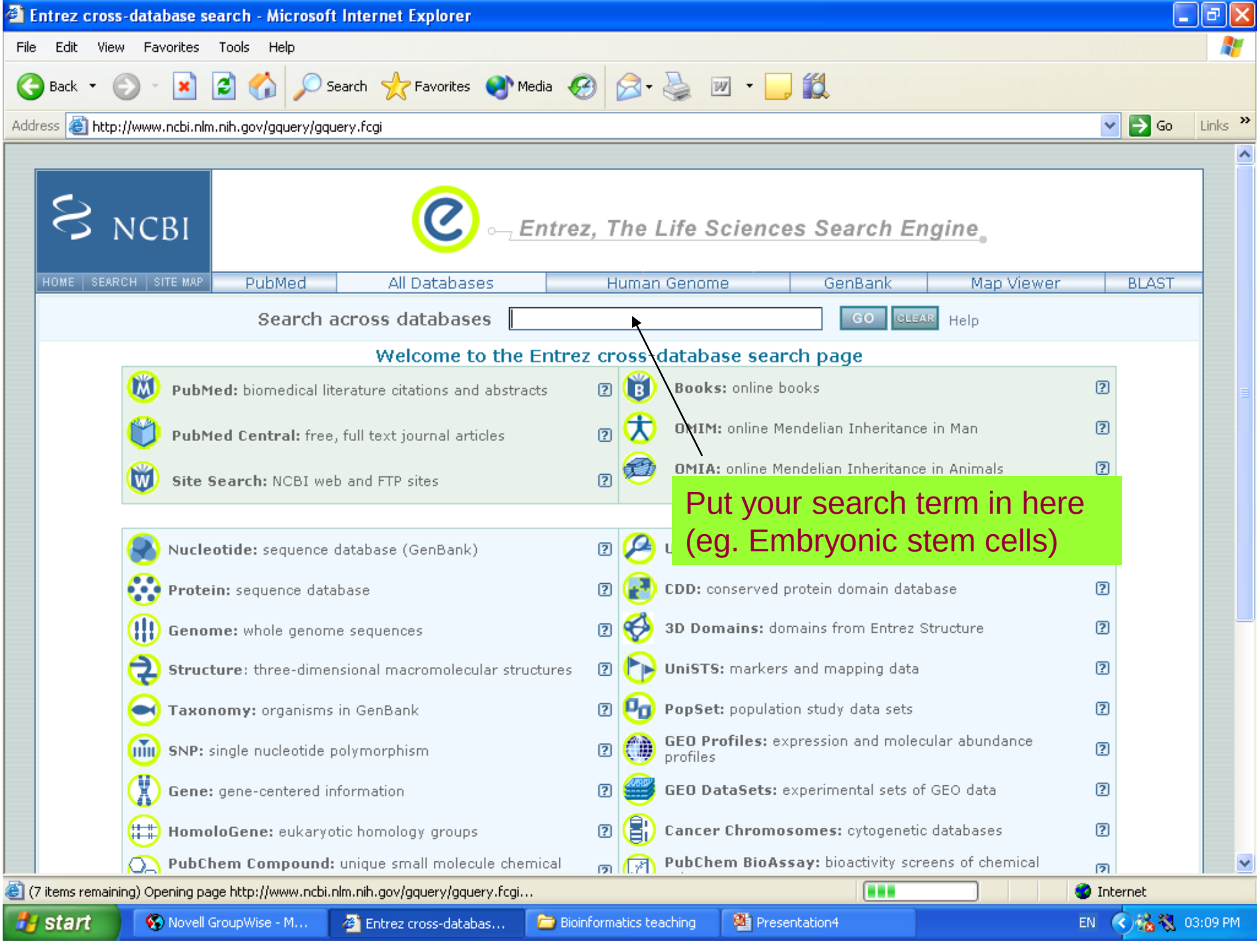
ENTREZ can search across all NCBI databases at the same time


Entrez cross-database search - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.ncbi.nlm.nih.gov/gquery/gquery.fcgi
Go Links
NCBI
Entrez, The Life Sciences Search Engine
HOME SEARCH SITE MAP
PubMed All Databases Human Genome GenBank Map Viewer BLAST
Search across databases
GO CLEAR Help
Welcome to the Entrez cross-database search page
PubMed: biomedical literature citations and abstracts
PubMed Central: free, full text journal articles
Site Search: NCBI web and FTP sites
Books: online books
OMIM: online Mendelian Inheritance in Man
OMIA: online Mendelian Inheritance in Animals
Put your search term in here
(eg. Embryonic stem cells)
Nucleotide: sequence database (GenBank)
Protein: sequence database
Genome: whole genome sequences
Structure: three-dimensional macromolecular structures
Taxonomy: organisms in GenBank
SNP: single nucleotide polymorphism
Gene: gene-centered information
HomoloGene: eukaryotic homology groups
PubChem Compound: unique small molecule chemical
CDD: conserved protein domain database
3D Domains: domains from Entrez Structure
UniSTS: markers and mapping data
PopSet: population study data sets
GEO Profiles: expression and molecular abundance profiles
GEO DataSets: experimental sets of GEO data
Cancer Chromosomes: cytogenetic databases
PubChem BioAssay: bioactivity screens of chemical
(7 items remaining) Opening page http://www.ncbi.nlm.nih.gov/gquery/gquery.fcgi...
Internet
start
Novell GroupWise - M...
Entrez cross-databas...
Bioinformatics teaching
Presentation4
EN
03:09 PM

File Edit View Favorites Tools Help

Search across databases | embryonic stem cells | GO | Clear | Help

Lots of results!

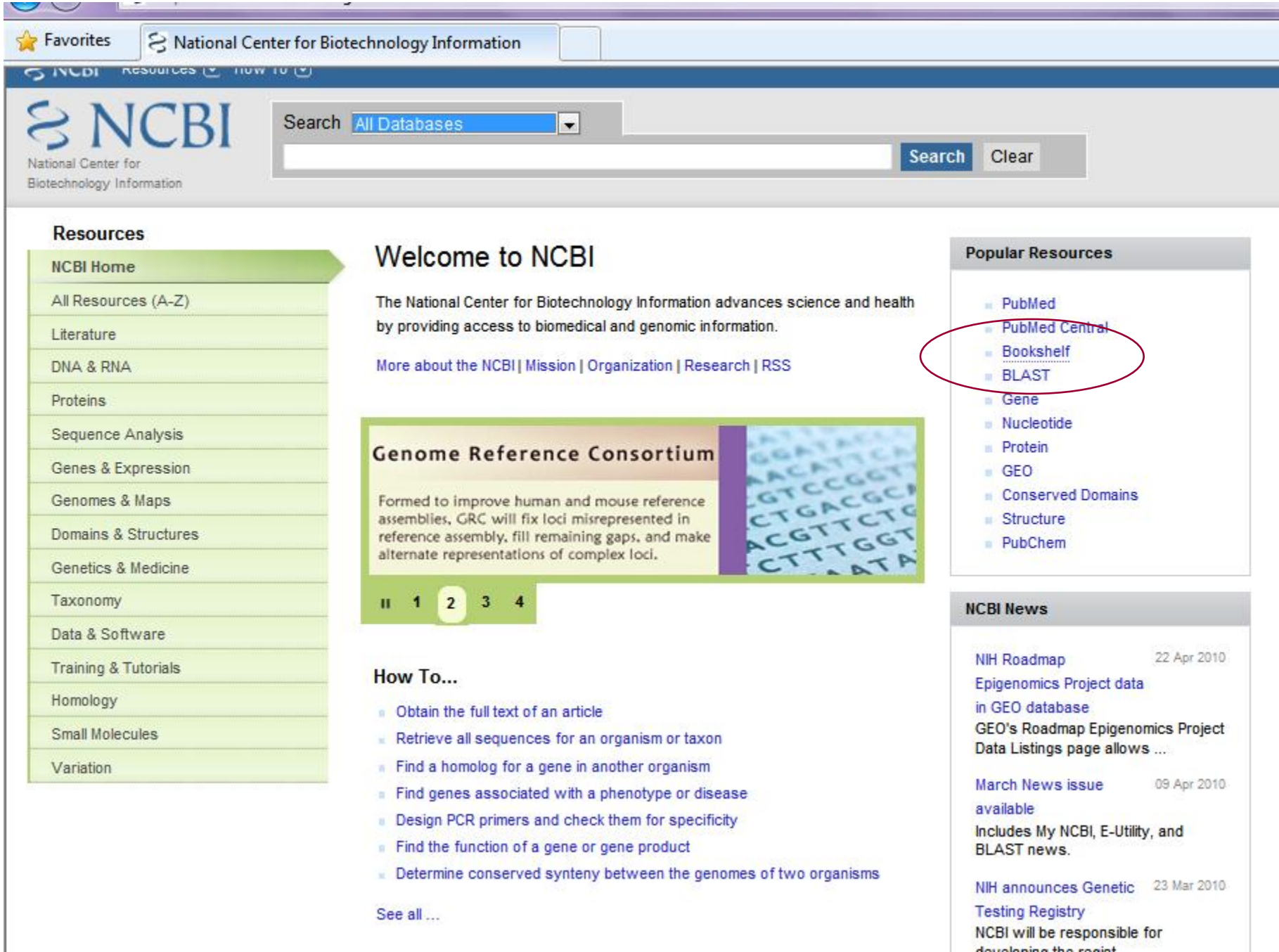
- Result counts displayed in gray indicate one or more terms not found

