

**Table 10:** Proteome and protein-protein interaction databases

Name	URL	Brief description	Download of data	Current status
2D-PAGE	<a href="http://web.mpiib-berlin.mpg.de/cgi-bin/pdbs/2d-pag e/extern/index.cgi">http://web.mpiib-berlin.mpg.de/cgi-bin/pdbs/2d-pag e/extern/index.cgi</a>	2-DPAGE maps, representing proteomes of various species	Yes	Online
AMPAD Knowledge Portal	<a href="https://www.synapse.org/#!/Synapse:syn2580853/wi ki/409840">https://www.synapse.org/#!/Synapse:syn2580853/wi ki/409840</a>	Aging's Alzheimer's disease translational research	No	Online
BioCarta*	<a href="http://www.biocarta.com/">http://www.biocarta.com/</a>	Diagram library displaying gene interactions in pathways	No	Online
BRD	<a href="https://brd.nci.nih.gov/brd/">https://brd.nci.nih.gov/brd/</a>	Review articles of human Biospecimen Science	No	Online
Calcium Gene Database	<a href="http://cagedb.uhlenlab.org/">http://cagedb.uhlenlab.org/</a>	Mapping genes for calcium signaling and their associated human genetic disorders	Yes	Online
CaspDB	<a href="http://caspdb.sanfordburnham.org">http://caspdb.sanfordburnham.org</a>	Potential cleavage sites in a set of all human proteins	No	Offline
CaspNeuroD	<a href="http://caspdb.sanfordburnham.org/caspneurod.php">http://caspdb.sanfordburnham.org/caspneurod.php</a>	Predicted caspase cleavage sites in human proteins associated with Neurological Diseases	No	Offline
CCSB Interactome*	<a href="http://interactome.dfci.harvard.edu/">http://interactome.dfci.harvard.edu/</a>	Interactomes and phenotypes in human disease	Yes	Online
ChemProt	<a href="http://potentia.cbs.dtu.dk/ChemProt/">http://potentia.cbs.dtu.dk/ChemProt/</a>	Compilation of chemical-protein-disease annotation resources	Yes	Offline
CIDeR*	<a href="http://mips.helmholtz-muenchen.de/cider/">http://mips.helmholtz-muenchen.de/cider/</a>	Information from neurological and metabolic diseases	Yes	Online
ComPPI	<a href="https://compbi.linkgroup.hu/">https://compbi.linkgroup.hu/</a>	Protein-Protein Interaction Database	Yes	Online
dbDEPC	<a href="https://www.scbt.org/dbdepc3/index.php">https://www.scbt.org/dbdepc3/index.php</a>	Curated cancer proteomics data	Yes	Online
DegraBase	<a href="http://wellslab.ucsf.edu/degrabase/">http://wellslab.ucsf.edu/degrabase/</a>	Mass spectrometry experiments in healthy and apoptotic cell lines	Yes	Offline
Degradome database	<a href="http://degradome.uniovi.es/">http://degradome.uniovi.es/</a>	Protease alterations in hereditary diseases	No	Online
DenHunt	<a href="http://proline.biochem.iisc.ernet.in/DenHunt/about_ database.php">http://proline.biochem.iisc.ernet.in/DenHunt/about_ database.php</a>	Experimentally verified dengue-human interactions	Yes	Online
DEPhO phosphorylation database	<a href="http://depod.bioss.uni-freiburg.de/">http://depod.bioss.uni-freiburg.de/</a>	Data of phosphatases, their substrates, and the pathways in which they function	Yes	Online
DIIP*	<a href="http://bioinfo.lab.mcgill.ca/resources/diip/">http://bioinfo.lab.mcgill.ca/resources/diip/</a>	Isoform interactome prediction from experiments	Yes	Online
Dynamic Proteomics	<a href="http://www.dynamicproteomics.net/">http://www.dynamicproteomics.net/</a>	Endogenously tagged proteins and their time-lapse microscopy movies	Yes	Offline
fat_deposition	<a href="http://www.integratomics-time.com/fat_deposition">http://www.integratomics-time.com/fat_deposition</a>	Protein interactions in human, cattle, rat, and mice obesity	No	Offline
FixPred	<a href="http://www.fixpred.com">http://www.fixpred.com</a>	Protein sequences corrected by the FixPred pipeline	Yes	Offline

