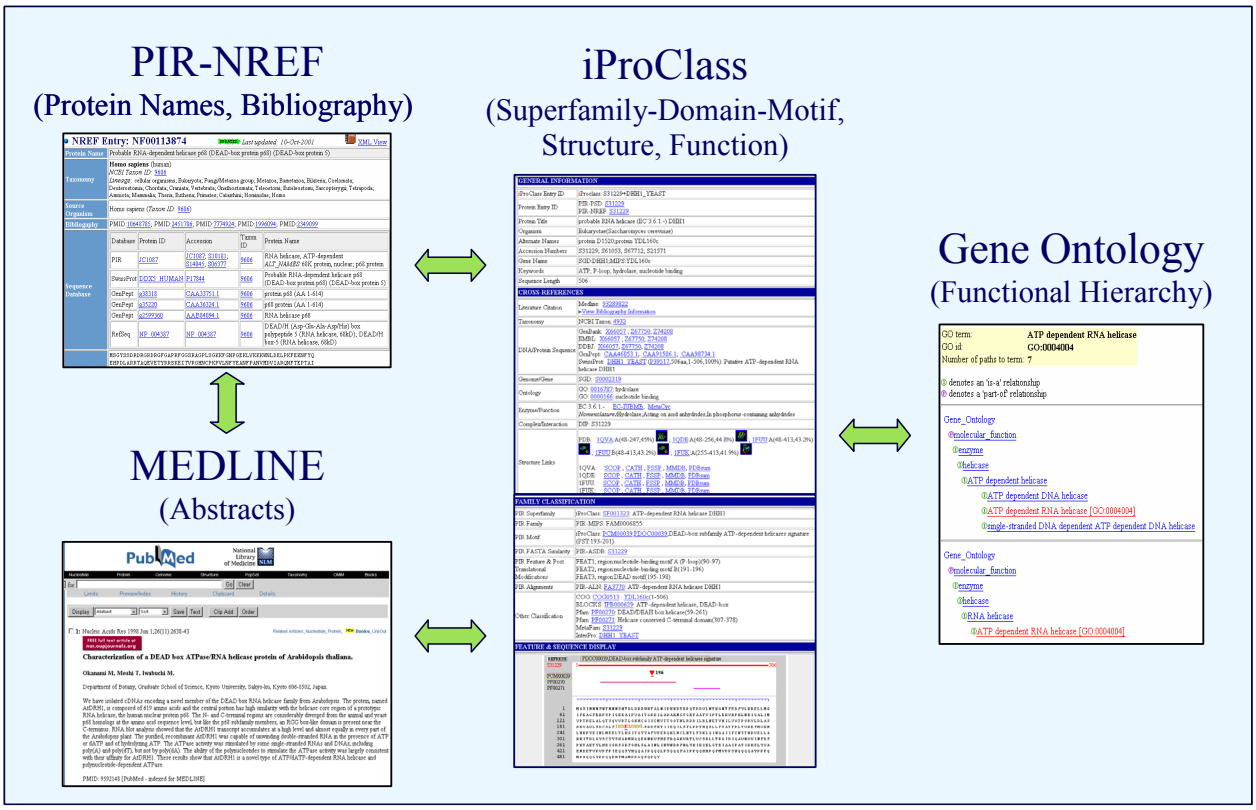


Figure 1. *Protein knowledge base for ontology development of protein names.*

(A)

NREF Entry: NF00113874 — Submit Bibliography — XML View — Last Updated: 28-Dec-2001

Protein Name	Probable RNA-dependent helicase p68 (DEAD-box protein p68) (DEAD-box protein 5)
Taxonomy	**Homo sapiens** (human) *NCBI Taxon ID:* 9606 *Lineage:* cellular organisms; Eukaryota; Fungi/Metazoa group; Metazoa; Eumetazoa; Bilateria; Coelomata; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Primates; Catarrhini; Hominidae; Homo
Source Organism	Homo sapiens (*Taxon ID:* 9606)
Bibliography	▶View Bibliography information. ▶Submit Bibliography. PubMed: PMID:10648785; PMID:2762324; PMID:2451786; PMID:7774924; PMID:1996094; PMID:2349099

Sequence Database

Database	Protein ID	Accession	Taxon ID	Protein Name
PIR	JC1087	JC1087; S10181; S14045; S06377	9606	RNA helicase, ATP-dependent *ALT_NAMES:*68K protein, nuclear; p68 protein
SwissProt	DDX5_HUMAN	P17844; O75681	9606	Probable RNA-dependent helicase p68 (DEAD-box protein p68) (DEAD-box protein 5)
GenPept	g35220	CAA36324.1	9606	p68 protein (AA 1-614)
GenPept	g16359122	AAH16027.1	9606	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 5 (RNA helicase, 68kD)
GenPept	g38318	CAA33751.1	9606	protein p68 (AA 1-614)
GenPept	g2599360	AAB84094.1	9606	RNA helicase p68
RefSeq	g4758138	NP_004387	9606	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 5; DEAD/H box-5; RNA helicase p68; p68 nuclear antigen; RNA-dependent ATPase

```
MSGYSSDRDRGRDRGFGAPRFGGSRAGPLSGKKFGNPGEKLVKKKWNLDELPKFEKNFYQ
EHPDLARRTAQEVETYRRSKEITVRGHNCPKPVLNFYEANFPANVMDVIARQNFTEPTAI
```