6929	**PubMed:** biomedical literature citations and abstracts	163	**Books:** online books
3950	**PubMed Central:** free, full text journal articles	496	**OMIM:** online Mendelian Inheritance in Man
6	**Site Search:** NCBI web and FTP sites	7	**OMIA:** online Mendelian Inheritance in Animals

Wait	**CoreNucleotide:** Core subset of nucleotide sequence records	4	**dbGaP:** genotype and phenotype
157717	**EST:** Expressed Sequence Tag records	1	**UniGene:** gene-oriented clusters of transcript sequences
278890	**GSS:** Genome Survey Sequence records	1	**CDD:** conserved protein domain database
44	**Protein:** sequence database	none	**3D Domains:** domains from Entrez Structure
none	**Genome:** whole genome sequences	none	**UniSTS:** markers and mapping data
none	**Structure:** three-dimensional macromolecular structures	none	**PopSet:** population study data sets
none	**Taxonomy:** organisms in GenBank	Wait	**GEO Profiles:** expression and molecular abundance profiles
Wait	**SNP:** single nucleotide polymorphism	153	**GEO DataSets:** experimental sets of GEO data
258	**Gene:** gene-centered information	Wait	**Cancer Chromosomes:** cytogenetic databases
none	**HomoloGene:** eukaryotic homology groups	none	**PubChem BioAssay:** bioactivity screens of chemical substances
none	**GENSAT:** gene expression atlas of mouse central nervous system	none	**PubChem Compound:** unique small molecule chemical structures
248	**Probe:** sequence-specific reagents	none	**PubChem Substance:** deposited chemical substance records
1	**Genome Project:** genome project information	none	**Protein Clusters:** a collection of related protein sequences

Journals: detailed information about the journals | **MeSH:** detailed information about NLM's controlled

Done | Internet


Favorites
National Center for Biotechnology Information
NCBI
National Center for Biotechnology Information
Search All Databases
Search
Clear
Resources
NCBI Home
All Resources (A-Z)
Literature
DNA & RNA
Proteins
Sequence Analysis
Genes & Expression
Genomes & Maps
Domains & Structures
Genetics & Medicine
Taxonomy
Data & Software
Training & Tutorials
Homology
Small Molecules
Variation
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The National Center for Biotechnology Information advances science and health by providing access to biomedical and genomic information.
More about the NCBI | Mission | Organization | Research | RSS
Genome Reference Consortium
Formed to improve human and mouse reference assemblies, GRC will fix loci misrepresented in reference assembly, fill remaining gaps, and make alternate representations of complex loci.
1 2 3 4
How To...
Obtain the full text of an article
Retrieve all sequences for an organism or taxon
Find a homolog for a gene in another organism
Find genes associated with a phenotype or disease
Design PCR primers and check them for specificity
Find the function of a gene or gene product
Determine conserved synteny between the genomes of two organisms
See all ...
Popular Resources
PubMed
PubMed Central
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BLAST
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Nucleotide
Protein
GEO
Conserved Domains
Structure
PubChem
NCBI News
NIH Roadmap Epigenomics Project data in GEO database 22 Apr 2010
GEO's Roadmap Epigenomics Project Data Listings page allows ...
March News issue available 09 Apr 2010
Includes My NCBI, E-Utility, and BLAST news.
NIH announces Genetic Testing Registry 23 Mar 2010
NCBI will be responsible for

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Search Books for [ ] Go Clear

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The **Bookshelf** is a growing collection of biomedical books that can be searched directly by typing a concept into the textbox above and selecting "Go". Try one of these searches:

- cell cycle control
- immunodeficiency
- protein evolution

New on the Bookshelf:

Comparative Oncology
Baba, Alecsandru Ioan; Câtoi, Cornel
Bucharest: The Publishing House of the Romanian Academy; 2007

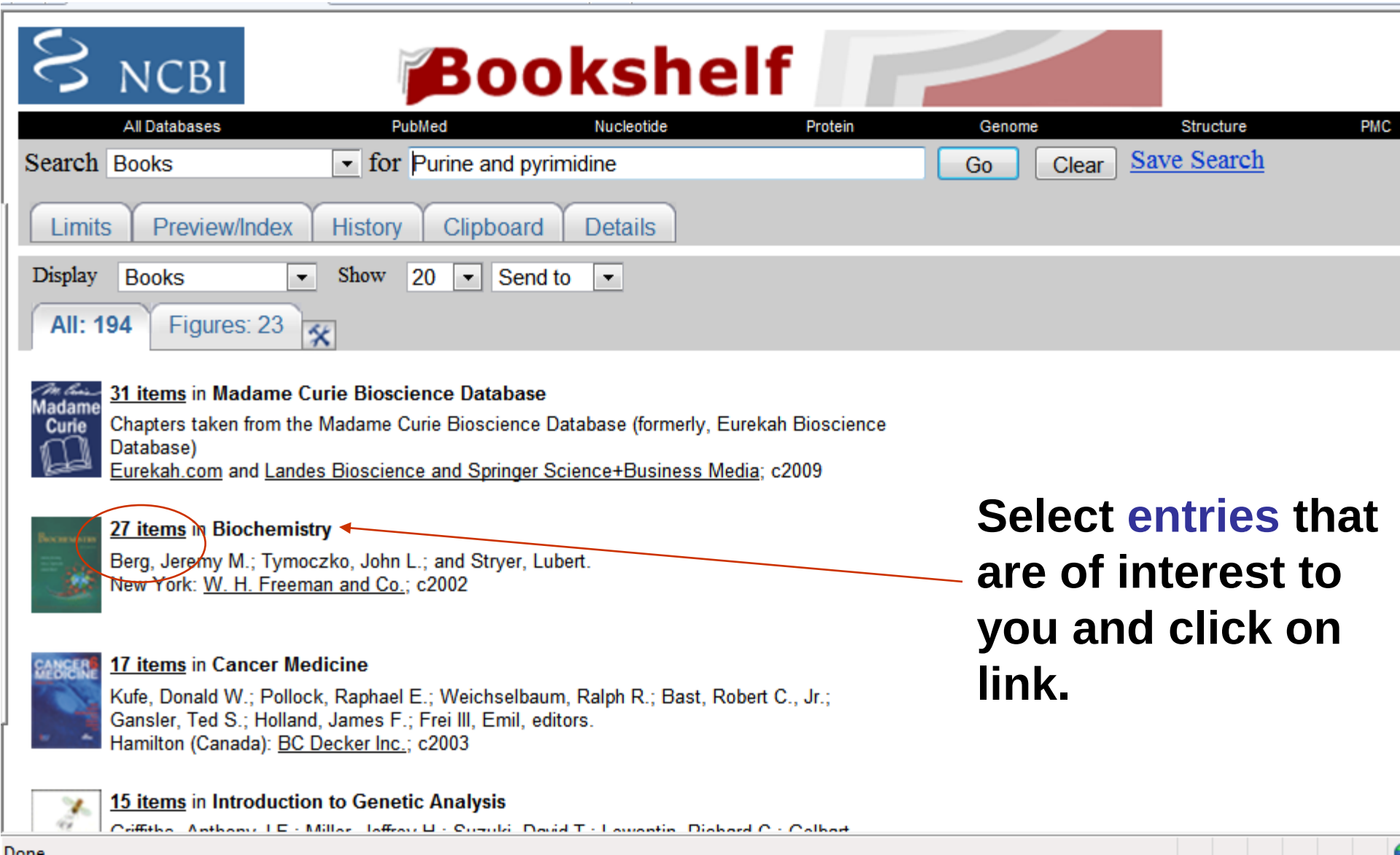
Familial Cancer Syndromes [Internet]
Riegert-Johnson, Douglas L.; Boardman, Lisa A.; Hefferon, Timothy; Spurck, Lauren, editors
Bethesda (MD): National Library of Medicine (US), NCBI; 2009

Health, United States, 2008
Atlanta (GA): Centers for Disease Control and Prevention; 2008

The National Academies Collection: Reports funded by National Institutes of Health
Washington (DC): The National Academies Press; c2006-2009

