www.bimas.cit.nih.gov/molbio/proscan/index.html</a>
EPD Eukaryotic promotor database	<a href="http://www.epd.isb-sib.ch/">http://www.epd.isb-sib.ch/</a>
TRADAT Transcription Databases and Analysis Tool	<a href="http://www.epd.isb-sib.ch/TRADAT.html">http://www.epd.isb-sib.ch/TRADAT.html</a>
TFM Explorer	<a href="http://bioinfo.lifl.fr/TFM/TFME/">http://bioinfo.lifl.fr/TFM/TFME/</a>
TFM-Scan	<a href="http://bioinfo.lifl.fr/TFM/TFMscan/">http://bioinfo.lifl.fr/TFM/TFMscan/</a>
TFSEARCH - Transcription Factor Search	<a href="http://www.cbrc.jp/research/db/TFSEARCH.html">http://www.cbrc.jp/research/db/TFSEARCH.html</a>
TRANSFAC database at Biobase Biological Databases	<a href="http://www.biobase.de/index.php?id=transfacdatabases">http://www.biobase.de/index.php?id=transfacdatabases</a>
JASPAR Transcription factor database	<a href="http://jaspar.genereg.net/">http://jaspar.genereg.net/</a>
JASPAR Transcription factor database paper	<a href="http://nar.oxfordjournals.org/cgi/reprint/36/suppl_1/D102">http://nar.oxfordjournals.org/cgi/reprint/36/suppl_1/D102</a>
MotifMogul - Multiple Transcription Factor Binding Sites Algorithms	<a href="http://xerad.systemsbiology.net/MotifMogulServer/">http://xerad.systemsbiology.net/MotifMogulServer/</a>
TiffIn Fly genome motif database	<a href="http://servlet.sanger.ac.uk/tiffin/">http://servlet.sanger.ac.uk/tiffin/</a>
Regulatory Sequence Analysis Tools (RSAT)	<a href="http://rsat.ulb.ac.be/rsat/">http://rsat.ulb.ac.be/rsat/</a>
DIALIGN - multiple sequence alignments to find conserved regulatory elements	<a href="http://bibiserv.techfak.uni-bielefeld.de/dialign/">http://bibiserv.techfak.uni-bielefeld.de/dialign/</a>
The Gibbs Motif Sampler	<a href="http://bayesweb.wadsworth.org/gibbs/gibbs.html">http://bayesweb.wadsworth.org/gibbs/gibbs.html</a>
MEME MAST motif discovery and search	<a href="http://meme.sdsc.edu/meme/intro.html">http://meme.sdsc.edu/meme/intro.html</a>
DiRE identification of Distant Regulatory Elements of co-regulated genes	<a href="http://dire.dcode.org/">http://dire.dcode.org/</a>
ConTra - identification of conserved transcription factor binding sites	<a href="http://bioit.dmbr.ugent.be/ConTra/index.php">http://bioit.dmbr.ugent.be/ConTra/index.php</a>

### Databases

#### Pathways

KEGG: Kyoto Encyclopedia of Genes and Genomes	<a href="http://www.genome.ad.jp/kegg/">http://www.genome.ad.jp/kegg/</a>
ExPASy - Biochemical Pathways	<a href="http://www.expasy.org/cgi-bin/search-biochem-index">http://www.expasy.org/cgi-bin/search-biochem-index</a>
NCI BioCarta - Pathways	<a href="http://cgap.nci.nih.gov/Pathways/BioCarta_Pathways">http://cgap.nci.nih.gov/Pathways/BioCarta_Pathways</a>
PANTHER (Protein ANalysis THrough Evolutionary Relationships) Classification	<a href="http://www.pantherdb.org/">http://www.pantherdb.org/</a>
Signaling Gateway - Cell Signaling Resource Nature	<a href="http://www.signaling-gateway.org/">http://www.signaling-gateway.org/</a>
Reactome Project	<a href="http://www.reactome.org/">http://www.reactome.org/</a>
BioCyc Database Collection	<a href="http://www.biocyc.org/">http://www.biocyc.org/</a>
MetaCyc Encyclopedia of Metabolic Pathways	<a href="http://metacyc.org/">http://metacyc.org/</a>
NCI Nature Pathway Interaction Database	<a href="http://pid.nci.nih.gov/">http://pid.nci.nih.gov/</a>
IUPHAR receptor database	<a href="http://www.iuphar-db.org/">http://www.iuphar-db.org/</a>
LGICD Ligand-gated ion-channel database	<a href="http://www.ebi.ac.uk/compneur-srv/LGICdb/LGICdb.php">http://www.ebi.ac.uk/compneur-srv/LGICdb/LGICdb.php</a>
AraCyc - Pathway Database of Arabidopsis thaliana	<a href="http://www.arabidopsis.org/biocyc/">http://www.arabidopsis.org/biocyc/</a>
Invitrogen Pathways	<a href="http://www.invitrogen.com/site/us/en/home/LINNEA-Online-Guides/LINNEA-Pathways.html">http://www.invitrogen.com/site/us/en/home/LINNEA-Online-Guides/LINNEA-Pathways.html</a>
NetPath human signal transduction pathways	<a href="http://www.netpath.org/">http://www.netpath.org/</a>
BBID-Biological Biochemical Image Database	<a href="http://bbid.grc.nia.nih.gov/">http://bbid.grc.nia.nih.gov/</a>
Signal Transduction - Biochemweb.org virtual library	<a href="http://www.biochemweb.org/signaling.shtml">http://www.biochemweb.org/signaling.shtml</a>
BioPAX - data exchange for biological pathway data	<a href="http://www.biopax.org/">http://www.biopax.org/</a>
visANT - Visual Analysis Tool for Biological Networks and Pathways	<a href="http://visant.bu.edu/">http://visant.bu.edu/</a>
MapMan - integrative view of microarray data and metabolic maps	<a href="http://gabi.rzpd.de/projects/MapMan/">http://gabi.rzpd.de/projects/MapMan/</a>
GenMAPP Gene Map Annotator and Pathway Profiler	<a href="http://www.genmapp.org/">http://www.genmapp.org/</a>

