生物情報工学 *BioInformatics*

３

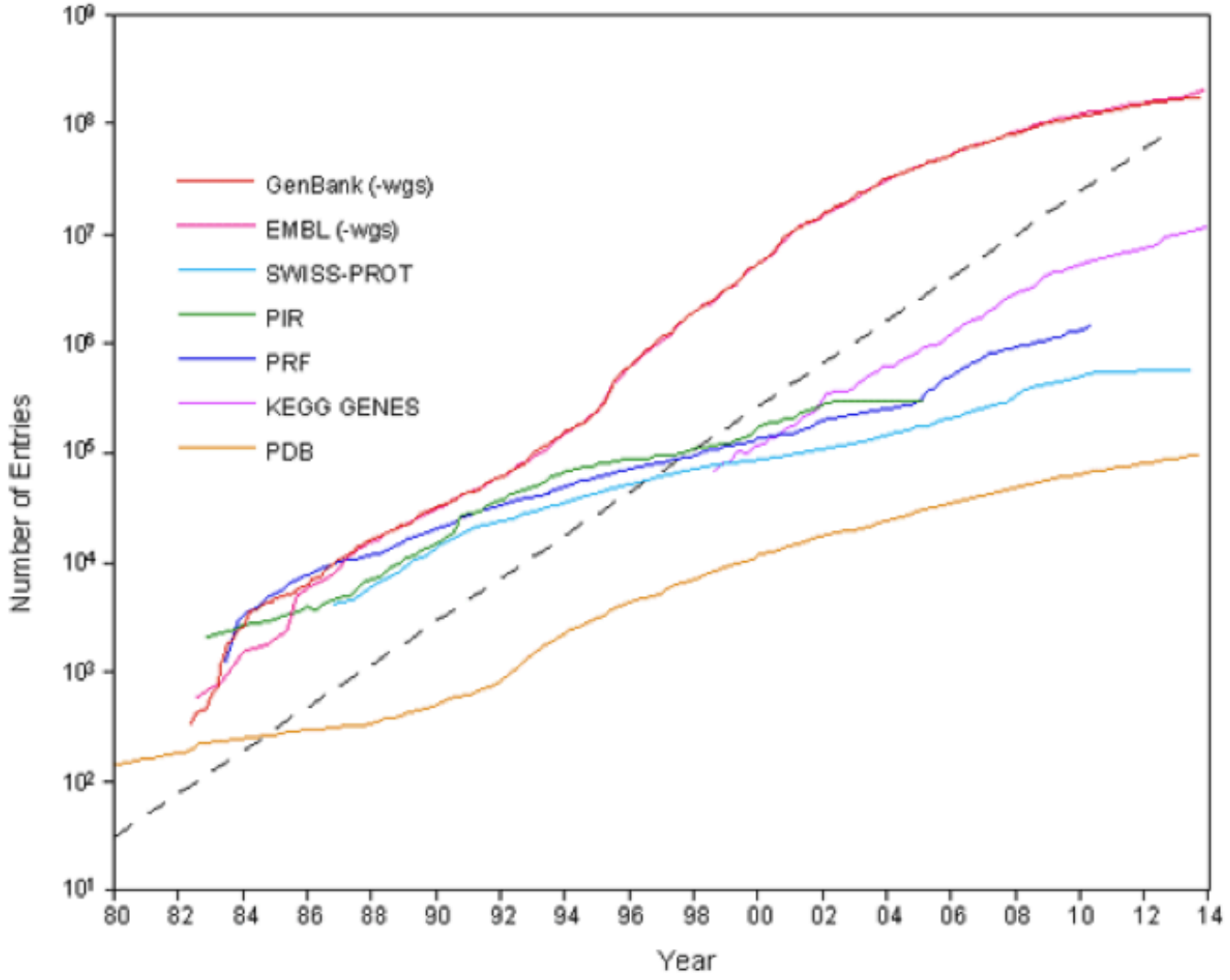
遺伝子データベース

国際塩基配列データベース

- **DNAのデータベース**
  - GenBank (アメリカ：National Center for Biotechnology Information, NCBIが運営）
  - EMBL （ヨーロッパ：欧州生命情報学研究所が運営）
  - DDBJ （日本：国立遺伝研内の日本DNAデータバンクが運営）
  - RefSeq (重複のない、包括的データーベース。NCBIが作成）

- **『DDBJ/EMBL/GenBank 国際塩基配列データベース（INSDC）』とは，全世界の研究者が実験によって決定したDNA (または RNA) の塩基配列データを，DDBJ/EMBL/GenBank 国際 DNA データバンクが，三者間で定めたデータ構築規範に沿って収集・編集し，コンピュータファイルのかたちで提供するもの**

配列・立体構造データベースのデータ量の増加



ゲノムネットのHPより引用

http://www.genome.jp/ja/

遺伝子データベース

- **ポータルサイト（統合データベース）**

  - GenomeNET（京都大学化学研究所バイオインフォマティクスセンターにより運営、後述）

    http://www.genome.jp

  - NCBIデータベース

    National Center for Biotechnology Informationの提供する膨大なリソース）

    http://www.ncbi.nlm.nih.gov/sites/gquery

ゲノムネットとは

- ゲノムネットは、ゲノム情報を基盤とした新しい生命科学研究と創薬・医療・環境保全への応用を推進するために、京都大学化学研究所バイオインフォマティクスセンターが提供するインターネットサービス。

- 1991年9月に文部省ヒトゲノムプログラムの一環として、京都大学化学研究所で開発を開始。

- 当初は欧米の分子生物学データベースを我が国でも統合利用できる環境作りに主眼。DBGET 等の開発。

- 1995年に生命システム情報統合データベース KEGG の構築を開始し、KEGG の発展とともにゲノムネットは世界有数のバイオ情報サービスへと発展。
- （ゲノムネット　HPより引用）