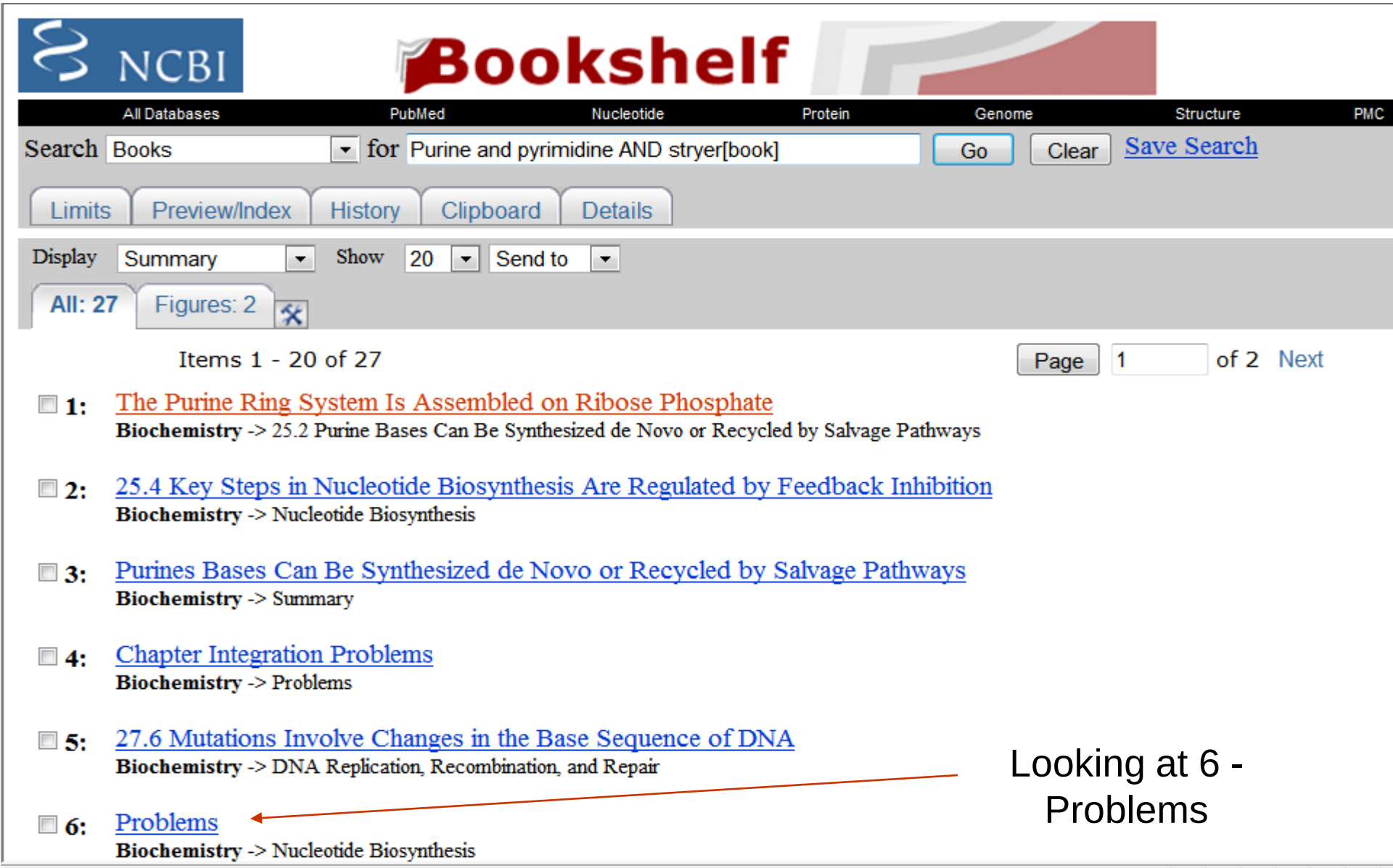
Search: Purine and pyrimidine

Result: You get a number of books containing the words purine and pyrimidine.



Select entries that are of interest to you and click on link.

By selecting option 2, the search has been limited to a book called “Biochemistry” by Stryer et al



You can test yourself and check your answers online

Problems

1 *Activated ribose phosphate.* Write a balanced equation for the synthesis of PRPP from glucose through the oxidative branch of the pentose phosphate pathway.

See answer

2 *Making a pyrimidine.* Write a balanced equation for the synthesis of orotate from glutamine, CO_2, and aspartate.

See answer

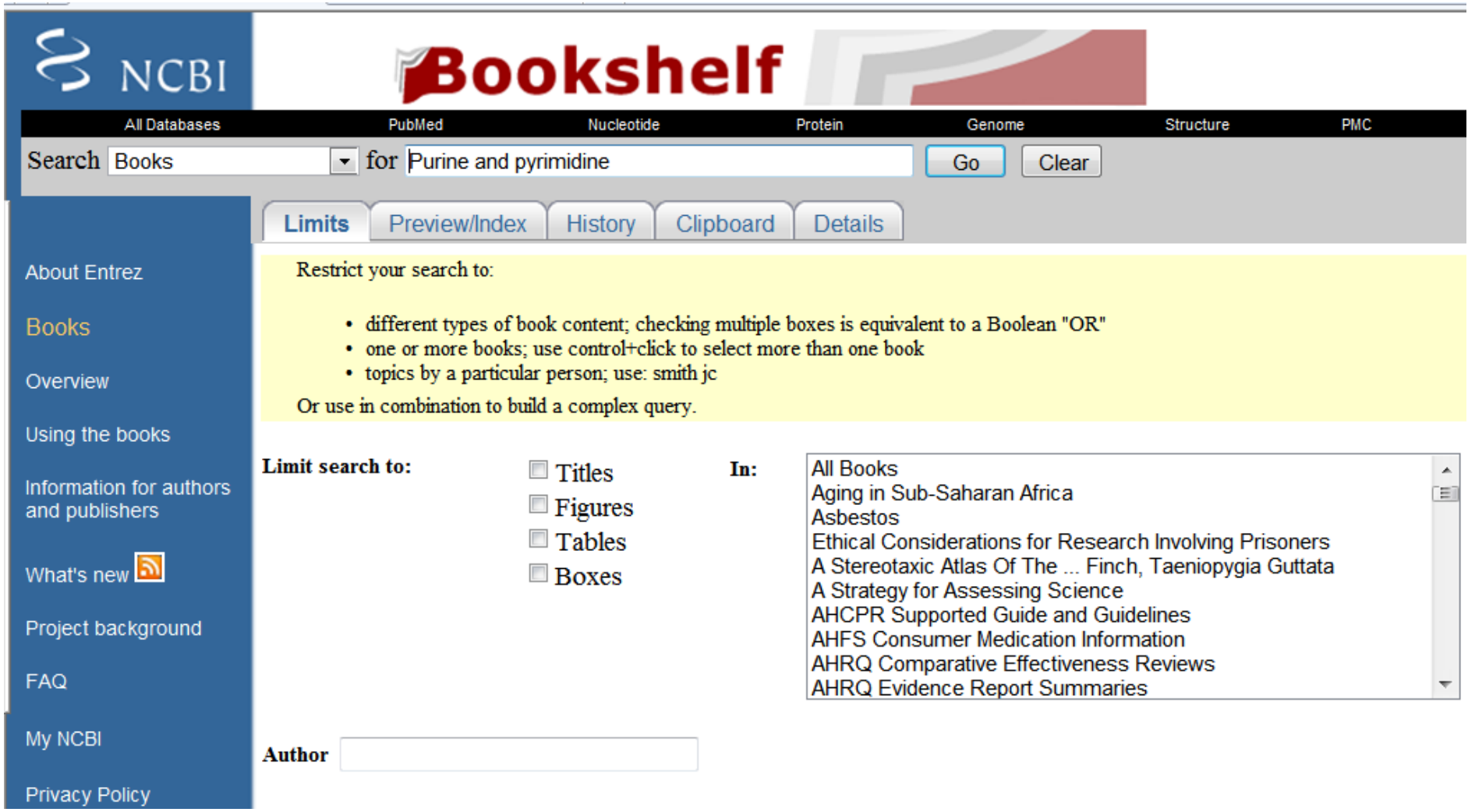
3 *Identifying the donor.* What is the activated reactant in the biosynthesis of each of these compounds?

(a) Phosphoribosylamine

Details, Limits, Preview …

1. Limits: ways to restrict a search to a defined subset of the database.
2. Preview/Index: list last searches; combine with new search terms
3. History: review, delete, recall and combine past searches (max 100)
4. Clipboard: temporarily store results
5. Details: review interpretation of the query term

LIMITS


NCBI
Bookshelf
All Databases
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Purine and pyrimidine
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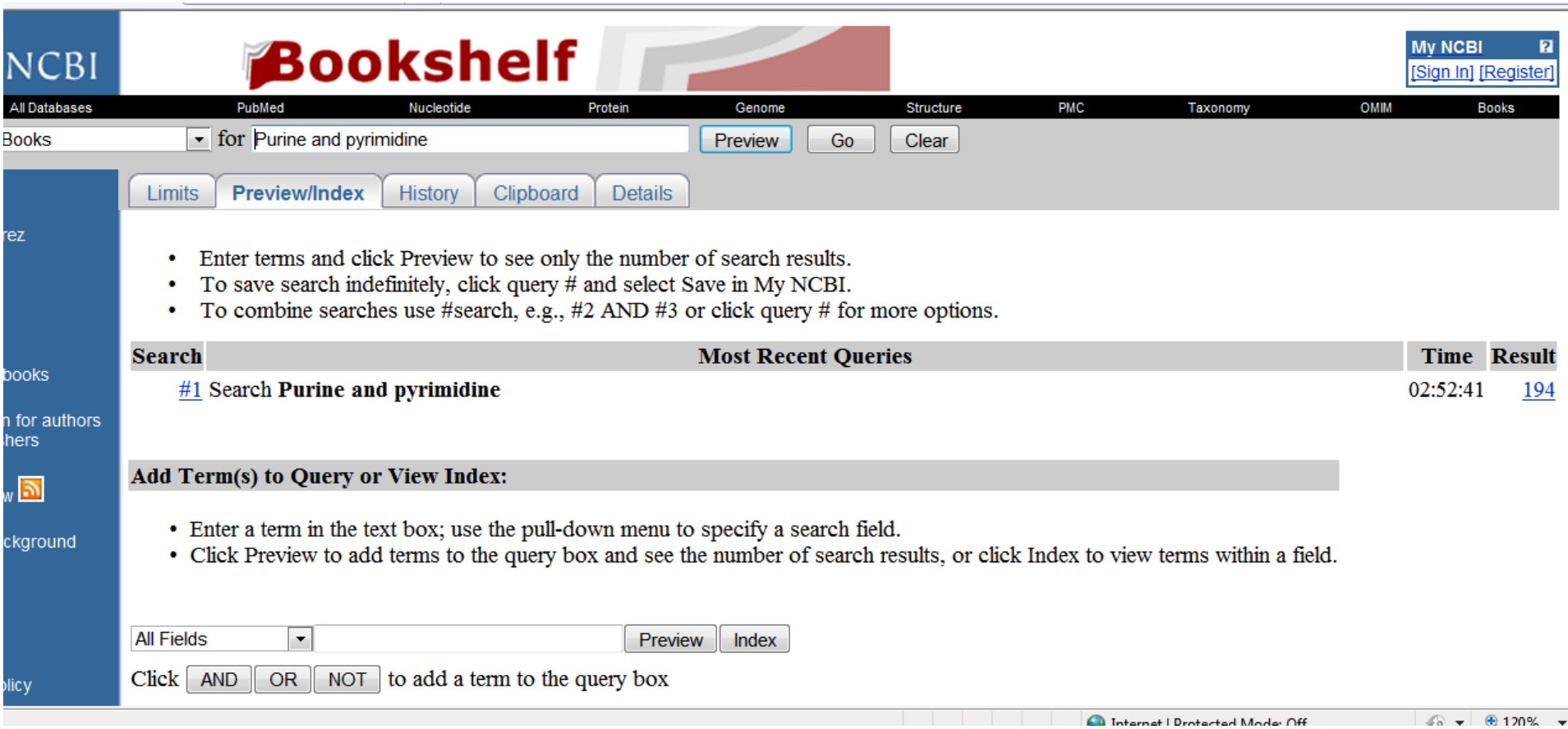
Restrict your search to:
different types of book content; checking multiple boxes is equivalent to a Boolean "OR"
one or more books; use control+click to select more than one book
topics by a particular person; use: smith jc
Or use in combination to build a complex query.
Limit search to:
Titles
Figures
Tables
Boxes
In:
All Books
Aging in Sub-Saharan Africa
Asbestos
Ethical Considerations for Research Involving Prisoners
A Stereotaxic Atlas Of The ... Finch, Taeniopygia Guttata
A Strategy for Assessing Science
AHCPR Supported Guide and Guidelines
AHFS Consumer Medication Information
AHRQ Comparative Effectiveness Reviews
AHRQ Evidence Report Summaries
Author