Biological Networks	<a href="http://biologicalnetworks.net/index.php">http://biologicalnetworks.net/index.php</a>
Comparative Pathway Analyzer	<a href="https://www.cebitec.uni-bielefeld.de/groups/brf/software/cpa/index.html">https://www.cebitec.uni-bielefeld.de/groups/brf/software/cpa/index.html</a>
PaLS Pathway and Literature Strainer (gene set annotation tool)	<a href="http://pals.bioinfo.cnio.es/">http://pals.bioinfo.cnio.es/</a>
ProdoNet Prokaryotic gene list pathway annotator	<a href="http://www.prodonet.tu-bs.de/">http://www.prodonet.tu-bs.de/</a>
GraphWeb: analysis of biological networks	<a href="http://biit.cs.ut.ee/graphweb/">http://biit.cs.ut.ee/graphweb/</a>
Network Analysis Tools (NeAT)	<a href="http://rsat.ulb.ac.be/rsat/index_neat.html">http://rsat.ulb.ac.be/rsat/index_neat.html</a>

### Enzymes

Enzyme Database - BRENDA	<a href="http://www.brenda-enzymes.info/">http://www.brenda-enzymes.info/</a>
IntEnz EBI Enzyme Database	<a href="http://www.ebi.ac.uk/intenz/">http://www.ebi.ac.uk/intenz/</a>
Catalytic Site Atlas - CSA (EBI)	<a href="http://www.ebi.ac.uk/thornton-srv/databases/CSA/">http://www.ebi.ac.uk/thornton-srv/databases/CSA/</a>
REBASE The Restriction Enzyme Database	<a href="http://rebase.neb.com/rebase/rebase.html">http://rebase.neb.com/rebase/rebase.html</a>
Protein Kinase Resource	<a href="http://www.nih.go.jp/mirror/Kinases/">http://www.nih.go.jp/mirror/Kinases/</a>
Kinase.com Global kinome analysis	<a href="http://www.kinase.com/">http://www.kinase.com/</a>
NetworKIN kinase substrate relationship prediction	<a href="http://networkin.info/search.php">http://networkin.info/search.php</a>
PRIME Developed Kinase Pathway Database	<a href="http://kinasedb.ontology.ims.u-tokyo.ac.jp:8081/">http://kinasedb.ontology.ims.u-tokyo.ac.jp:8081/</a>