GutCyc	<a href="http://www.gutcyc.org/">http://www.gutcyc.org/</a>	Pathway/genome databases from the human gut	Yes	Offline
HADb	<a href="http://autophagy.lu/index.html">http://autophagy.lu/index.html</a>	Autophagy related genes and proteins	No	Online
HAPPI	<a href="http://discovery.informatics.uab.edu/HAPPI/">http://discovery.informatics.uab.edu/HAPPI/</a>	Human annotated and predicted protein interaction	Yes	Online
Harvester	<a href="http://harvester.fzk.de/harvester/">http://harvester.fzk.de/harvester/</a>	Databases and servers for human proteins	No	Offline
HCPIN	<a href="http://nmr.cabm.rutgers.edu/hcpin">http://nmr.cabm.rutgers.edu/hcpin</a>	Human cancer pathway protein interaction network	No	Offline
HERVd	<a href="https://herv.img.cas.cz/">https://herv.img.cas.cz/</a>	Human endogenous retroviruses database	No	Online
HGPD	<a href="https://hgpd.lifesciencedb.jp/cgi/">https://hgpd.lifesciencedb.jp/cgi/</a>	Human Gene and Protein Database	Yes	Online
hiPathDB	<a href="https://www.kobic.re.kr/">https://www.kobic.re.kr/</a>	Curated human protein and pathway data	No	Offline
HKUPP	<a href="http://www.hkupp.org/">http://www.hkupp.org/</a>	Human kidney and urine proteome information	No	Online
HMMER3	<a href="https://www.ebi.ac.uk/Tools/hmmer/">https://www.ebi.ac.uk/Tools/hmmer/</a>	Homologs of protein sequences, and protein alignments	Yes	Online
HmtDB	<a href="https://www.hmtdb.uniba.it/">https://www.hmtdb.uniba.it/</a>	Database of human mitochondrial genomes	Yes	Offline
HPID	<a href="http://wilab.inha.ac.kr/hpid/webforms/intro.aspx">http://wilab.inha.ac.kr/hpid/webforms/intro.aspx</a>	Protein interaction information from structural and experimental data	Yes	Online
Human Interactome Map	<a href="http://www.actrec.gov.in/">http://www.actrec.gov.in/</a>	Exploring the human protein interaction network	Yes	Online
Human PPI network	<a href="https://gene.sfari.org/">https://gene.sfari.org/</a>	Functional and network organization of proteome of Autism datasets	Yes	Online
Human Proteinpedia	<a href="http://www.humanproteinpedia.org">http://www.humanproteinpedia.org</a>	A community portal for sharing and integration of human protein data	Yes	Online
HumanNet	<a href="http://www.functionalnet.org/humannet/about.html">http://www.functionalnet.org/humannet/about.html</a>	Human gene functional interaction Network	Yes	Online
HuPho	<a href="http://hupho.uniroma2.it/index.php">http://hupho.uniroma2.it/index.php</a>	Information about human protein phosphatases	No	Online
HuPI	<a href="https://hupi.ircm.qc.ca/">https://hupi.ircm.qc.ca/</a>	Human Proteotheque Initiative	Yes	Online
HuRI*	<a href="http://www.interactome-atlas.org/">http://www.interactome-atlas.org/</a>	Human reference protein interactome mapping project	Yes	Online
HydPred	<a href="http://lishuyan.lzu.edu.cn/hydpred/">http://lishuyan.lzu.edu.cn/hydpred/</a>	protein hydroxylation sites in human inherited disease	No	Online
HypoxiaDB*	<a href="http://www.hypoxiadb.com/hypoxiadb.html">http://www.hypoxiadb.com/hypoxiadb.html</a>	Catalog of human hypoxia-regulated proteins	No	Online
iLoc-Cell	<a href="http://www.jci-bioinfo.cn/iLoc-Hum">http://www.jci-bioinfo.cn/iLoc-Hum</a>	Subcellular locations of human proteins	No	Online
Instruct	<a href="http://instruct.yulab.org/">http://instruct.yulab.org/</a>	Protein interactome networks in human and six model organisms	Yes	Online
Integr8	<a href="https://www.ebi.ac.uk/integr8">https://www.ebi.ac.uk/integr8</a>	An integrated views of complete genomes and proteomes	Yes	Offline
Integrated Interactions Database	<a href="http://dcv.uhnres.utoronto.ca/iid/">http://dcv.uhnres.utoronto.ca/iid/</a>	Tissue-specific protein-protein interactions	Yes	Online