PREVIEW INDEX



HISTORY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Search History will be lost after eight hours of inactivity.
Search numbers may not be continuous; all searches are represented.
To save search indefinitely, click query # and select Save in My NCBI.
To combine searches use #search, e.g., #2 AND #3 or click query # for more options.
Search
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Details
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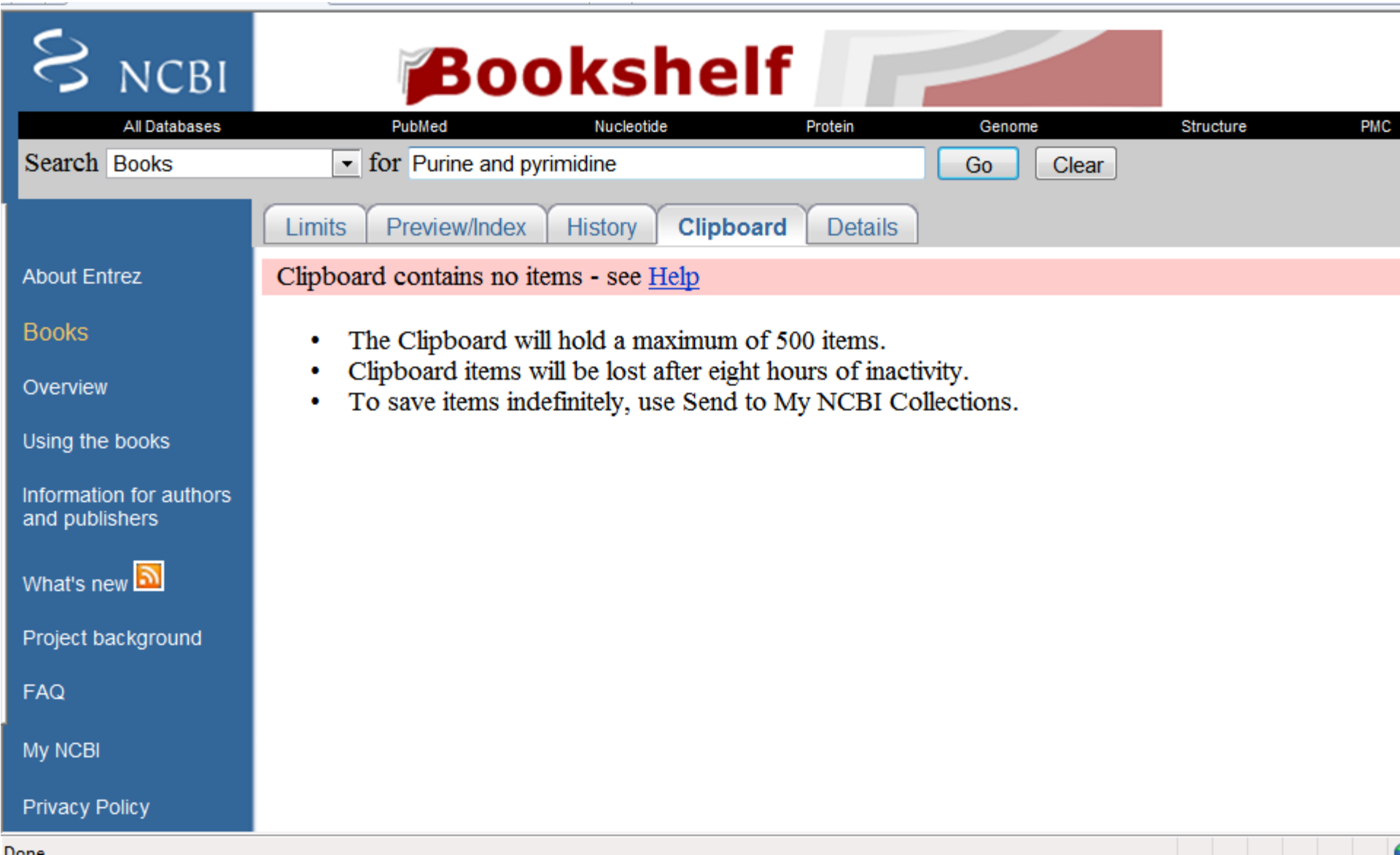
CLIPBOARD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Clipboard contains no items - see Help
The Clipboard will hold a maximum of 500 items.
Clipboard items will be lost after eight hours of inactivity.
To save items indefinitely, use Send to My NCBI Collections.
Done

DETAILS


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Click to see how your search was enhanced
Query Translation:
(Purine[All Fields] AND pyrimidine[All Fields]) AND Stem cells[All Fields]
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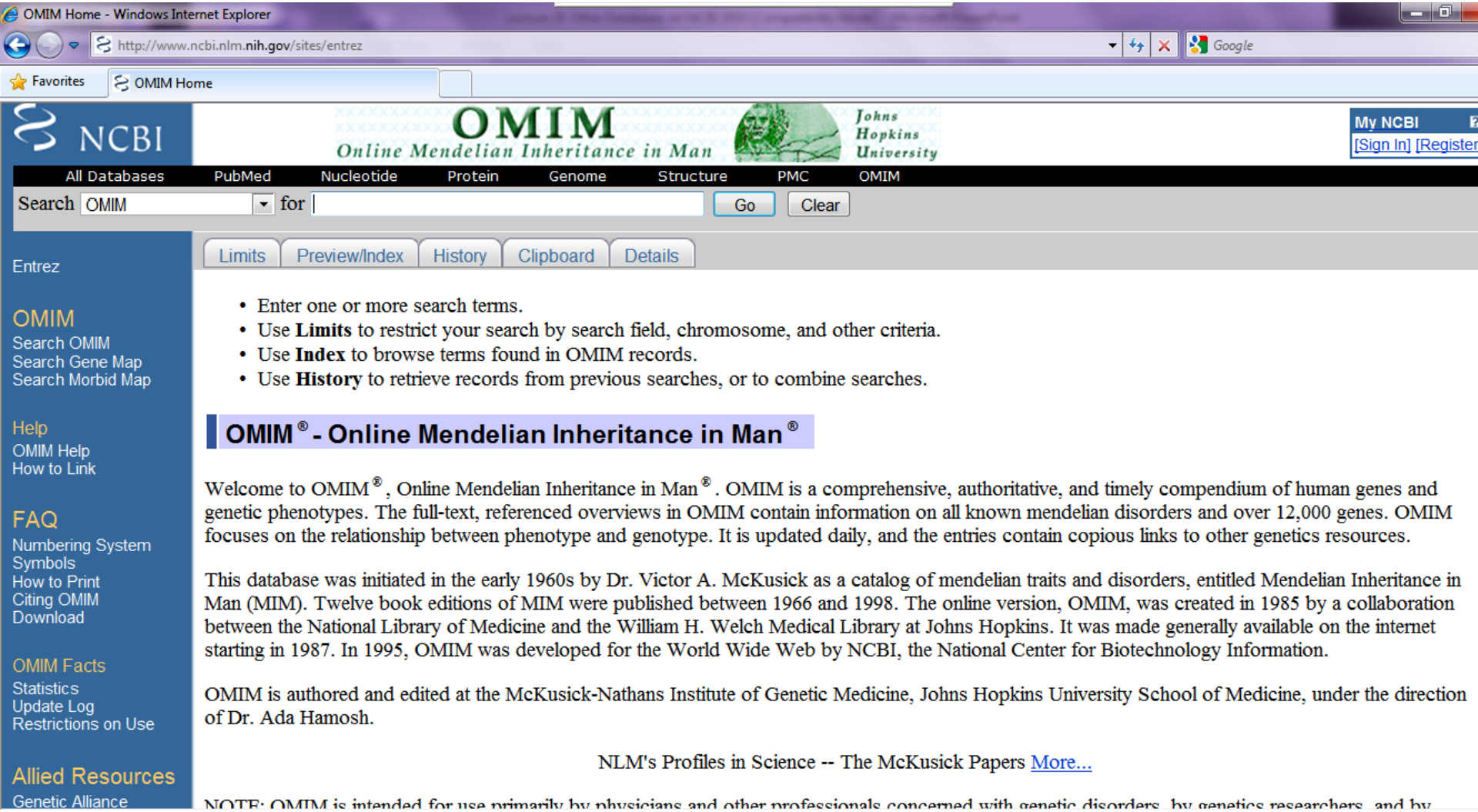
Stopword(s) Ignored:
and
Database:
Books