### Motifs Profiles Domains

Interpro Domain and Profile Database	<a href="http://www.ebi.ac.uk/interpro/">http://www.ebi.ac.uk/interpro/</a>
ExPASy - PROSITE	<a href="http://www.expasy.org/prosite/">http://www.expasy.org/prosite/</a>
ExPASy - ScanProsite tool	<a href="http://www.expasy.org/tools/scanprosite/">http://www.expasy.org/tools/scanprosite/</a>
SIB myHits motif scan	<a href="http://hits.isb-sib.ch/cgi-bin/motif_scan">http://hits.isb-sib.ch/cgi-bin/motif_scan</a>
PRINTS protein fingerprints	<a href="http://www.bioinf.man.ac.uk/dbbrowser/PRINTS/">http://www.bioinf.man.ac.uk/dbbrowser/PRINTS/</a>
SMART - Simple Modular Architecture Research Tool	<a href="http://smart.embl-heidelberg.de/">http://smart.embl-heidelberg.de/</a>
Blocks WWW Server	<a href="http://blocks.fhcrc.org/blocks/">http://blocks.fhcrc.org/blocks/</a>
Block Search	<a href="http://blocks.fhcrc.org/blocks/blocks_search.html">http://blocks.fhcrc.org/blocks/blocks_search.html</a>
The Sanger Centre Pfam Server	<a href="http://pfam.sanger.ac.uk/">http://pfam.sanger.ac.uk/</a>
The Sanger Centre HMM Pfam Searcher	<a href="http://pfam.sanger.ac.uk/search?tab=searchSequenceBlock">http://pfam.sanger.ac.uk/search?tab=searchSequenceBlock</a>
TIGRFAMs protein families HMM	<a href="http://www.jcvi.org/cms/research/projects/tigrfams/overview/">http://www.jcvi.org/cms/research/projects/tigrfams/overview/</a>
ProDom conserved protein domains	<a href="http://prodom.prabi.fr/prodom/current/html/home.php">http://prodom.prabi.fr/prodom/current/html/home.php</a>
CDD Conserved domains database NCBI	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=cdd">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=cdd</a>
DomCut prediction of linker regions between functional domains	<a href="http://www.bork.embl-heidelberg.de/~suyama/domcut/">http://www.bork.embl-heidelberg.de/~suyama/domcut/</a>
PANTHER (Protein ANalysis THrough Evolutionary Relationships) Classification	<a href="http://www.pantherdb.org/">http://www.pantherdb.org/</a>
PIR iProClass Protein Classification	<a href="http://pir.georgetown.edu/pirwww/dbinfo/iproclass.shtml">http://pir.georgetown.edu/pirwww/dbinfo/iproclass.shtml</a>
Superfamily HMM models SCOP	<a href="http://supfam.mrc-lmb.cam.ac.uk/SUPERFAMILY/">http://supfam.mrc-lmb.cam.ac.uk/SUPERFAMILY/</a>
Gene3D Structural and Functional Annotation	<a href="http://gene3d.biochem.ucl.ac.uk/Gene3D/">http://gene3d.biochem.ucl.ac.uk/Gene3D/</a>
ModBase - Comparative protein structure models	<a href="http://modbase.compbio.ucsf.edu/modbase-cgi/index.cgi">http://modbase.compbio.ucsf.edu/modbase-cgi/index.cgi</a>
Interproscan	<a href="http://www.ebi.ac.uk/Tools/webservices/services/interproscan">http://www.ebi.ac.uk/Tools/webservices/services/interproscan</a>
WebLogo	<a href="http://weblogo.berkeley.edu/">http://weblogo.berkeley.edu/</a>
WebLogo Server	<a href="http://weblogo.berkeley.edu/logo.cgi">http://weblogo.berkeley.edu/logo.cgi</a>
Human Protein Reference Database	<a href="http://www.hprd.org/">http://www.hprd.org/</a>
PhosphoMotif Finder	<a href="http://www.hprd.org/PhosphoMotif_finder">http://www.hprd.org/PhosphoMotif_finder</a>
ELM Eukaryotic Linear Motif Functional Site Prediction	<a href="http://elm.eu.org/">http://elm.eu.org/</a>
Phospho.ELM Database of phosphorylation sites	<a href="http://phospho.elm.eu.org/">http://phospho.elm.eu.org/</a>

NetworkKIN kinase substrate relationship prediction	<a href="http://networkkin.info/search.php">http://networkkin.info/search.php</a>
DIALIGN - multiple sequence alignments to find conserved regulatory elements	<a href="http://bibiserv.techfak.uni-bielefeld.de/dialign/">http://bibiserv.techfak.uni-bielefeld.de/dialign/</a>
The Gibbs Motif Sampler	<a href="http://bayesweb.wadsworth.org/gibbs/gibbs.html">http://bayesweb.wadsworth.org/gibbs/gibbs.html</a>
MEME MAST motif discovery and search	<a href="http://meme.sdsc.edu/meme/intro.html">http://meme.sdsc.edu/meme/intro.html</a>