(B)

Database	Protein ID	Accession	Taxon ID	Protein Name
PIR	JC1452	JC1452	3702	translation initiation factor eIF-4A1
SwissProt	IF41_ARATH	P41376	3702	Eukaryotic initiation factor 4A-1 (eIF-4A-1) (eIF4A-1)
GenPept	g14594805	CAC43288.1	3702	translation initiation factor eIF-4A1
GenPept	g15450486	AAK96536.1	3702	AT3g13920/MDC16_4
GenPept	g15293047	AAK93634.1	3702	putative RNA helicase
GenPept	g16554	CAA46188.1	3702	eukaryotic translation initiation factor 4A-1
GenPept	g20259055	AAM14243.1	3702	putative eukaryotic initiation factor 4A
GenPept	g11994363	BAB02322.1	3702	eukaryotic translation initiation factor; RNA helicase
RefSeq	g18400210	NP_566469	3702	Eukaryotic initiation factor 4A, putative

Figure 2. *PIR-NREF protein names (A) constitute an initial dictionary of terms for ontology development, and (B) can reveal term relationships.*
Complete reports retrievable at: *http://pir.georgetown.edu/cgi-bin/iproclass/nfretr.pl?db=PI&id=jc1087* and *http://pir.georgetown.edu/cgi-bin/iproclass/nfretr.pl?db=PI&id=jc1452*

Nature 1988 Apr 21;332(6166):736-8 — Related Articles, Nucleotide, Protein, NEW Books, LinkOut

Nuclear protein with sequence homology to translation initiation factor eIF-4A.

Ford MJ, Anton IA, Lane DP.

Imperial Cancer Research Fund Clare Hall Laboratories, Herts, UK.

The p68 protein is a highly conserved nuclear antigen that is thought to be important in the regulation of cell growth and division. It is found in dividing cells of all mammals and amphibians tested, but not in quiescent cells. The protein shows a distinct granular distribution in the nucleus and is induced within four hours of serum stimulation of quiescent mouse fibroblasts. The p68 protein was first identified because of its specific immunological cross-reaction with the DNA tumour virus nuclear oncogene SV40 large T, detected with the anti-SV40 large T monoclonal antibody DL3C4, now renamed PAb204. Sequencing of human complementary DNA coding for the growth-regulated p68 nuclear protein has revealed the molecular basis for its cross-reaction with SV40 large T antigen and its extensive homology with the translation initiation factor eIF-4A. The sequence similarity between p68 and eIF-4A is interesting because eIF-4A acts as an ATP-dependent RNA helicase and T antigen is an ATP-dependent DNA helicase. We suggest that p68 could be a DNA or RNA helicase in the cell nucleus which is involved in replication, transcription or RNA processing and is required for cell growth.

PMID: 2451786 [PubMed - indexed for MEDLINE]

Figure 3. *MEDLINE abstract containing terms and relationships associated with database annotations.*
Complete record retrievable at: *http://www3.ncbi.nlm.nih.gov/htbin-post/Entrez/query?db=m&form=6&Dopt=r&uid=2451786*