Catalog of human genes and genetic disorders



OMIM database searching
(human genes and genetic disorders)

- OMIM: “online Mendelian inheritance in man”.
- Search term: “adenosine deaminase”.
  - Found: 47 entries
  - Chose: #102700 (severe combined immunodeficiency)
- NOTE: the # symbol is used to show mutants

NCBI

OMIM
Online Mendelian Inheritance in Man

Johns Hopkins University

All Databases | PubMed | Nucleotide | Protein | Genome | Structure | PMC | OMIM

Search OMIM for adenosine deaminase Go Clear Save Search

Limits | Preview/Index | History | Clipboard | Details

Display Titles Show 20 Send to

All: 47 | OMIM UniSTS: 10 | OMIM dbSNP: 9

Items 1 - 20 of 47

Page 1 of 3 Next

1: *146920. ADENOSINE DEAMINASE, RNA-SPECIFIC; ADAR — MGI, Links
Gene map locus 1q21.3

2: #102700. SEVERE COMBINED IMMUNODEFICIENCY, AUTOSOMAL RECESSIVE, T CELL -NEGATIVE, B CELL-NEGATIVE, NK CELL-NEGATIVE, DUE TO ADENOSINE DEAMINASE DEFICIENCY — GeneTests, Links
SCID DUE TO ADA DEFICIENCY, DELAYED ONSET, INCLUDED
Gene map locus 20q13.11

3: *608958. ADENOSINE DEAMINASE; ADA — MGI, GeneTests, Links
Gene map locus 20q13.11

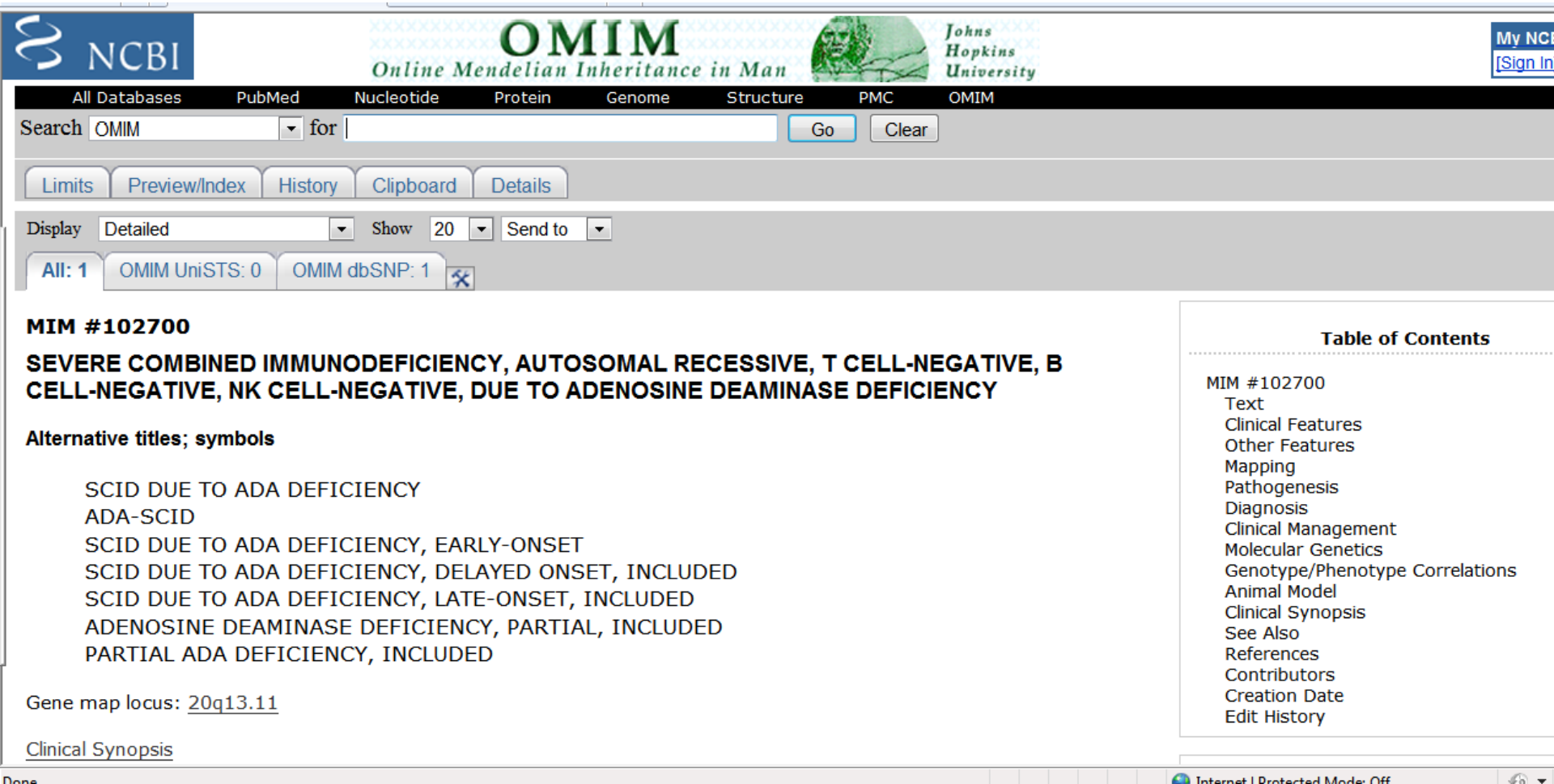
4: +102770. ADENOSINE MONOPHOSPHATE DEAMINASE 1; AMPD1 — MGI, GeneTests, Links
MYOADENYLATE DEAMINASE DEFICIENCY, MYOPATHY DUE TO, INCLUDED
Gene map locus 1p21-p13

5: *601218. ADENOSINE DEAMINASE, RNA-SPECIFIC, B1; ADARB1 — MGI, Links

Done

The result gives you all the information about the disease in man and includes:

Clinical features; Pathogenesis, Diagnosis; Animal models, Clinical management and references for all the above.



Clinical management

homozygous ADA-deficient fetus, respectively. The diagnoses were confirmed after birth and in abortus tissue.

Clinical Management

Back to Top

Enzyme Replacement Therapy

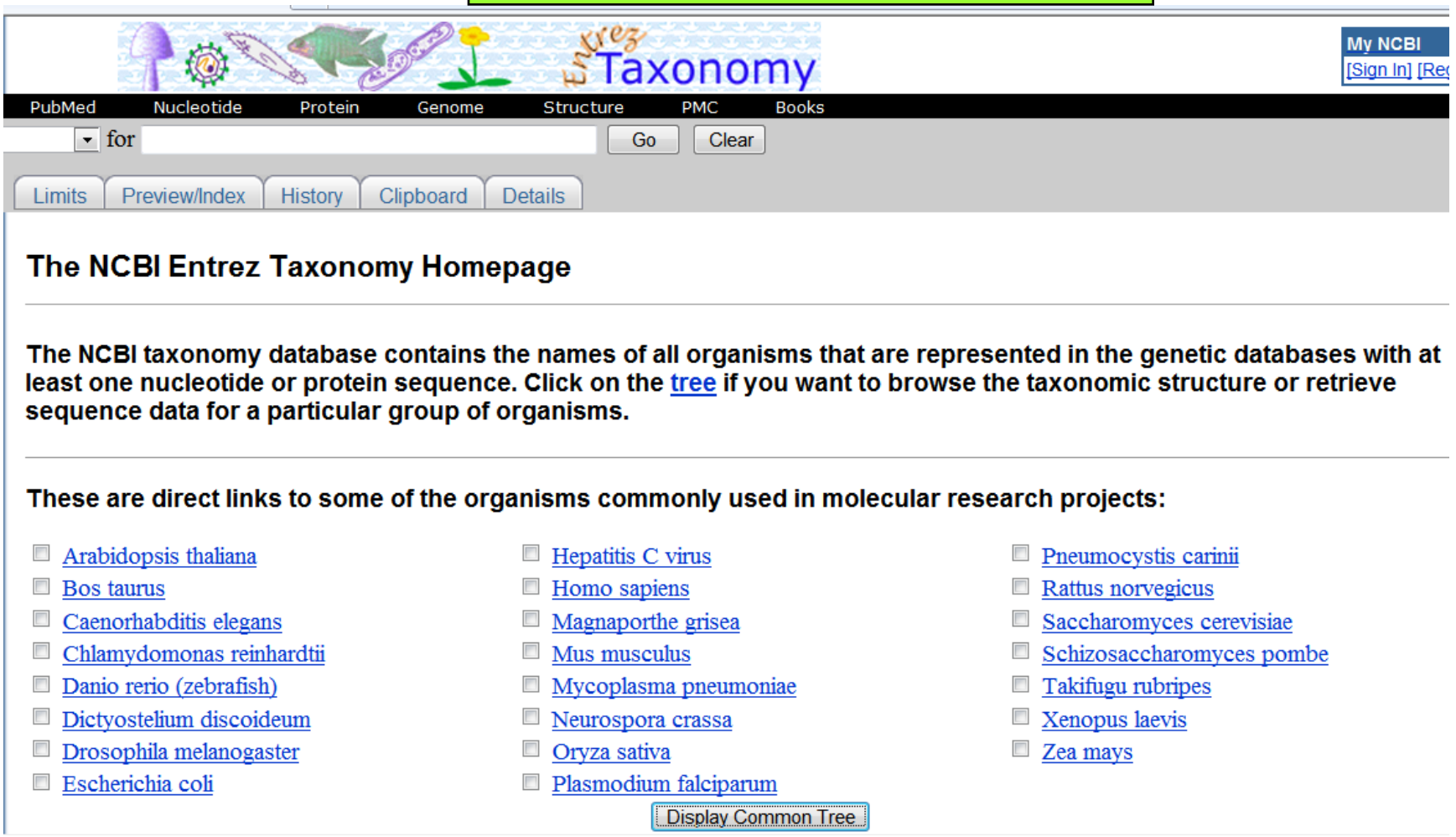
Polmar et al. (1976) reported successful treatment of a child with SCID due to ADA deficiency by 'enzyme replacement therapy' using frozen irradiated red blood cells with normal ADA activity. After treatment, a thymic shadow appeared radiographically, lymphocytic responses were demonstrated in vitro, and there was immunoglobulin synthesis. With infusions at 4-week intervals, the child remained free of infection for 17 months.