InterMitoBase	<a href="https://mcube.nju.edu.cn/cgi-bin/intermitobase/home.pl">https://mcube.nju.edu.cn/cgi-bin/intermitobase/home.pl</a>	High quality protein-protein interaction (PPI) data in human mitochondria	No	Offline
InWeb_IM*	<a href="https://www.intomics.com/inbio/map.html#search">https://www.intomics.com/inbio/map.html#search</a>	Provides an integrated human PPI network	Yes	Online
KEGG PATHWAY*	<a href="https://www.kegg.jp/">https://www.kegg.jp/</a>	Collection of manually drawn pathway maps	Yes	Online
KinMap*	<a href="http://www.kinhub.org/kinmap/">http://www.kinhub.org/kinmap/</a>	Interactive navigation through human kinome data	Yes	Online
Kinome NetworkX	<a href="http://www.kinasenet.ca/">http://www.kinasenet.ca/</a>	A systems biology-based framework to catalogue the human kinome	Yes	Online
KLIFS	<a href="https://klifs.vu-compmedchem.nl/">https://klifs.vu-compmedchem.nl/</a>	Kinase-Ligand Interaction Fingerprints and Structures	No	Online
LabeledIn	<a href="https://ftp.ncbi.nlm.nih.gov/pub/lu/LabeledIn/">https://ftp.ncbi.nlm.nih.gov/pub/lu/LabeledIn/</a>	Drug indications via text-mining	No	Online
Ligandbook	<a href="https://ligandbook.org">https://ligandbook.org</a>	Force-field parameters of small and drug-like molecules	Yes	Online
Membranome*	<a href="https://membranome.org/">https://membranome.org/</a>	3D transmembrane domains and classification	Yes	Online
MiasDB	<a href="http://47.88.84.236/Miasdb/index.php">http://47.88.84.236/Miasdb/index.php</a>	Interactions between human splicing factors, RNA elements, transcription factors, kinases and modified histones	Yes	Online
MitoP2	<a href="http://www.mitop2.de/">http://www.mitop2.de/</a>	Evaluated yeast, mouse, and human mitochondrial proteins	No	Online
mLASSO-Hum	<a href="http://bioinfo.eie.polyu.edu.hk/mLASSOHumServer/index.html">http://bioinfo.eie.polyu.edu.hk/mLASSOHumServer/index.html</a>	Interpretable human-protein subcellular localization	No	Online
Molecular INTERaction Database	<a href="http://mint.bio.uniroma2.it/mint/">http://mint.bio.uniroma2.it/mint/</a>	Molecular interactions by extracting experimental details from work published	Yes	Offline
NetNGlyc	<a href="http://www.cbs.dtu.dk/services/NetNGlyc/">http://www.cbs.dtu.dk/services/NetNGlyc/</a>	Predict N-Glycosylation sites in human proteins	No	Online
neXtProt*	<a href="https://www.nextprot.org/about/nextprot">https://www.nextprot.org/about/nextprot</a>	Proteomics data for over 85% of human proteins	Yes	Online
PaPI	<a href="http://papi.unipv.it/">http://papi.unipv.it/</a>	Predict impact of variants estimating the probability to damage their protein-related function	No	Online
PCDq	<a href="http://h-invitational.jp/hinv/pcdq/">http://h-invitational.jp/hinv/pcdq/</a>	Human protein complex database	No	Online
PDID*	<a href="http://biomine.cs.vcu.edu/servers/PDID/index.php">http://biomine.cs.vcu.edu/servers/PDID/index.php</a>	Molecular-level putative protein-drug interactions in the structural human proteome	Yes	Online
PepSweetener	<a href="https://glycoproteome.expasy.org/pepsweetener/app/">https://glycoproteome.expasy.org/pepsweetener/app/</a>	Manual annotation of MS data for intact glycopeptides	Yes	Online
PhenoPPIOrth	<a href="http://jjwanglab.org/PhenoPPIOrth/">http://jjwanglab.org/PhenoPPIOrth/</a>	Orthology and protein-protein interaction information to infer gene-phenotype associations for multiple species	Yes	Offline