ゲノムネットにアクセスする

GenomeNet

KEGG KEGG2 PATHWAY BRITE MEDICUS DBGET LinkDB

[English | Japanese]

Search 統合データベース for Go Clear

ゲノムネット
ゲノムネットとは
お知らせ
謝辞

統合データベース
統合DBの概要
DBGETの概要
リリース情報

医薬品データベース

KEGG

varDB

研究支援データベース

計算ツール
その他のツール

FTP

フィードバック

ゲノムネットデータベースリソース

ゲノムネット統合データベース

DBGET search
LinkDB search　SPARQL エンドポイント *New!*

KEGG: 生命システム情報統合データベース
KEGG2 - 目次のページ
KEGG PATHWAY - システム情報: パスウェイ
KEGG BRITE - システム情報: オントロジー
KEGG Organisms - 生物種ごとの入口
KEGG GENES - ゲノム情報
KEGG LIGAND - ケミカル情報
KEGG MEDICUS - 疾患・医薬品情報

Reaction Ontology: 反応パターンと分類

varDB: 抗原変異データベース

研究支援データベース

CYORF - シアノバクテリア
BSORF - 枯草菌
EXPRESSION - 遺伝子発現プロフィール

BRITE 機能階層 (日本語)
KEGG パスウェイマップ
KEGG 生物種

生物種ごとのゲノム一覧
完全 (KEGG GENES)
ドラフト (KEGG DGENES)
メタ (KEGG MGENES)
ウイルス (KEGG VGENES)
EST (EGENES)

オーソログクラスタ（OC）

データベース間のリンク

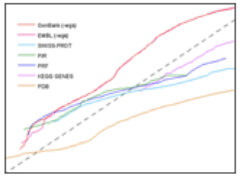
ゲノムネット計算ツール

配列解析

BLAST / FASTA - ホモロジー検索
リボソーム RNA データベース追加*Updated!*
MOTIF - モチーフ検索
CLUSTALW / MAFFT / PRRN - 複数アライメント

ゲノム情報解析

OC Viewer - オーソログクラスタ *Updated!*
REST サービス
KAAS - KEGG自動アノテーションサーバー



データベース増加図

http://www.genome.jp/ja/

KEGG の概要

KEGG Home
- Release notes
- Current statistics
- Plea from KEGG

KEGG Database
- KEGG の概要
- Searching KEGG
- KEGG mapping
- Color codes

KEGG Objects
- Pathway maps
- Brite hierarchies

KEGG Software
- KegTools
- KEGG API
- KGML

KEGG FTP
- 利用申し込み

ゲノムネット

DBGET/LinkDB

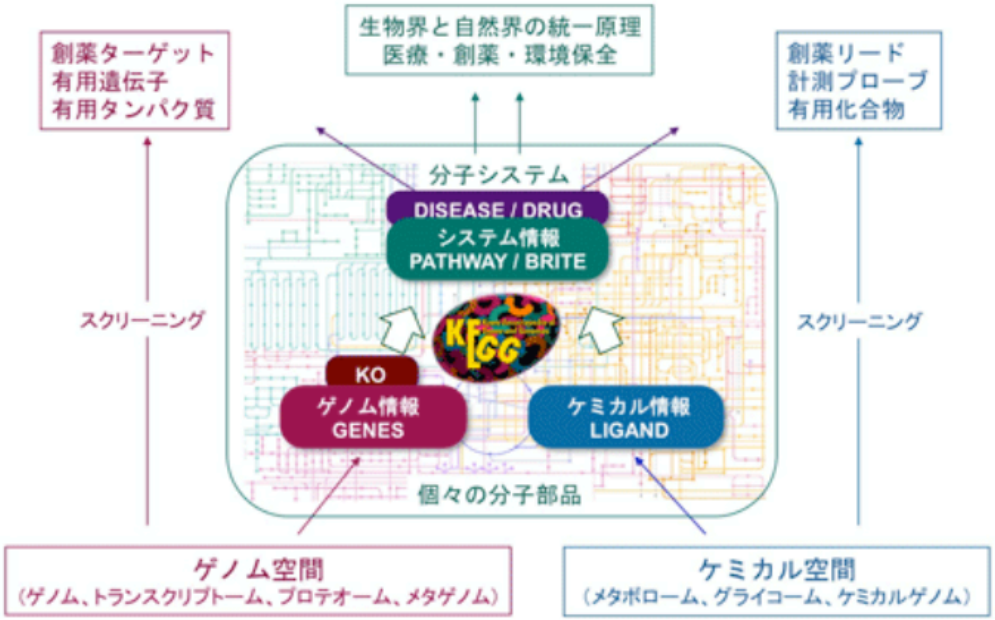
Feedback

Kanehisa Labs

KEGG の概要

1. ゲノムから生命システムへ

KEGG はゲノムや分子レベルの情報から細胞、個体、エコシステムといった生命システムの機能や有用性を理解するためのリソースです。生命システムのコンピュータ表現として、遺伝子やタンパク質（ゲノム情報）と化合物など（ケミカル情報）の分子部品の情報を、分子間の相互作用・反応・関係ネットワーク（システム情報）の知識で統合した生命システム情報統合データベースです。さらに生体システムのゆらぎとして疾患・医薬品情報（ヘルス情報）も統合されています。