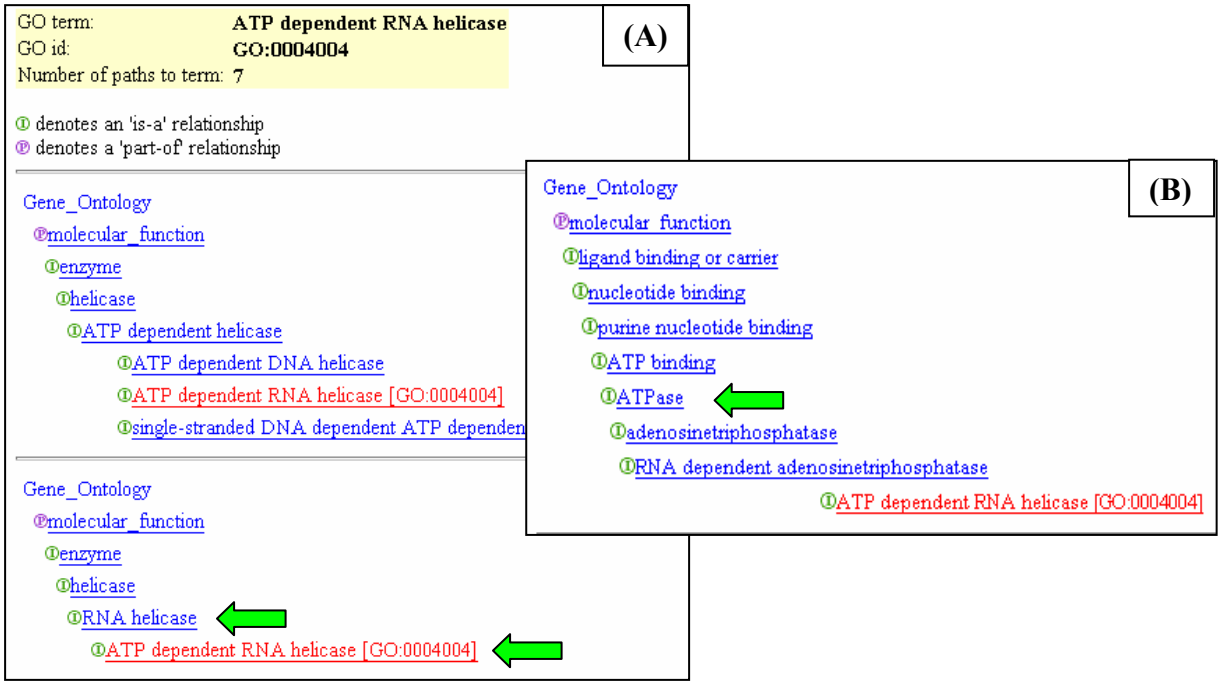
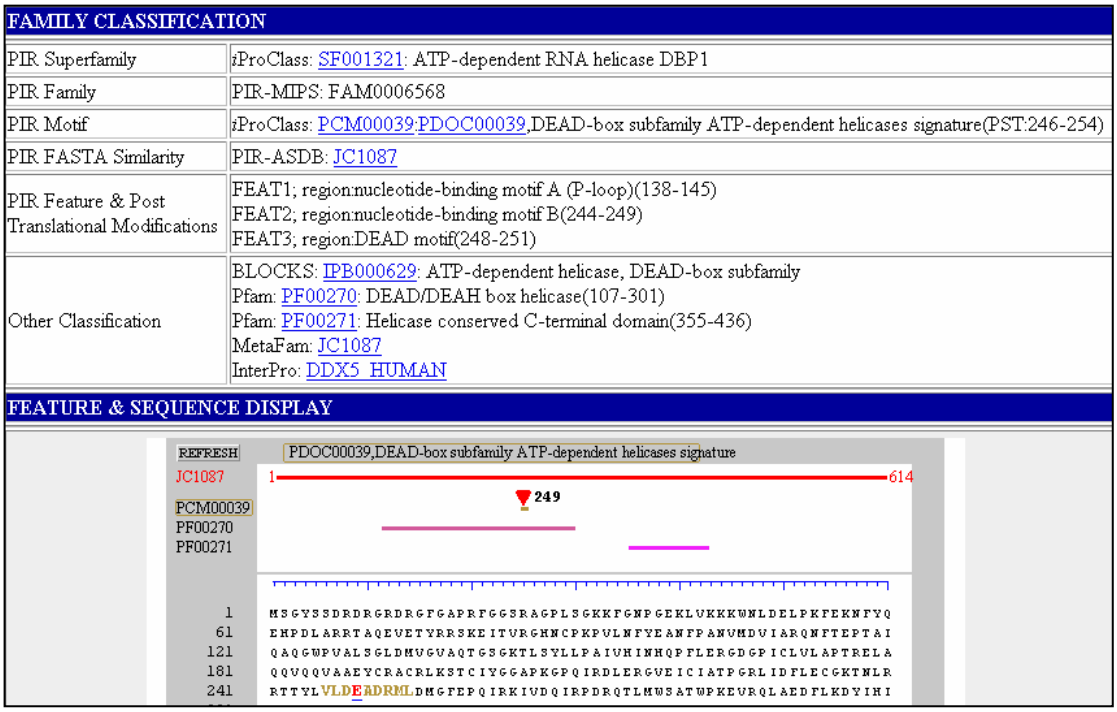


Figure 4. *Functional hierarchy of gene ontology indicating that ATP dependent RNA helicase is a kind of (A) RNA helicase and (B) ATPase.*
Complete record retrievable at: *http://www.informatics.jax.org/searches/GO.cgi?id=GO:0004004*



FAMILY CLASSIFICATION

PIR Superfamily	iProClass: SF001321: ATP-dependent RNA helicase DBP1
PIR Family	PIR-MIPS: FAM0006568
PIR Motif	iProClass: PCM00039:PDOC00039,DEAD-box subfamily ATP-dependent helicases signature(PST:246-254)
PIR FASTA Similarity	PIR-ASDB: JC1087
PIR Feature & Post Translational Modifications	FEAT1; region:nucleotide-binding motif A (P-loop)(138-145) FEAT2; region:nucleotide-binding motif B(244-249) FEAT3; region:DEAD motif(248-251)
Other Classification	BLOCKS: IPB000629: ATP-dependent helicase, DEAD-box subfamily Pfam: PF00270: DEAD/DEAH box helicase(107-301) Pfam: PF00271: Helicase conserved C-terminal domain(355-436) MetaFam: JC1087 InterPro: DDX5_HUMAN

FEATURE & SEQUENCE DISPLAY

Figure 5. *iProClass with superfamily-domain-motif information (report partially shown).*
Complete report retrievable at: *http://pir.georgetown.edu/cgi-bin/iproclass/iproclass?choice=entry&id=jc1087*