### Protein structures

RCSB Protein Data Bank	<a href="http://www.rcsb.org/pdb/">http://www.rcsb.org/pdb/</a>
Entrez-Structure	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Structure">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Structure</a>
Domain Structure Database NCBI	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Domains">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Domains</a>
Protein Databank in Europe (PDBe)	<a href="http://www.ebi.ac.uk/pdbe/">http://www.ebi.ac.uk/pdbe/</a>
Structures by electron microscopy at MSD	<a href="http://www.ebi.ac.uk/msd-srv/emsearch/index.html">http://www.ebi.ac.uk/msd-srv/emsearch/index.html</a>
SWISS-MODEL	<a href="http://swissmodel.expasy.org/SWISS-MODEL.html">http://swissmodel.expasy.org/SWISS-MODEL.html</a>
EMBNet - A Quick Guide to Swiss-Model	<a href="http://www.embnet.org/node/64">http://www.embnet.org/node/64</a>
SCOP: Structural Classification of Proteins	<a href="http://scop.mrc-lmb.cam.ac.uk/scop/">http://scop.mrc-lmb.cam.ac.uk/scop/</a>
Superfamily HMM models SCOP	<a href="http://supfam.mrc-lmb.cam.ac.uk/SUPERFAMILY/">http://supfam.mrc-lmb.cam.ac.uk/SUPERFAMILY/</a>
CATH database of structural domains	<a href="http://www.cathdb.info/index.html">http://www.cathdb.info/index.html</a>
Gene3D Structural and Functional Annotation	<a href="http://gene3d.biochem.ucl.ac.uk/Gene3D/">http://gene3d.biochem.ucl.ac.uk/Gene3D/</a>
The DALI database	<a href="http://ekhidna.biocenter.helsinki.fi/dali/start">http://ekhidna.biocenter.helsinki.fi/dali/start</a>
NCBI VAST structural alignments	<a href="http://www.ncbi.nlm.nih.gov/Structure/VAST/vast.shtml">http://www.ncbi.nlm.nih.gov/Structure/VAST/vast.shtml</a>
ModBase - Comparative protein structure models	<a href="http://modbase.compbio.ucsf.edu/modbase-cgi/index.cgi">http://modbase.compbio.ucsf.edu/modbase-cgi/index.cgi</a>
BALL and BALLView Visualization and Modelling Tools	<a href="http://www.ball-project.org/">http://www.ball-project.org/</a>
PyMOL molecular visualization system	<a href="http://www.pymol.org/">http://www.pymol.org/</a>
DeepView Swiss-PdbViewer	<a href="http://spdbv.vital-it.ch/">http://spdbv.vital-it.ch/</a>

### Sequences

Entrez Browser NCBI	<a href="http://www.ncbi.nlm.nih.gov/Entrez/">http://www.ncbi.nlm.nih.gov/Entrez/</a>
SRSWWW EMBL-EBI	<a href="http://srs.ebi.ac.uk/">http://srs.ebi.ac.uk/</a>
DBGET/LinkDB Integrated Database Retrieval System	<a href="http://www.genome.ad.jp/dbget/dbget2.html">http://www.genome.ad.jp/dbget/dbget2.html</a>
BCM Search Launcher	<a href="http://searchlauncher.bcm.tmc.edu/">http://searchlauncher.bcm.tmc.edu/</a>
GeneCards Weizmann	<a href="http://www.genecards.org/index.shtml">http://www.genecards.org/index.shtml</a>
Genome Matrix databases information integration	<a href="http://genomematrix.molgen.mpg.de/gm/index.html">http://genomematrix.molgen.mpg.de/gm/index.html</a>
RefSeq Reference Sequence NCBI	<a href="http://www.ncbi.nlm.nih.gov/RefSeq/">http://www.ncbi.nlm.nih.gov/RefSeq/</a>
Unigene NCBI	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=unigene">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=unigene</a>
Uniprot Universal Protein Resource Swiss-Prot/TREMBL/PIR	<a href="http://www.uniprot.org/">http://www.uniprot.org/</a>
EMBNet QuickGuide Swissprot Trembl Databases	<a href="http://www.embnet.org/node/64">http://www.embnet.org/node/64</a>
PIR - Protein Information Resource	<a href="http://pir.georgetown.edu/">http://pir.georgetown.edu/</a>
IPI - International Protein Index EBI	<a href="http://www.ebi.ac.uk/IPI/IPIhelp.html">http://www.ebi.ac.uk/IPI/IPIhelp.html</a>
Protein Identifier Cross-Reference Service	<a href="http://www.ebi.ac.uk/Tools/picr/">http://www.ebi.ac.uk/Tools/picr/</a>
Vector Database	<a href="http://seq.yeastgenome.org/vectordb/">http://seq.yeastgenome.org/vectordb/</a>
NCBI UniVec and VecScreen Vector contamination search	<a href="http://www.ncbi.nlm.nih.gov/VecScreen/UniVec.html">http://www.ncbi.nlm.nih.gov/VecScreen/UniVec.html</a>
Public SRS installations   Biowisdom	<a href="http://downloads.biowisdomsrs.com/publicsrs.html">http://downloads.biowisdomsrs.com/publicsrs.html</a>