KEGG は 1995年より金久ラボラトリーズで開発されており、今ではゲノムと高次生命システムをつなぐ知識のレファレンスとして、とくにシークエンシングやその他のハイスループット実験技術がもたらす大量データの統合処理・解釈に広く利用されています。

http://www.genome.jp/kegg/kegg1a_ja.html

KEGG の概要

- **KEGG は**
- **生命システムをコンピュータの中に再現した「生命システム情報統合データベース」**
  - 遺伝子・タンパク質に関するゲノム情報（KEGG GENES）、
  - 生体内外の化学物質と生体内反応に関するケミカル情報（KEGG LIGAND）、
  - 分子間相互作用・反応ネットワークに関するシステム情報（KEGG PATHWAY）、
  - 分子・細胞・個体に関する様々なオブジェクトの階層と関係（KEGG BRITE）などから構成
  - ゲノム情報と疾患との関係、医薬品の作用などに関するヘルス情報

遺伝子データベースをのぞいてみよう

- まずはポータルサイトから
- 今日紹介するのは　ゲノムネットのDBGET Search
- http://www.genome.jp/dbget/

DBGET Search

DBGET | LinkDB | KEGG2

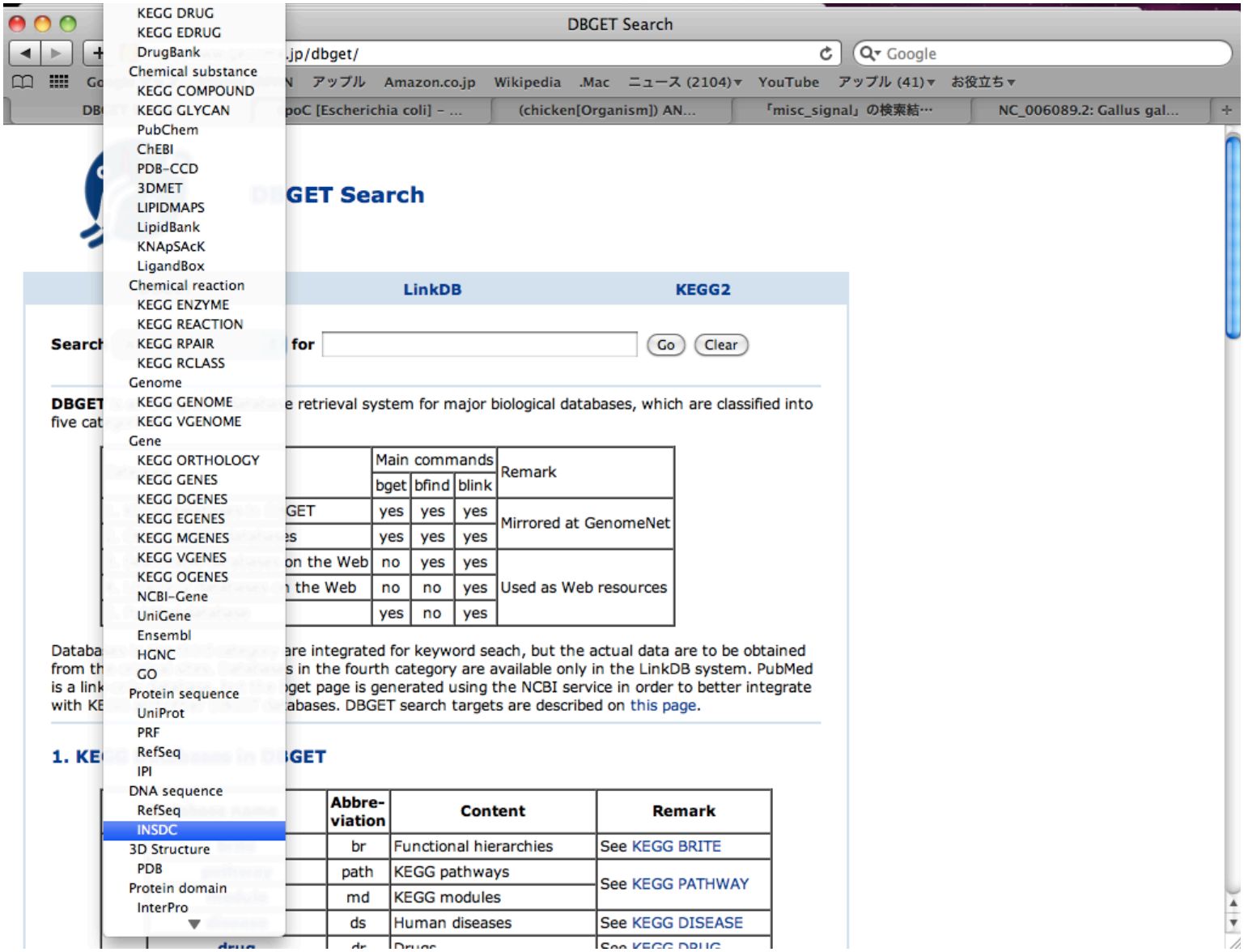
Search All databases for [ ] Go Clear

DBGET is an integrated database retrieval system for major biological databases, which are classified into five categories:

Category	Main commands			Remark
	bget	bfind	blink	
1. KEGG databases in DBGET	yes	yes	yes	Mirrored at GenomeNet
2. Other DBGET databases	yes	yes	yes	
3. Searchable databases on the Web	no	yes	yes	Used as Web resources
4. Link-only databases on the Web	no	no	yes	
5. PubMed database	yes	no	yes	

Databases in the third category are integrated for keyword seach, but the actual data are to be obtained from the original sites. Databases in the fourth category are available only in the LinkDB system. PubMed is a link-only database, but the bget page is generated using the NCBI service in order to better integrate with KEGG and other DBGET databases. DBGET search targets are described on this page.

pUC18のDNA情報を調べる（1）



pUC18のDNA情報を調べる（2）

cloning vector

GenomeNet

Search INSDC for pUC18 Go Clear

Database: INSDC - Search term: pUC18 (Total 76 hits)