PhosphoPICK	<a href="http://bioinf.scmb.uq.edu.au/phosphopick/phosphopick">http://bioinf.scmb.uq.edu.au/phosphopick/phosphopick</a>	Method for predicting kinase substrates using cellular context information	Yes	Online
PhosphoPredict	<a href="http://phosphopredict.erc.monash.edu/">http://phosphopredict.erc.monash.edu/</a>	Predict kinase-specific phosphorylation substrates and sites in the human proteome	Yes	Online
PhosphOrtholog	<a href="http://www.phosphortholog.com/">http://www.phosphortholog.com/</a>	Cross-species mapping of orthologous protein post-translational modifications	Yes	Online
PICKLE	<a href="http://www.pickle.gr/Search">http://www.pickle.gr/Search</a>	Predicts human protein-protein interactions network	Yes	Offline
PINdb	<a href="http://pin.mskcc.org/">http://pin.mskcc.org/</a>	Multiprotein nuclear complexes of human or yeast cells	Yes	
PINTA	<a href="https://securehomes.esat.kuleuven.be/~bioiuser/pinta/input.php">https://securehomes.esat.kuleuven.be/~bioiuser/pinta/input.php</a>	Genome-wide protein-protein interaction network for the prioritization of candidate genes	Yes	Offline
PIPs	<a href="http://www.compbio.dundee.ac.uk/www-pips/index.jsp">http://www.compbio.dundee.ac.uk/www-pips/index.jsp</a>	Protein interaction bayesian method that combines information from expression, orthology, domain co-occurrence, post-translational modifications and sub-cellular location	No	Online
PolyQ	<a href="http://lightning.med.monash.edu/polyq2/">http://lightning.med.monash.edu/polyq2/</a>	Information of human polyQ repeat-containing proteins	Yes	Offline
PrePPI	<a href="https://bhapp.c2b2.columbia.edu/PrePPI/index.html">https://bhapp.c2b2.columbia.edu/PrePPI/index.html</a>	Predicted and experimentally determined (PPIs) for yeast and human	Yes	Online
Primate Orthologous Exon Database	<a href="https://giladlab.uchicago.edu/orthoExon/">https://giladlab.uchicago.edu/orthoExon/</a>	Unique, non-overlapping, orthologous exon regions of human, chimpanzee, and rhesus macaque.	No	Offline
ProKinO	<a href="http://vulcan.cs.uga.edu/prokino/about/browser">http://vulcan.cs.uga.edu/prokino/about/browser</a>	Kinase activation and regulatory mechanisms	No	Online
Protein kinase resource	<a href="http://www.kinasenet.org/">http://www.kinasenet.org/</a>	Human kinome tree via an interactive display	No	Offline
ProteomicsDB*	<a href="https://www.proteomicsdb.org/">https://www.proteomicsdb.org/</a>	Predicted and experimental human proteomes	Yes	Online
Quokka*	<a href="http://quokka.erc.monash.edu/">http://quokka.erc.monash.edu/</a>	Kinase phosphorylation sites in the human proteome	No	Online
RasMol	<a href="http://www.bernstein-plus-sons.com/software/rasmol/">http://www.bernstein-plus-sons.com/software/rasmol/</a>	Protein 3D structure viewer	No	Online
ScaPD	<a href="http://bioinfo.wilmer.jhu.edu/ScaPD/">http://bioinfo.wilmer.jhu.edu/ScaPD/</a>	Database for human scaffold proteins	No	Online
SMPDB	<a href="https://smpdb.ca/view/SMP0000179">https://smpdb.ca/view/SMP0000179</a>	Small molecule pathway dataBase	No	Online
SpindleP	<a href="http://www.cbs.dtu.dk/services/SpindleP/">http://www.cbs.dtu.dk/services/SpindleP/</a>	Location of proteins or genes in the meiotic spindle	No	Online
StSNP	<a href="http://ilyinlab.org/StSNP/">http://ilyinlab.org/StSNP/</a>	Compare protein structures, protein complexes, protein-protein interfaces and metabolic networks	No	Online
SubPhosPred	<a href="http://bioinfo.ncu.edu.cn/SubPhosPred.aspx">http://bioinfo.ncu.edu.cn/SubPhosPred.aspx</a>	Phosphorylation sites in subcellular compartments	No	Online

SURFY	<a href="http://wlab.ethz.ch/surfaceome/">http://wlab.ethz.ch/surfaceome/</a>	Visualize the human surface proteome (surfaceome)	Yes	Online
Sys-BodyFluid	<a href="http://www.biosino.org/bodyfluid/">http://www.biosino.org/bodyfluid/</a>	Contains eleven kinds of body fluid proteomes info	Yes	Offline
The Proteome Browser*	<a href="http://proteomebrowser.org/tpb/home.jsp">http://proteomebrowser.org/tpb/home.jsp</a>	Tissue localization, post-translational modifications, or interactions in human proteome	No	Online
TissueNet	<a href="http://netbio.bgu.ac.il/tissuenet/">http://netbio.bgu.ac.il/tissuenet/</a>	Experimentally-identified PPIs with human tissues	Yes	Online
TOPPR	<a href="https://iomics.ugent.be/toppr/">https://iomics.ugent.be/toppr/</a>	The online protein processing resource	Yes	Offline
TRI_tool	<a href="https://www.vin.bg.ac.rs/180/tools/tfpred.php">https://www.vin.bg.ac.rs/180/tools/tfpred.php</a>	Prediction of PPIs in human Transcriptional Regulation	No	Online
UniHI	<a href="http://www.unihi.org/">http://www.unihi.org/</a>	Analysis and visualization of human molecular interaction networks	Yes	Online
VDJsolver	<a href="http://www.cbs.dtu.dk/services/VDJsolver/">http://www.cbs.dtu.dk/services/VDJsolver/</a>	Data of human immunoglobulin VDJ recombination	No	Online
VHLdb	<a href="http://vhldb.bio.unipd.it/">http://vhldb.bio.unipd.it/</a>	Interactors and mutations of the human von Hippel-Lindau tumor suppressor protein	No	Online

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\*Top tools ranked by the authors.