Ziegler et al. (1980) reported a patient with SCID due to ADA deficiency who was treated with ADA-positive red cell infusions. Although there was some resolution of interstitial pneumonitis and skeletal abnormalities, there was no evidence of immunologic reconstitution, and the patient died at age 17 months. The authors noted that severe cases of SCID due to ADA deficiency may not respond to exogenous enzyme therapy. Markert et al. (1987) reported 5 ADA-deficient patients who showed no lasting benefit from red blood cell transfusions.

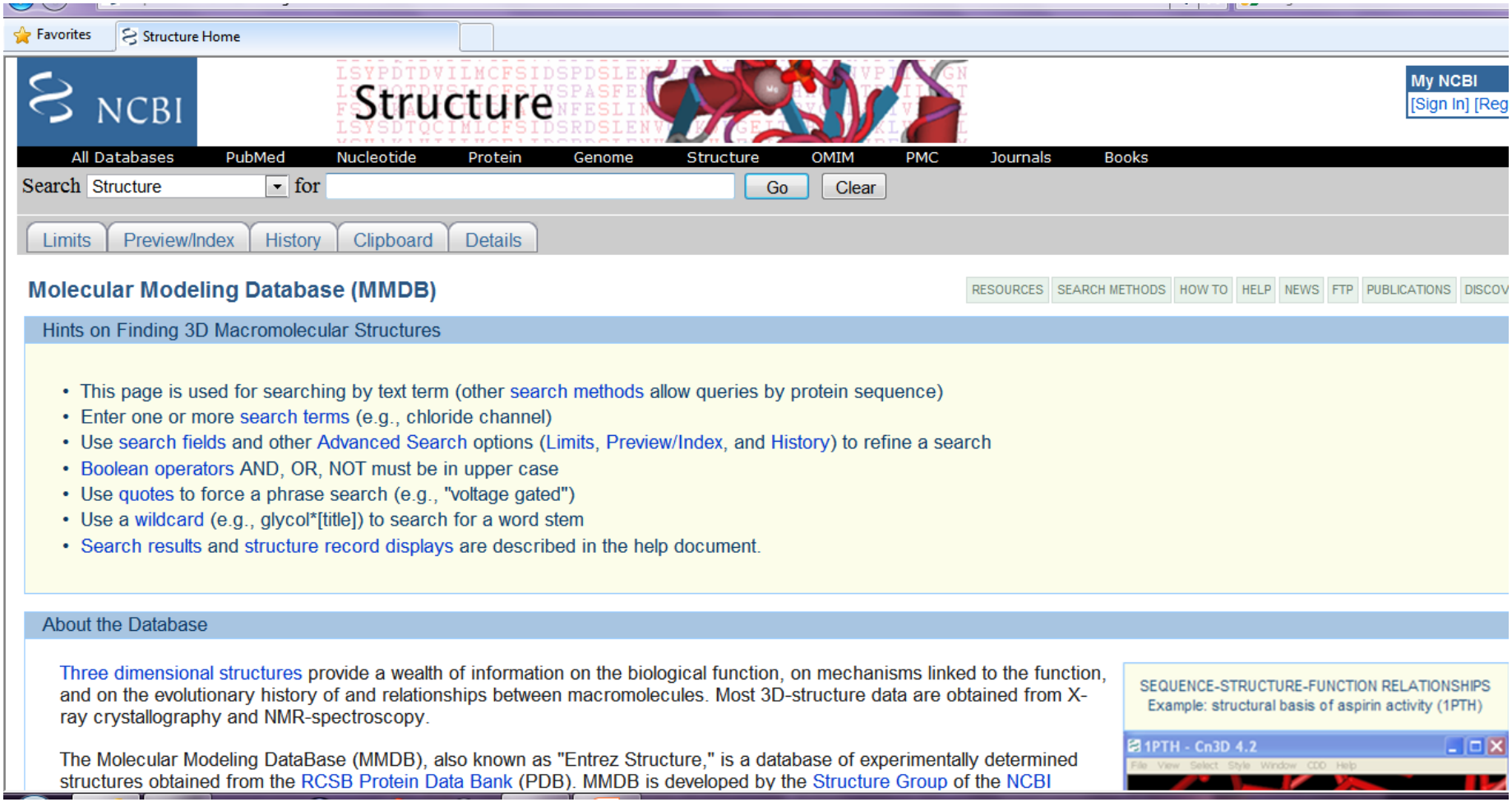
Hershfield et al. (1987) reported successful treatment of 2 SCID ADA-deficient patients with polyethylene glycol-modified bovine intestinal ADA (PEG-ADA). The modified enzyme was rapidly absorbed after intramuscular injection and had a half-life in plasma of 48 to 72 hours. Weekly doses maintained plasma ADA activity at 2 to 3 times the level of red cell ADA in normal subjects, resulting in a decrease in toxic deoxyadenosine nucleotides to less than 0.5% of total adenine nucleotides. The activity of S-adenosylhomocysteine hydrolase, which is inactivated by deoxyadenosine, increased to normal in red cells and nucleated marrow cells. Neither toxic effects nor hypersensitivity reactions were observed. In vitro tests of cellular immune function of each patient showed marked improvement, together with an increase in T lymphocytes. Covalent attachment of polyethylene glycol to ADA blocked access to vulnerable sites on the surface of the protein, inhibiting clearance from the circulation, attack by degrading enzymes, binding of antibodies, and processing by antigen-presenting cells.

Levy et al. (1988) reported a child who developed symptoms of SCID due to ADA deficiency at age 3 years. She had

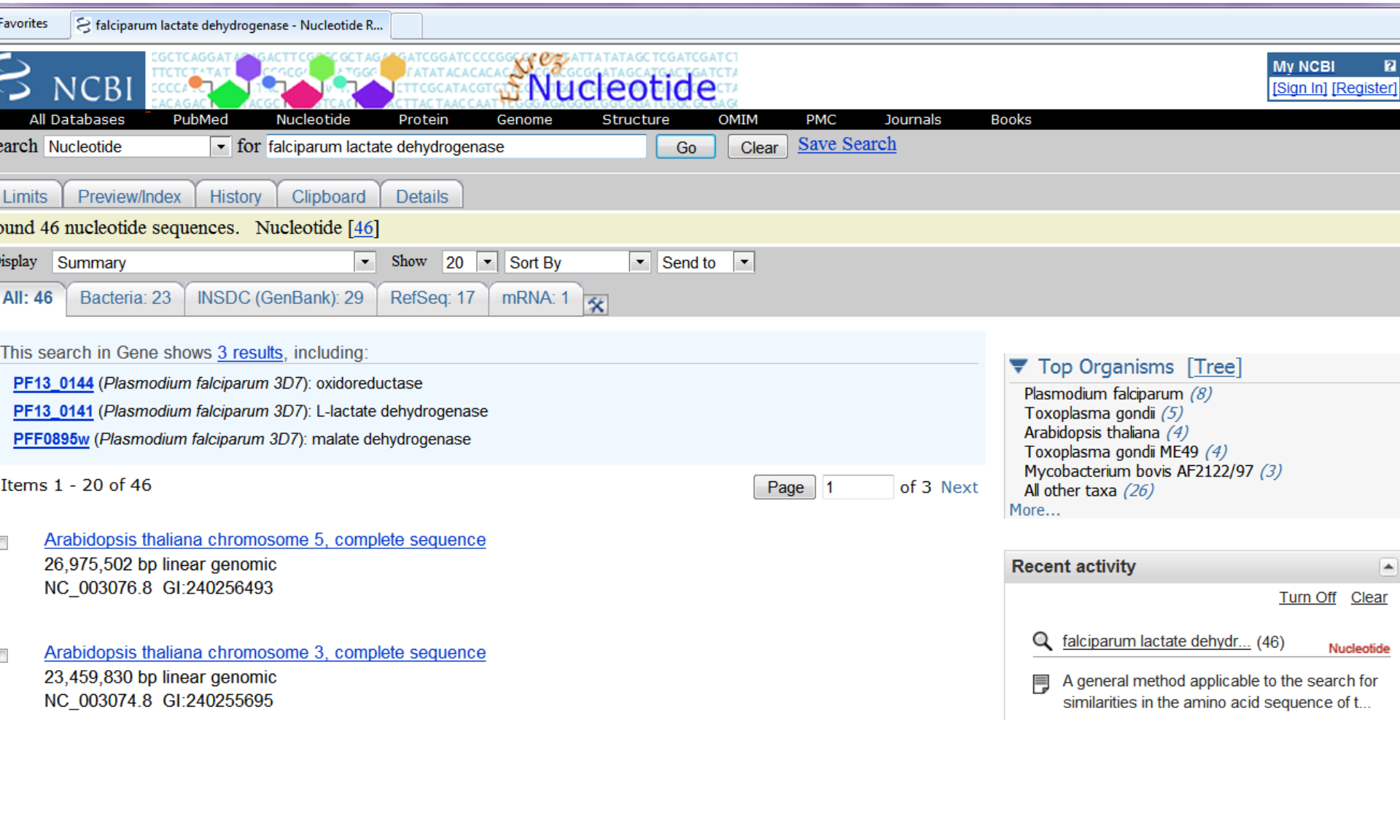
Organisms represented in the genetic database with at least one nucleotide or protein sequence