KM080141 [GenBank] [EMBL] [DDBJ]
[KM080141] Dendrocincla fuliginosa voucher MPEGPUC185 cytochrome b (CYTB) gene, partial cds; mitochondrial.
KM080696 [GenBank] [EMBL] [DDBJ]
[KM080696] Microcerculus marginatus voucher MPEGPUC182 cytochrome b (CYTB) gene, complete cds; mitochondrial.
KM080858 [GenBank] [EMBL] [DDBJ]
[KM080858] Myrmotherula axillaris voucher PUC184 cytochrome b (CYTB) gene, partial cds; mitochondrial.
EF682133 [GenBank] [EMBL] [DDBJ]
[EF682133] Klebsiella pneumoniae plasmid pUC18-10 putative transposase, QnrB1 (qnrB1), and short-chain dehydrogenase/reductase genes, complete cds.
EU142944 [GenBank] [EMBL] [DDBJ]
[EU142944] Acinetobacter haemolyticus strain TA34 plasmid pUPI190 clone pUC18.38 putative tellerium resistance protein, partial sequence.
EU142945 [GenBank] [EMBL] [DDBJ]
[EU142945] Acinetobacter haemolyticus strain TA34 plasmid pUPI190 clone pUC18.39 putative tellerium resistance protein, partial sequence.
EU142946 [GenBank] [EMBL] [DDBJ]
[EU142946] Acinetobacter haemolyticus strain TA34 plasmid pUPI190 clone pUC18.42 putative tellerium resistance protein, partial sequence.
Y11480 [GenBank] [EMBL] [DDBJ]
[Y11480] S.mansoni male W2 repetitive sequence, clone pUC18-37.
Y11481 [GenBank] [EMBL] [DDBJ]
[Y11481] S.mansoni female W2 repetitive sequence, clone pUC18-116B.
AJ427483 [GenBank] [EMBL] [DDBJ]
[AJ427483] Farfantepenaeus notialis microsatellite DNA, clone pUC18-72.
A01519 [GenBank] [EMBL] [DDBJ]
[A01519] Nucleotide sequence of multilinker (modified from pUC18).
A02710 [GenBank] [EMBL] [DDBJ]
[A02710] pUC18 DNA sequence.
A09966 [GenBank] [EMBL] [DDBJ]
[A09966] Synthetic E.acervulina (plasmid pUC18/pEa1a) mRNA for antigen.
A23654 [GenBank] [EMBL] [DDBJ]
[A23654] pUC18 universal primer region complementary primer.
E12615 [GenBank] [EMBL] [DDBJ]
[E12615] Nucleotide sequence of PUC18.
E12818 [GenBank] [EMBL] [DDBJ]
[E12818] PCR primer for amplifying plasmid pUC18.
E12819 [GenBank] [EMBL] [DDBJ]
[E12819] PCR primer for amplifying plasmid pUC18.

pUC18のDNA情報を調べる（3）

GenomeNet

Search INSDC for puc18 cloning vector Go Clear

Database: INSDC - Search term: puc18 cloning vector (Total 28 hits)

AJ810102 [GenBank] [EMBL] [DDBJ]
[AJ810102] Cloning vector pUC18 MboI fragment, clone CFD01H08.
AJ810105 [GenBank] [EMBL] [DDBJ]
[AJ810105] Cloning vector pUC18 MboI fragment, clone CFD10C02.
AJ810111 [GenBank] [EMBL] [DDBJ]
[AJ810111] Cloning vector pUC18 MboI fragment, clone CFD14D10.
AJ810112 [GenBank] [EMBL] [DDBJ]
[AJ810112] Cloning vector pUC18 MboI fragment, clone CFD14F08.
AY599226 [GenBank] [EMBL] [DDBJ]
[AY599226] Cloning vector pUC18-mini-Tn7, complete sequence.
AY599227 [GenBank] [EMBL] [DDBJ]
[AY599227] Cloning vector pUC18-mini-Tn7T, complete sequence.
AY599228 [GenBank] [EMBL] [DDBJ]
[AY599228] Cloning vector pUC18-R6K-mini-Tn7T, complete sequence.
AY599229 [GenBank] [EMBL] [DDBJ]
[AY599229] Cloning vector pUC18Pv-mini-Tn7T, complete sequence.
AY599230 [GenBank] [EMBL] [DDBJ]
[AY599230] Cloning vector pUC18T-mini-Tn7T, complete sequence.
AY599231 [GenBank] [EMBL] [DDBJ]
[AY599231] Cloning vector pUC18-mini-Tn7T-Gm, complete sequence.
AY599232 [GenBank] [EMBL] [DDBJ]

[AY737006] Cloning vector pUC18-mini-Tn7T-Tp-Gateway, complete sequence.
AY884832 [GenBank] [EMBL] [DDBJ]
[AY884832] Cloning and suicide delivery vector pUC18R6KT, complete sequence.
AY884834 [GenBank] [EMBL] [DDBJ]
[AY884834] Cloning and Tn7 delivery vector pUC18R6K-mini-Tn7T-Km, complete sequence.
DQ153108 [GenBank] [EMBL] [DDBJ]
[DQ153108] Cloning vector pUC18R6K-mini-Tn7T-Gm, complete sequence.
DQ493875 [GenBank] [EMBL] [DDBJ]
[DQ493875] Cloning vector pUC18T-mini-Tn7T-Tp, complete sequence.
DQ493876 [GenBank] [EMBL] [DDBJ]
[DQ493876] Cloning vector pUC18T-mini-Tn7T-Zeo, complete sequence.
SYNPUC18V [GenBank] [EMBL] [DDBJ]
[L08752] pUC18 cloning vector.
SYNPUC18CV [GenBank] [EMBL] [DDBJ]
[L09136] pUC18c cloning vector (beta-galactosidase mRNA on complementary strand).
X70275 [GenBank] [EMBL] [DDBJ]
[X70275] pUC18 and phage f1 derivative cloning vector.