### Genomes

Ensembl Genome Browser	<a href="http://www.ensembl.org/">http://www.ensembl.org/</a>
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Entrez-Genome NCBI	<a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Genome">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Genome</a>
Integr8 Proteome Analysis at EBI	<a href="http://www.ebi.ac.uk/integr8/">http://www.ebi.ac.uk/integr8/</a>
GOLD: Genomes On Line Database v 2.0	<a href="http://www.genomesonline.org/">http://www.genomesonline.org/</a>
CBS Genome atlas database	<a href="http://www.cbs.dtu.dk/services/GenomeAtlas/">http://www.cbs.dtu.dk/services/GenomeAtlas/</a>
MIPS: Munich Information Centre for Protein Sequences	<a href="http://www.helmholtz-muenchen.de/en/ibis">http://www.helmholtz-muenchen.de/en/ibis</a>
J. Craig Venter Institute (ex TIGR) MD USA	<a href="http://www.jcvi.org/">http://www.jcvi.org/</a>
The Sanger Centre	<a href="http://www.sanger.ac.uk/">http://www.sanger.ac.uk/</a>
Whitehead Institute	<a href="http://www.wi.mit.edu/">http://www.wi.mit.edu/</a>
Broad Institute Center for Genome Research	<a href="http://www.broad.mit.edu/">http://www.broad.mit.edu/</a>
GeneCards Weizmann	<a href="http://bioinformatics.weizmann.ac.il/cards/">http://bioinformatics.weizmann.ac.il/cards/</a>
HGP - Human genome project information	<a href="http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml">http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml</a>
Human Genome Resources NCBI	<a href="http://www.ncbi.nlm.nih.gov/genome/guide/human/">http://www.ncbi.nlm.nih.gov/genome/guide/human/</a>
Mouse Genome Resources NCBI	<a href="http://www.ncbi.nlm.nih.gov/genome/guide/mouse/">http://www.ncbi.nlm.nih.gov/genome/guide/mouse/</a>
Rat Genome resources NCBI	<a href="http://www.ncbi.nlm.nih.gov/genome/guide/rat/">http://www.ncbi.nlm.nih.gov/genome/guide/rat/</a>
Fugu Fish Genome Project	<a href="http://www.fugu-sg.org/project/info.html">http://www.fugu-sg.org/project/info.html</a>
ZFIN - Zebrafish information network	<a href="http://zfin.org/">http://zfin.org/</a>
Wormbase C. elegans	<a href="http://www.wormbase.org/">http://www.wormbase.org/</a>
C.elegans Blast server (Sanger Centre)	<a href="http://www.sanger.ac.uk/cgi-bin/blast/submitblast/c_elegans">http://www.sanger.ac.uk/cgi-bin/blast/submitblast/c_elegans</a>
FlyBase Drosophila	<a href="http://flybase.net/">http://flybase.net/</a>
Yeast Genome Database MIPS	<a href="http://mips.helmholtz-muenchen.de/genre/proj/yeast/index.jsp">http://mips.helmholtz-muenchen.de/genre/proj/yeast/index.jsp</a>
Schizosaccharomyces pombe genome (Sanger Centre)	<a href="http://www.sanger.ac.uk/Projects/S_pombe/">http://www.sanger.ac.uk/Projects/S_pombe/</a>
Neurospora crassa Database (Broad)	<a href="http://www.broad.mit.edu/annotation/genome/neurospora/Home.html">http://www.broad.mit.edu/annotation/genome/neurospora/Home.html</a>
Neurospora crassa Database (MIPS)	<a href="http://mips.helmholtz-muenchen.de/genre/proj/ncrassa/">http://mips.helmholtz-muenchen.de/genre/proj/ncrassa/</a>
Fungal Genetics Stock Center	<a href="http://www.fgsc.net/">http://www.fgsc.net/</a>
tair - The Arabidopsis Information Resource	<a href="http://www.arabidopsis.org/">http://www.arabidopsis.org/</a>
GABI Primary Database ( GabiPD ) - Genomanalyse Pflanze	<a href="http://gabi.rzpd.de/">http://gabi.rzpd.de/</a>
Plant genomes (MIPS)	<a href="http://www.helmholtz-muenchen.de/index.php?id=3946">http://www.helmholtz-muenchen.de/index.php?id=3946</a>
Maize Genetics and Genomic Database	<a href="http://www.maizegdb.org/">http://www.maizegdb.org/</a>
International Rice Genome Sequencing Project	<a href="http://rgp.dna.affrc.go.jp/E/IRGSP/">http://rgp.dna.affrc.go.jp/E/IRGSP/</a>

### **Bioinformatics server**

#### Bioinformatics centers

EBI European Bioinformatics Institute	<a href="http://www.ebi.ac.uk/index.html">http://www.ebi.ac.uk/index.html</a>
NCBI US National Center for Biotechnology Information	<a href="http://www.ncbi.nlm.nih.gov/">http://www.ncbi.nlm.nih.gov/</a>
GenomeNet WWW server Japan	<a href="http://www.genome.ad.jp/">http://www.genome.ad.jp/</a>
ExPASy Proteomics Server	<a href="http://www.expasy.org/">http://www.expasy.org/</a>
EMBNNet - A Quick Guide to Expasy	<a href="http://www.embnet.org/node/64">http://www.embnet.org/node/64</a>
Pôle Bio-Informatique Lyonnais	<a href="http://pbil.univ-lyon1.fr/">http://pbil.univ-lyon1.fr/</a>
Weizmann Institute Bioinformatics and Biological Computing	<a href="http://bjp.weizmann.ac.il/index.html">http://bjp.weizmann.ac.il/index.html</a>
Baylor College of Medicine HGSC	<a href="http://www.hgsc.bcm.tmc.edu/">http://www.hgsc.bcm.tmc.edu/</a>
San Diego Supercomputer Center Biological Projects	<a href="http://www.sdsc.edu/research/ResearchOverview.html">http://www.sdsc.edu/research/ResearchOverview.html</a>
Bielefeld University Bioinformatics Server	<a href="http://bibiserv.techfak.uni-bielefeld.de/">http://bibiserv.techfak.uni-bielefeld.de/</a>
HUSAR Bioinformatics Lab - Biocomputing Services at DKFZ	<a href="http://genome.dkfz-heidelberg.de/">http://genome.dkfz-heidelberg.de/</a>