3D structure database as well as tools for visualization



You can search for RNA/DNA sequences on nucleotide



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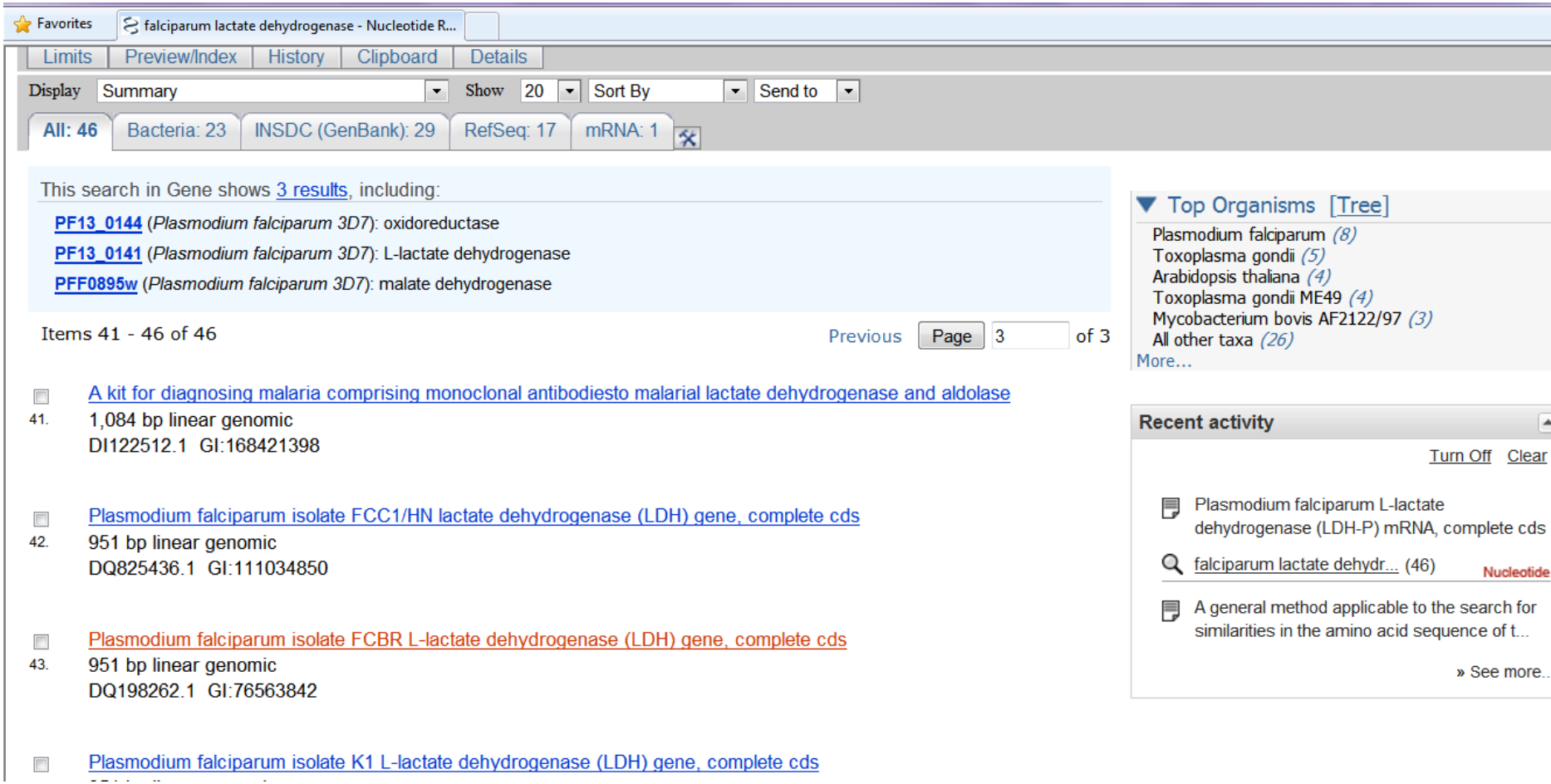