DBGET integrated database retrieval system

pUC18のDNA情報

Display Settings: GenBank　　Send to:

pUC18 cloning vector

GenBank: L08752.1

FASTA　Graphics

Go to:

```
LOCUS       SYNPUC18V               2686 bp    DNA     circular SYN 27-APR-1993
DEFINITION  pUC18 cloning vector.
ACCESSION   L08752
VERSION     L08752.1  GI:209211
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (sites)
  AUTHORS   Norrander,J., Kempe,T. and Messing,J.
  TITLE     Construction of improved M13 vectors using
            oligodeoxynucleotide-directed mutagenesis
  JOURNAL   Gene 26 (1), 101-106 (1983)
   PUBMED   6323249
REFERENCE   2  (bases 1 to 2686)
  AUTHORS   Gilbert,W.
  TITLE     Obtained from VecBase 3.0
  JOURNAL   Unpublished (1991)
COMMENT     These data and their annotation were supplied to GenBank by Will
            Gilbert under the auspices of the GenBank Currator Program. pUC18 -
            Cloning vector
            ENTRY PUC18                    #TYPE DNA CIRCULAR
            TITLE pUC18 - Cloning vector
            DATE      17-SEP-1986
               #sequence  16-DEC-1986
            ACCESSION VB0025
            SOURCE    artificial
            COLLECTION  ATCC 37253
            REFERENCE
               #number  1
               #authors  Norrander J., Kempe T., Messing J.
               #journal Gene (1983) 26: 101-106
            REFERENCE
               #number 2
               #authors Pouwels P.H., Enger-Valk B.E., Brammar W.J.
```

Change region shown

Customize view

Analyze this sequence

Run BLAST

Pick Primers

Find in this Sequence

All links from this record

Full text in PMC

GEO Profiles

PubMed

Taxonomy

Recent activity

Turn Off　Clear

pUC18 cloning vector　Nucleotide

See more...

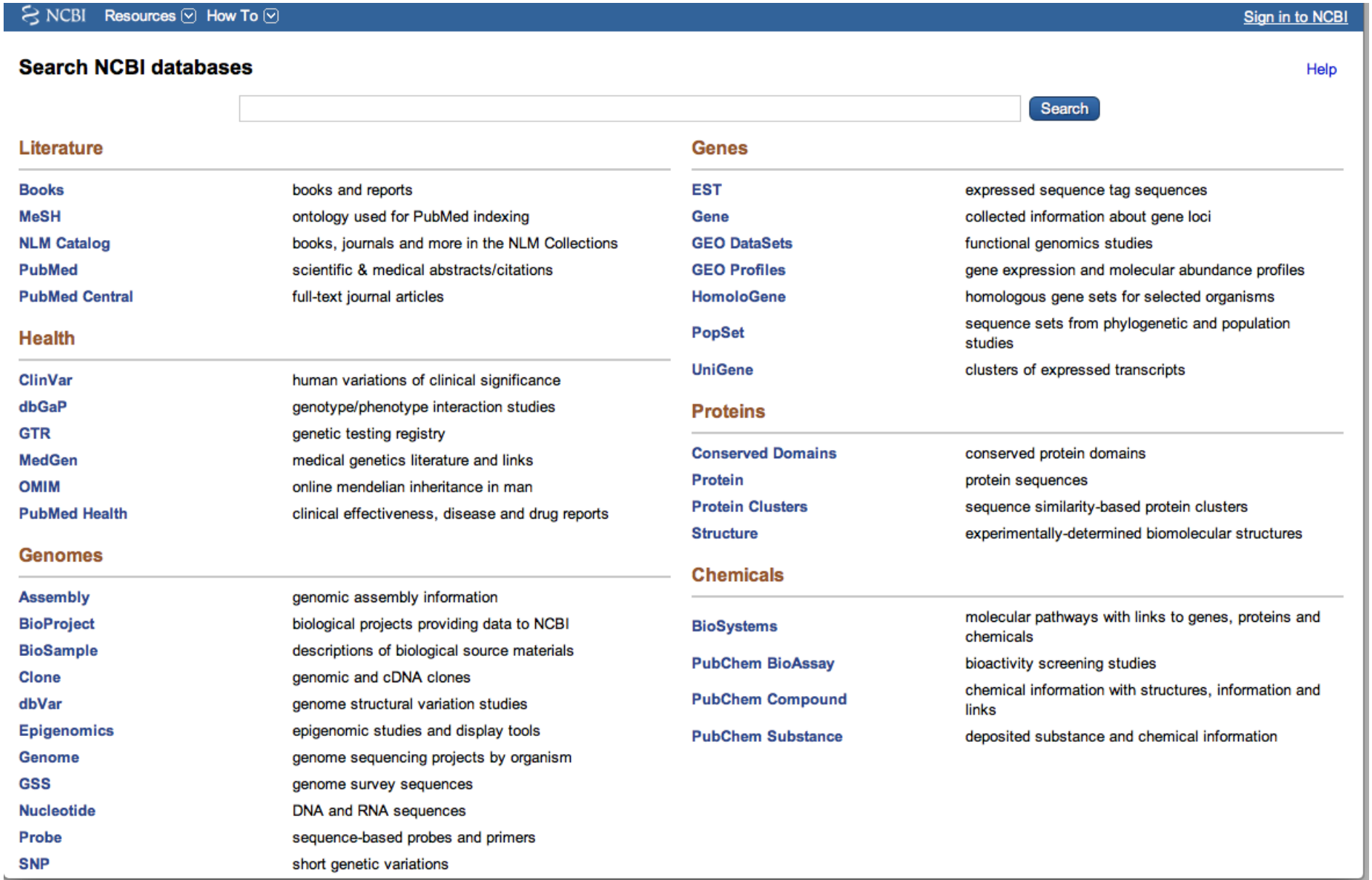
テキスト保存しておく

NCBI database

- PubMed（先週学習した）
- Nucleotide　Database　（GenBank）
- Protein　Database
- Genome　Database
- Taxonomy　Database（分類学情報データベース）
- SNP（一塩基多型）データベース
- など