The Genomics and Bioinformatics Group NCI	<a href="http://discover.nci.nih.gov/index.jsp">http://discover.nci.nih.gov/index.jsp</a>
Bioinformatics Software Server Lille	<a href="http://bioinfo.lifl.fr/index.php">http://bioinfo.lifl.fr/index.php</a>

### Link lists

Expasy	<a href="http://www.expasy.org/">http://www.expasy.org/</a>
Expasy Life Science Directory	<a href="http://www.expasy.org/links.html">http://www.expasy.org/links.html</a>
Bioinformatics Links Directory UBiC	<a href="http://bioinformatics.ca/links_directory/">http://bioinformatics.ca/links_directory/</a>
HSLs: OBRC: Online Bioinformatics Resources Collection	<a href="http://www.hsls.pitt.edu/guides/genetics/obrc">http://www.hsls.pitt.edu/guides/genetics/obrc</a>
Nucleic Acids Research Database Summary Paper List	<a href="http://www3.oup.co.uk/nar/database/a/">http://www3.oup.co.uk/nar/database/a/</a>
Nucleic Acids Research Database Issue 2010	<a href="http://nar.oxfordjournals.org/content/vol38/suppl_1/index.dtl">http://nar.oxfordjournals.org/content/vol38/suppl_1/index.dtl</a>
Nucleic Acids Research Database Issue 2009	<a href="http://nar.oxfordjournals.org/content/vol37/suppl_1/index.dtl">http://nar.oxfordjournals.org/content/vol37/suppl_1/index.dtl</a>
Nucleic Acids Research Webserver Issue 2010	<a href="http://nar.oxfordjournals.org/content/vol38/suppl_2/index.dtl">http://nar.oxfordjournals.org/content/vol38/suppl_2/index.dtl</a>
Nucleic Acids Research Webserver Issue 2009	<a href="http://nar.oxfordjournals.org/content/vol37/suppl_2/index.dtl">http://nar.oxfordjournals.org/content/vol37/suppl_2/index.dtl</a>
CMS Molecular Biology Resource	<a href="http://mcbf.dfci.harvard.edu/cmsmbr/">http://mcbf.dfci.harvard.edu/cmsmbr/</a>
Harvard Dept of MCB - Biology Links	<a href="http://mcb.harvard.edu/BioLinks.html">http://mcb.harvard.edu/BioLinks.html</a>
CiteULike - online reference management sharing service	<a href="http://www.citeulike.org/">http://www.citeulike.org/</a>
Connotea - online reference and link sharing	<a href="http://www.connotea.org/">http://www.connotea.org/</a>
del.icio.us social bookmarking	<a href="http://del.icio.us/">http://del.icio.us/</a>
Biotech Europe Link Base	<a href="http://www.biotech-europe.de/rubric/linkbase/index.html">http://www.biotech-europe.de/rubric/linkbase/index.html</a>

### The bioinformatics bench

#### Linux

Ubuntu Linux	<a href="http://www.ubuntu.com/">http://www.ubuntu.com/</a>
Debian Linux	<a href="http://www.debian.org/">http://www.debian.org/</a>
Open SUSE Linux	<a href="http://de.opensuse.org/">http://de.opensuse.org/</a>
Novell SUSE Linux	<a href="http://www.novell.com/linux/">http://www.novell.com/linux/</a>
Fedora Project	<a href="http://fedoraproject.org/">http://fedoraproject.org/</a>
RedHat Linux	<a href="http://www.redhat.com/">http://www.redhat.com/</a>
Linux Kernel Archives	<a href="http://www.kernel.org/">http://www.kernel.org/</a>
BioLinux - Wikipedia	<a href="http://en.wikipedia.org/wiki/BioLinux">http://en.wikipedia.org/wiki/BioLinux</a>
Knoppix	<a href="http://www.knopper.net/knoppix/index-en.html">http://www.knopper.net/knoppix/index-en.html</a>
BioKnoppix	<a href="http://bioknoppix.hpcf.upr.edu/">http://bioknoppix.hpcf.upr.edu/</a>
EMBNET A QuickGuide to UNIX	<a href="http://www.embnet.org/node/64">http://www.embnet.org/node/64</a>
Linux Online	<a href="http://www.linux.org/">http://www.linux.org/</a>
Linux Community (German)	<a href="http://www.linux-community.de/">http://www.linux-community.de/</a>
linux.de	<a href="http://www.linux.de/">http://www.linux.de/</a>
Linux user group Tuebingen	<a href="http://tuebingen.linux.de/">http://tuebingen.linux.de/</a>