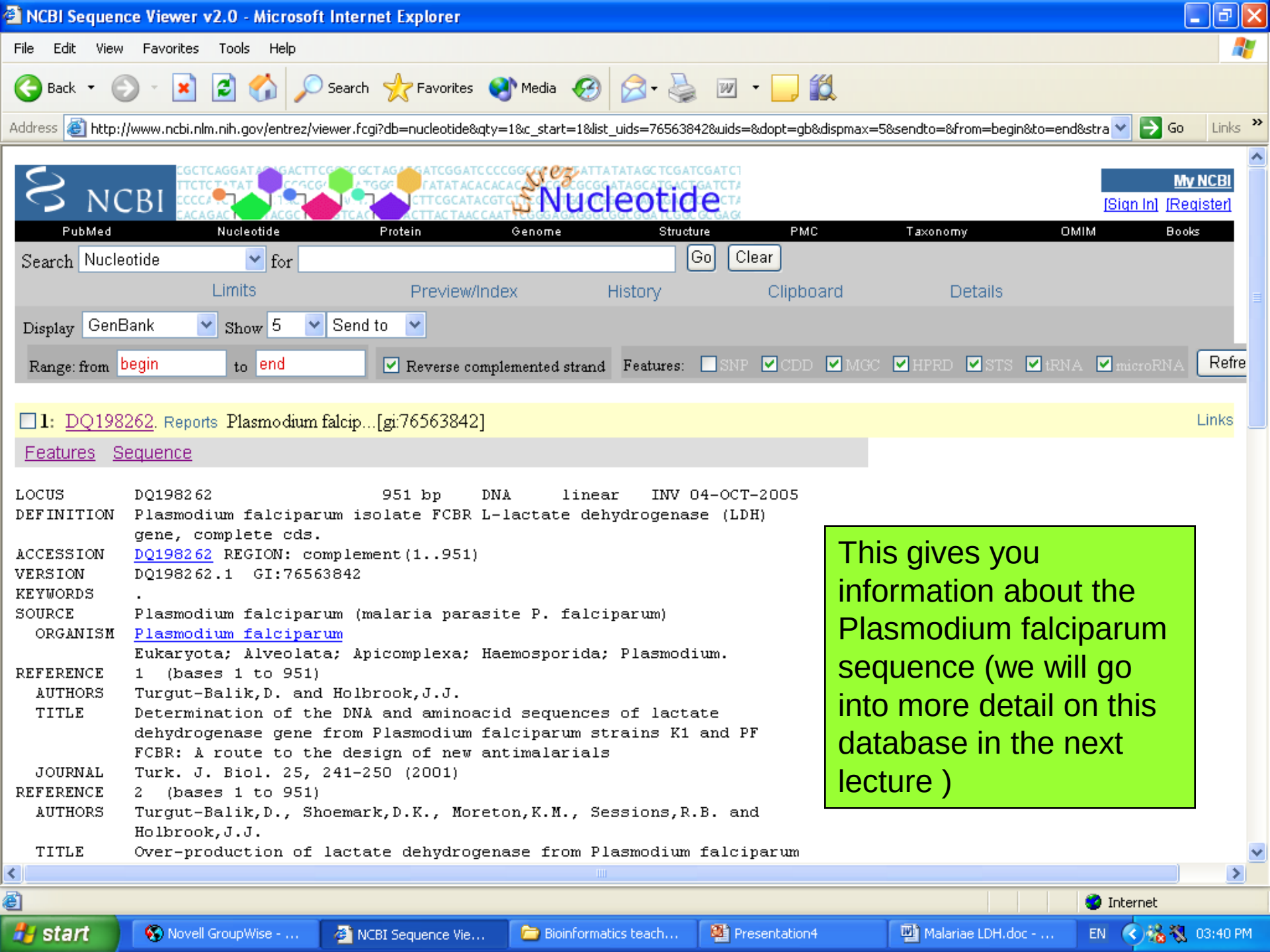
NCBI Sequence Viewer v2.0 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
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PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM Books
Search Nucleotide for Go Clear
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Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
REFERENCE 1 (bases 1 to 951)
AUTHORS Turgut-Balik,D. and Holbrook,J.J.
TITLE Determination of the DNA and aminoacid sequences of lactate dehydrogenase gene from Plasmodium falciparum strains K1 and PF FCBR: A route to the design of new antimalarials
JOURNAL Turk. J. Biol. 25, 241-250 (2001)
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AUTHORS Turgut-Balik,D., Shoemark,D.K., Moreton,K.M., Sessions,R.B. and Holbrook,J.J.
TITLE Over-production of lactate dehydrogenase from Plasmodium falciparum
This gives you information about the Plasmodium falciparum sequence (we will go into more detail on this database in the next lecture)
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Bioinformatics teach...
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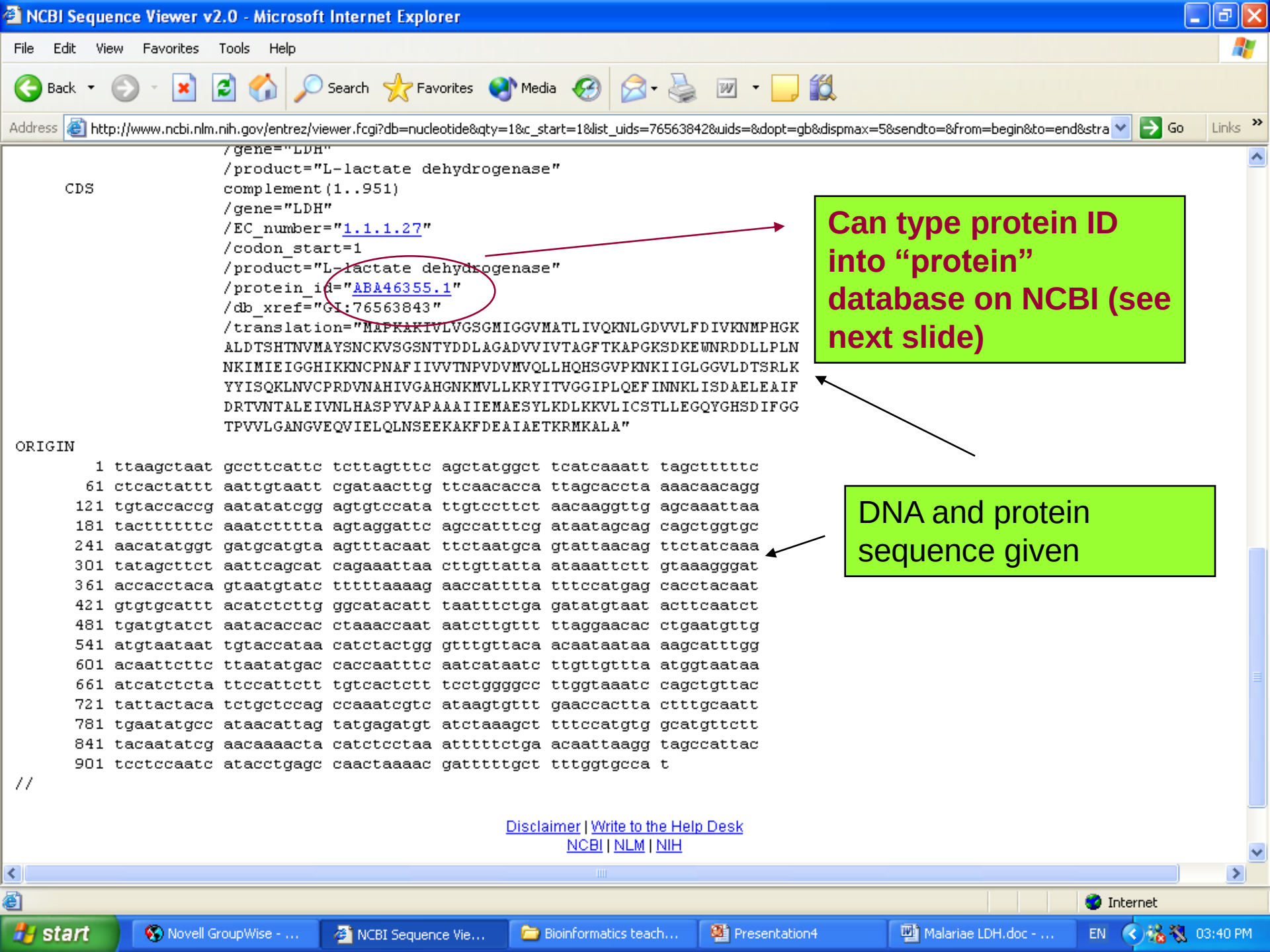
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File Edit View Favorites Tools Help
Back Search Favorites Media
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Novell GroupWise - ...
NCBI Sequence Vie...
Bioinformatics teach...
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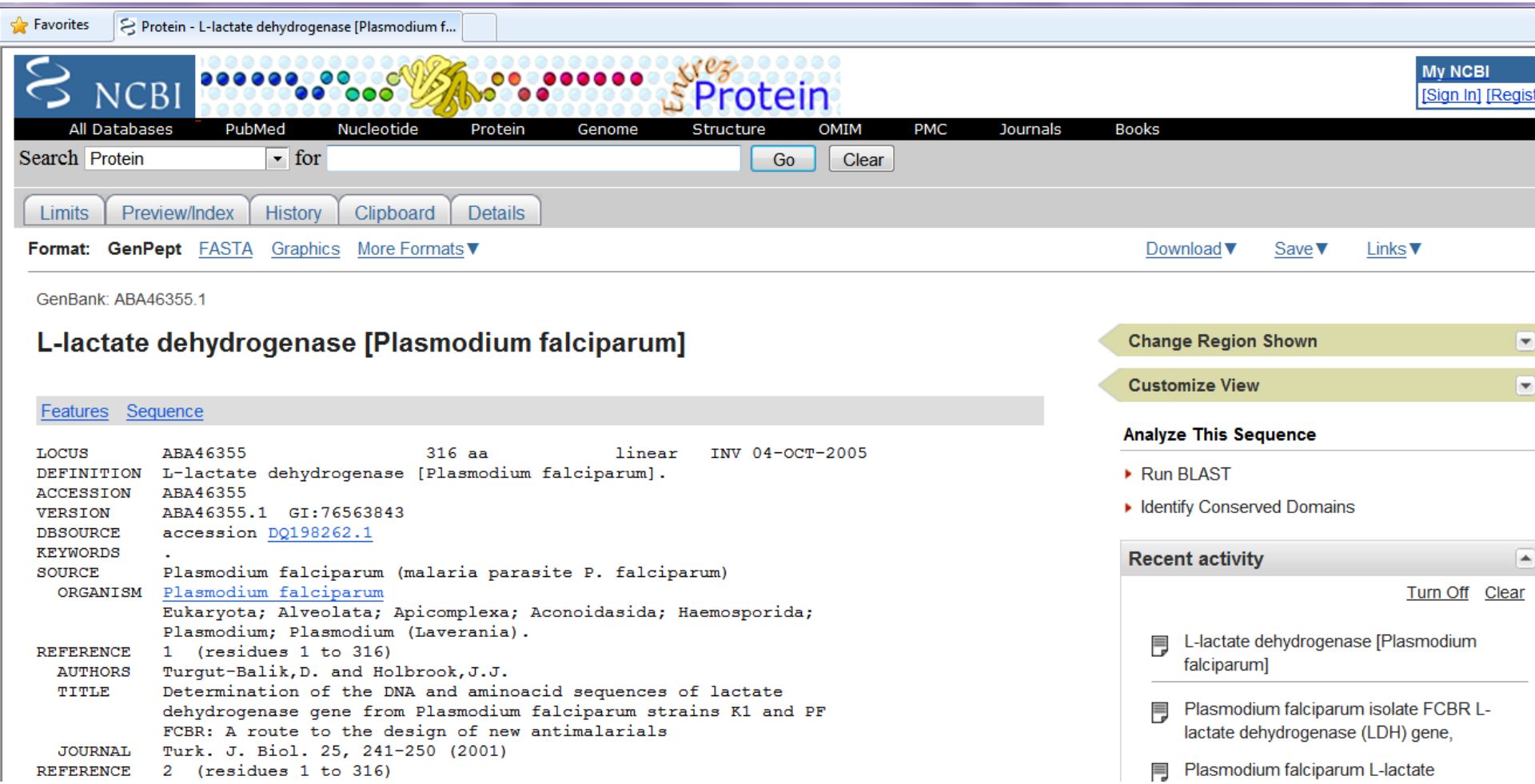
DNA and protein sequence given

Info on the protein



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                     TPVVLGANGVEQVIELQLNSEEKAKFDEAIAETKRMKALA"
ORIGIN
        1 atggcaccaa aagcaaaaat cgttttagtt ggctcaggta tgattggagg agtaatggct
       61 accttaattg ttcagaaaaa tttaggagat gtagttttgt tcgatattgt aaagaacatg
      121 ccacatggaa aagctttaga tacatctcat actaatgtta tggcatattc aaattgcaaa
      181 gtaagtggtt caaacactta tgacgatttg gctggagcag atgtagtaat agtaacagct
      241 ggatttacca aggccccagg aaagagtgac aaagaatgga atagagatga tttattacca
      301 ttaaacaaca agattatgat tgaaattggt ggtcatatta agaagaattg tccaaatgct
      361 tttattattg ttgtaacaaa cccagtagat gttatggtac aattattaca tcaacattca
      421 ggtgttccta aaaacaagat tattggttta ggtggtgtat tagatacatc aagattgaag
      481 tattacatat ctcagaaatt aaatgtatgc ccaagagatg taaatgcaca cattgtaggt
      541 gctcatggaa ataaaatggt tcttttaaaa agatacatta ctgtaggtgg tatcccttta
      601 caagaattta ttaataacaa gttaatttct gatgctgaat tagaagctat atttgataga
```

Tells you about the different regions of the protein (see next lecture for more detail)