NCBI databaseにアクセスする

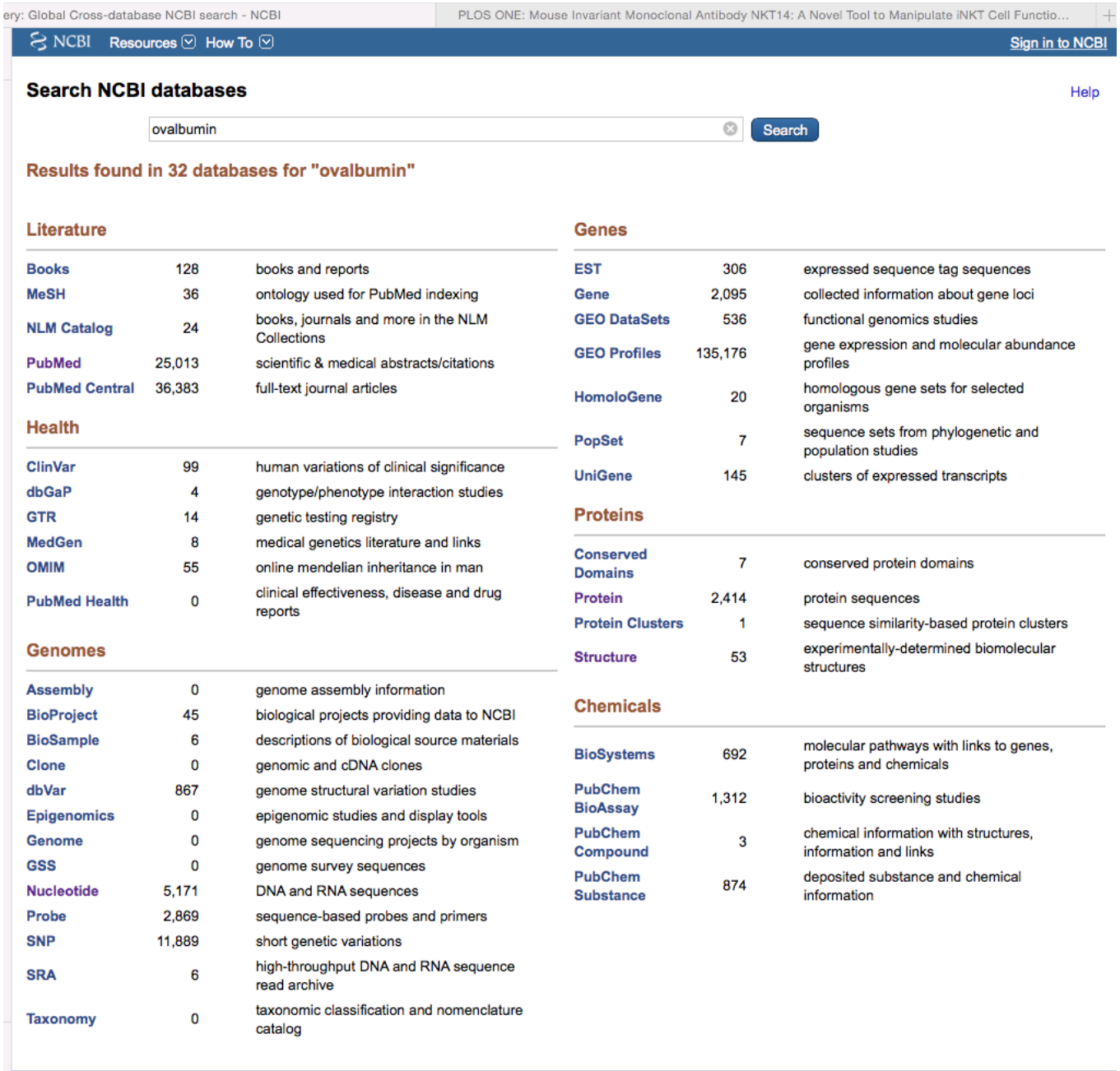
http://www.ncbi.nlm.nih.gov



演習

- ovalbumin のDNAデータを入手する。
- 卵白の主要タンパク質。
- NCBI databaseのサーチボックスに入力、検索。

検索結果1



ery: Global Cross-database NCBI search - NCBI | PLOS ONE: Mouse Invariant Monoclonal Antibody NKT14: A Novel Tool to Manipulate iNKT Cell Functio...

NCBI Resources How To Sign in to NCBI

Search NCBI databases Help

ovalbumin Search

Results found in 32 databases for "ovalbumin"

Literature

Books	128	books and reports
MeSH	36	ontology used for PubMed indexing
NLM Catalog	24	books, journals and more in the NLM Collections
PubMed	25,013	scientific & medical abstracts/citations
PubMed Central	36,383	full-text journal articles

Health

ClinVar	99	human variations of clinical significance
dbGaP	4	genotype/phenotype interaction studies
GTR	14	genetic testing registry
MedGen	8	medical genetics literature and links
OMIM	55	online mendelian inheritance in man
PubMed Health	0	clinical effectiveness, disease and drug reports