#### WAMP

Apache	<a href="http://www.apache.org/">http://www.apache.org/</a>
SELFHTML	<a href="http://selfhtml.org/">http://selfhtml.org/</a>
MySQL	<a href="http://dev.mysql.com/">http://dev.mysql.com/</a>
PHP	<a href="http://www.php.net/">http://www.php.net/</a>

SELFPHP	<a href="http://www.selfphp.info/">http://www.selfphp.info/</a>
<a href="http://sourceforge.net/projects/phpmyadmin/">phpMyAdmin</a>	<a href="http://sourceforge.net/projects/phpmyadmin/">http://sourceforge.net/projects/phpmyadmin/</a>
Comparison of WAMPs	<a href="http://en.wikipedia.org/wiki/Comparison_of_WAMPs">http://en.wikipedia.org/wiki/Comparison_of_WAMPs</a>
XAMPP	<a href="http://www.apachefriends.org/de/xampp.html">http://www.apachefriends.org/de/xampp.html</a>

### Perl

<a href="http://www.perl.com/">PERL</a>	<a href="http://www.perl.com/">http://www.perl.com/</a>
The Perl directory at perl.org	<a href="http://www.perl.org/">http://www.perl.org/</a>
Perl documentation	<a href="http://perldoc.perl.org/">http://perldoc.perl.org/</a>
ActiveState - ActivePerl Downloads	<a href="http://www.activestate.com/Products/ActivePerl/">http://www.activestate.com/Products/ActivePerl/</a>
CPAN PERL Script Archiv	<a href="http://www.cpan.org/">http://www.cpan.org/</a>
<a href="http://bio.perl.org/">Bioperl</a>	<a href="http://bio.perl.org/">http://bio.perl.org/</a>
Installing Bioperl on Windows - BioPerl	<a href="http://www.bioperl.org/wiki/Installing_Bioperl_on_Windows">http://www.bioperl.org/wiki/Installing_Bioperl_on_Windows</a>
EMBNET QickGuides PERL and Regular Expressions	<a href="http://www.embnnet.org/node/64">http://www.embnnet.org/node/64</a>

### R and BioConductor

<a href="http://www.r-project.org/">The R project for statistical computing</a>	<a href="http://www.r-project.org/">http://www.r-project.org/</a>
The Comprehensive R archive network	<a href="http://cran.r-project.org/">http://cran.r-project.org/</a>
<a href="http://www.bioconductor.org/">BioConductor Project - Open Source Software for Bioinformatics</a>	<a href="http://www.bioconductor.org/">http://www.bioconductor.org/</a>
R and Bioconductor Manual (Thomas Girke)	<a href="http://manuals.bioinformatics.ucr.edu/home/R_BioCondManual">http://manuals.bioinformatics.ucr.edu/home/R_BioCondManual</a>
useR! 2010 R user conference Gaithersburg, Maryland	<a href="http://user2010.org/">http://user2010.org/</a>
useR! 2009 R user conference Rennes, France	<a href="http://www2.agrocampus-ouest.fr/math/useR-2009/">http://www2.agrocampus-ouest.fr/math/useR-2009/</a>

### Editors

The Vim Editor	<a href="http://www.vim.org/">http://www.vim.org/</a>
<a href="http://www.computerbase.de/downloads/software/entwicklung/proton/">Proton</a>	<a href="http://www.computerbase.de/downloads/software/entwicklung/proton/">http://www.computerbase.de/downloads/software/entwicklung/proton/</a>
<a href="http://www.activestate.com/Products/komodo_edit/">Komodo</a>	<a href="http://www.activestate.com/Products/komodo_edit/">http://www.activestate.com/Products/komodo_edit/</a>

### Laboratory tools

DOE 2000 Electronic Notebook Project ORNL	<a href="http://www.csm.ornl.gov/~geist/java/applets/enote/">http://www.csm.ornl.gov/~geist/java/applets/enote/</a>
DOE 2000 Electronic Notebook Project Main	<a href="http://www.epm.ornl.gov/enote/">http://www.epm.ornl.gov/enote/</a>
WETLAB: an open source electronic lab notebook	<a href="http://arrowsmith.psych.uic.edu/arrowsmith_uic/wetlab.html">http://arrowsmith.psych.uic.edu/arrowsmith_uic/wetlab.html</a>
PHP Labware Project	<a href="http://bioinformatics.org/phplabware/labwiki/index.php">http://bioinformatics.org/phplabware/labwiki/index.php</a>