Genomes

Assembly	0	genome assembly information
BioProject	45	biological projects providing data to NCBI
BioSample	6	descriptions of biological source materials
Clone	0	genomic and cDNA clones
dbVar	867	genome structural variation studies
Epigenomics	0	epigenomic studies and display tools
Genome	0	genome sequencing projects by organism
GSS	0	genome survey sequences
Nucleotide	5,171	DNA and RNA sequences
Probe	2,869	sequence-based probes and primers
SNP	11,889	short genetic variations
SRA	6	high-throughput DNA and RNA sequence read archive
Taxonomy	0	taxonomic classification and nomenclature catalog

Genes

EST	306	expressed sequence tag sequences
Gene	2,095	collected information about gene loci
GEO DataSets	536	functional genomics studies
GEO Profiles	135,176	gene expression and molecular abundance profiles
HomoloGene	20	homologous gene sets for selected organisms
PopSet	7	sequence sets from phylogenetic and population studies
UniGene	145	clusters of expressed transcripts

Proteins

Conserved Domains	7	conserved protein domains
Protein	2,414	protein sequences
Protein Clusters	1	sequence similarity-based protein clusters
Structure	53	experimentally-determined biomolecular structures

Chemicals

BioSystems	692	molecular pathways with links to genes, proteins and chemicals
PubChem BioAssay	1,312	bioactivity screening studies
PubChem Compound	3	chemical information with structures, information and links
PubChem Substance	874	deposited substance and chemical information

検索結果2 (PubMed)

NCBI Resources How To Sign in to NCBI

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed | ovalbumin | Search

Create RSS Create alert Advanced Help

Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

PubMed Commons
Reader comments
Trending articles

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

Clear all

Show additional filters

Summary 20 per page Sort by Most Recent Send to:

Filters: Manage Filters

See 54 articles about Serpinb2 (**OVALBUMIN**) gene function
See also: Serpinb2 (**OVALBUMIN**) serine (or cysteine) peptidase inhibitor, clade B, member 2 in the Gene database
ovalbumin in Mus musculus (3) All 54 Gene records

Search results

Items: 1 to 20 of 25013

<< First < Prev Page 1 of 1251 Next > Last >>

1. Short-term hyperprolactinemia decreases allergic inflammatory response of the lungs.
Ochoa-Amaya JE, Hamasato EK, Tobaruela CN, Queiroz-Hazarbassanov N, Anselmo Franci JA, Palermo-Neto J, Greiffo FR, de Britto AA, Vieira RP, Ligeiro de Oliveira AP, Massoco Salles-Gomes CO, Felicio LF.
Life Sci. 2015 Oct 15. pii: S0024-3205(15)30042-4. doi: 10.1016/j.lfs.2015.10.016. [Epub ahead of print]
PMID: 26477293
Similar articles

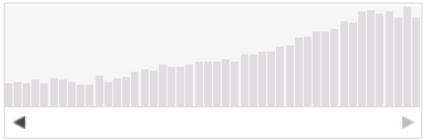
2. Mouse Invariant Monoclonal Antibody NKT14: A Novel Tool to Manipulate iNKT Cell Function In Vivo.
Scheuplein F, Lamont DJ, Poynter ME, Boyson JE, Serreze D, Lundblad LK, Mashal R, Schaub R.
PLoS One. 2015 Oct 16;10(10):e0140729. doi: 10.1371/journal.pone.0140729. eCollection 2015.
PMID: 26474487 **Free Article**
Similar articles

3. Anti-Tumor Effects after Adoptive Transfer of IL-12 Transposon-Modified Murine Splenocytes in the OT-I-Melanoma Mouse Model.
Galvan DL, O'Neil RT, Foster AE, Huye L, Bear A, Rooney CM, Wilson MH.
PLoS One. 2015 Oct 16;10(10):e0140744. doi: 10.1371/journal.pone.0140744. eCollection 2015.
PMID: 26473608 **Free Article**
Similar articles

4. Design and Development of Immunomodulatory Antigen Delivery Systems Based on Peptide/PEG-PLA Conjugate for Tuning Immunity.