## EMBOSS

EMBOSS	<a href="http://emboss.sourceforge.net/">http://emboss.sourceforge.net/</a>
EMBOSS wiki	<a href="http://emboss.open-bio.org/wiki/">http://emboss.open-bio.org/wiki/</a>
EMBOSS application wiki	<a href="http://emboss.open-bio.org/wiki/Appdocs">http://emboss.open-bio.org/wiki/Appdocs</a>
EMBOSS applications	<a href="http://emboss.sourceforge.net/apps/release/6.2/emboss/apps/index.html">http://emboss.sourceforge.net/apps/release/6.2/emboss/apps/index.html</a>
EMBOSS applications program groups	<a href="http://emboss.sourceforge.net/apps/release/6.2/emboss/apps/groups.html">http://emboss.sourceforge.net/apps/release/6.2/emboss/apps/groups.html</a>
EMBOSS for Windows	<a href="ftp://emboss.open-bio.org/pub/EMBOSS/windows/">ftp://emboss.open-bio.org/pub/EMBOSS/windows/</a>
EMBOSS user documentation	<a href="http://emboss.sourceforge.net/docs/">http://emboss.sourceforge.net/docs/</a>
EMBOSS FAQ	<a href="http://emboss.sourceforge.net/docs/faq.html">http://emboss.sourceforge.net/docs/faq.html</a>
EMBOSS Main Tutorial	<a href="http://emboss.sourceforge.net/docs/emboss_tutorial/emboss_tutorial.html">http://emboss.sourceforge.net/docs/emboss_tutorial/emboss_tutorial.html</a>
EMBOSS mailing lists	<a href="http://emboss.sourceforge.net/support/#usermail">http://emboss.sourceforge.net/support/#usermail</a>
EmbNet EMBOSS and wEMBOSS Quick Guides	<a href="http://www.embnet.org/node/64">http://www.embnet.org/node/64</a>
JEMBOSS	<a href="http://emboss.sourceforge.net/Jemboss/">http://emboss.sourceforge.net/Jemboss/</a>
wEMBOSS	<a href="http://wemboss.sourceforge.net/">http://wemboss.sourceforge.net/</a>
Public SRS installations   Biowisdom	<a href="http://downloads.biowisdomsrs.com/publicsrs.html">http://downloads.biowisdomsrs.com/publicsrs.html</a>

## NCBI BLAST software

BLAST Wikipedia	<a href="http://en.wikipedia.org/wiki/BLAST">http://en.wikipedia.org/wiki/BLAST</a>
BLAST setup procedure for Windows	<a href="http://www.ncbi.nlm.nih.gov/staff/tao/URLAPI/pc_setup.html">http://www.ncbi.nlm.nih.gov/staff/tao/URLAPI/pc_setup.html</a>
NCBI BLAST download	<a href="ftp://ftp.ncbi.nlm.nih.gov/blast/executables/LATEST/">ftp://ftp.ncbi.nlm.nih.gov/blast/executables/LATEST/</a>
BLAST FASTA databases download	<a href="ftp://ftp.ncbi.nih.gov/blast/db/FASTA/">ftp://ftp.ncbi.nih.gov/blast/db/FASTA/</a>
BLAST standalone documentation	<a href="ftp://ftp.ncbi.nih.gov/blast/documents">ftp://ftp.ncbi.nih.gov/blast/documents</a>

## Open Source Bioinformatics Platforms

myGRID - Open Source Middleware Environment for Bioinformatics Workflows	<a href="http://www.mygrid.org.uk/">http://www.mygrid.org.uk/</a>
TAVERNA Open Source Bioinformatics Workbench	<a href="http://taverna.sourceforge.net/">http://taverna.sourceforge.net/</a>
eFamily Project - Grid integrating of protein database annotations	<a href="http://www.efamily.org.uk/">http://www.efamily.org.uk/</a>
Bioclipse - visual platform for structural chemo- and bioinformatics	<a href="http://www.bioclipse.net/">http://www.bioclipse.net/</a>
Systems Biology WorkBench SWB package	<a href="http://sbw.kgi.edu/research/sbwIntro.htm">http://sbw.kgi.edu/research/sbwIntro.htm</a>
Mobyle web environment for bioinformatics workflows	<a href="http://bioweb2.pasteur.fr/projects/mobyle/what_is_mobyle.html">http://bioweb2.pasteur.fr/projects/mobyle/what_is_mobyle.html</a>
Chinook P2P Bioinformatics Platform	<a href="http://www.bcgsc.bc.ca/chinook/">http://www.bcgsc.bc.ca/chinook/</a>
Gaggle data management framework	<a href="http://www.systemsbio.org/Technology/Data_Management/Gaggle">http://www.systemsbio.org/Technology/Data_Management/Gaggle</a>