New feature
Try the new Display Settings option - **Sort by Relevance**

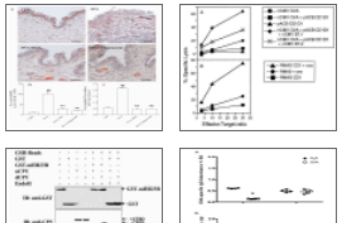
Results by year



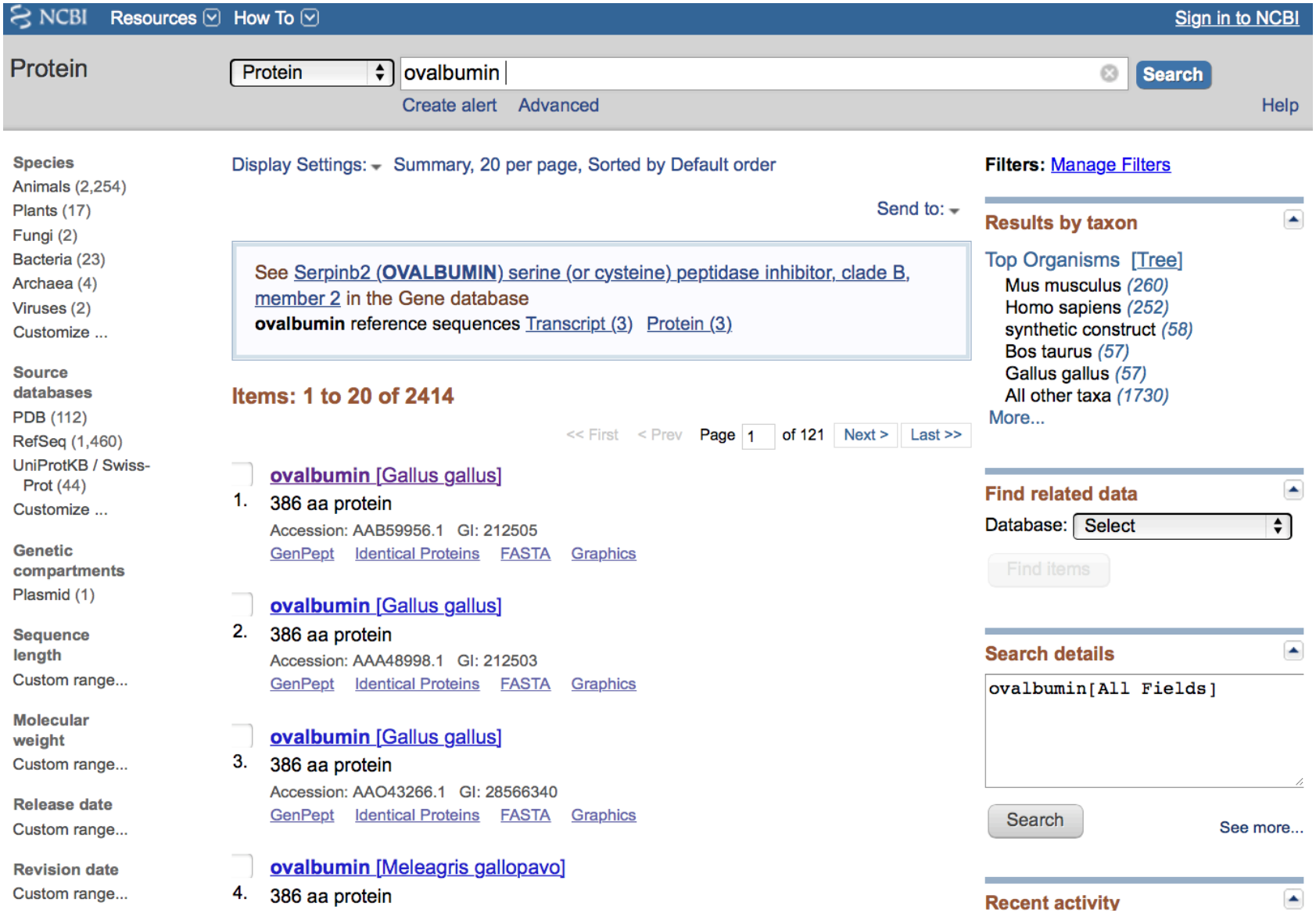
Download CSV

Related searches
ovalbumin mice
asthma **ovalbumin**
ovalbumin mouse
ovalbumin immunization
ovalbumin rat

PMC Images search for *ovalbumin*



検索結果3 (Protein)



検索結果4 (Structure)

NCBI Resources How To Sign in to NCBI

Structure Structure ovalbumin Search

Save search Advanced Help

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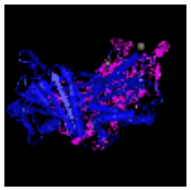
1. 

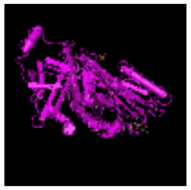
Crystal Structure Of Uncleaved **Ovalbumin** At 1.95 Angstroms Resolution[Serpin]

Taxonomy: Gallus gallus

Proteins: 2 Chemicals: 3 modified: 2013/01/13 00:00

MMDB ID: 106415 PDB ID: 1OVA

View in Cn3D Similar Structures PubMed Proteins Conserved Domains PubChem Compound

2. 

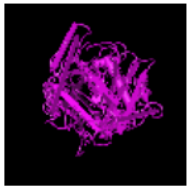
Crystal Structure Of S-**ovalbumin** At 1.9 Angstrom Resolution[Allergen]

Taxonomy: Gallus gallus

Proteins: 1 Chemicals: 4 modified: 2013/02/06 00:00

MMDB ID: 24399 PDB ID: 1UHG

View in Cn3D Similar Structures PubMed Proteins Conserved Domains PubChem Compound

3. 

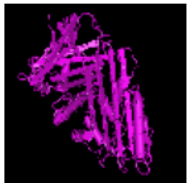
Loop-Inserted Structure Of P1-P1' Cleaved **Ovalbumin** Mutant R339t[Allergen]

Taxonomy: Gallus gallus

Proteins: 1 modified: 2011/05/25 00:00

MMDB ID: 17073 PDB ID: 1JTI

View in Cn3D Similar Structures PubMed Proteins Conserved Domains

4. 

Crystal Structure Of Human Squamous Cell Carcinoma Antigen 1[Hydrolase Inhibitor]

Taxonomy: Homo sapiens

Proteins: 1 modified: 2011/05/26 00:00

MMDB ID: 69811 PDB ID: 2ZV6

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X-ray (52)

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Protein Domain Families

Families (43)

Superfamilies (52)

Complexes

Protein-Protein (33)

Protein-Chemical (15)

Literature

PubMed (50)

PMC (21)

Taxonomy (53)

Find related data

Database: Select

Find items

Search details

演習

- ニワトリのovalbumin遺伝子を調べてみよう。
- 塩基配列を含むデータを探し、テキストファイルで保存する。
- 来週、使用します。

演習 （nucleotide databaseを開く）

Health

ClinVar	99	human variations of clinical significance
dbGaP	4	genotype/phenotype interaction studies
GTR	14	genetic testing registry
MedGen	8	medical genetics literature and links
OMIM	55	online mendelian inheritance in man
PubMed Health	0	clinical effectiveness, disease and drug reports

Genomes

Assembly	0	genome assembly information
BioProject	45	biological projects providing data to NCBI
BioSample	6	descriptions of biological source materials
Clone	0	genomic and cDNA clones
dbVar	867	genome structural variation studies
Epigenomics	0	epigenomic studies and display tools
Genome	0	genome sequencing projects by organism
GSS	0	genome survey sequences
Nucleotide	5,171	DNA and RNA sequences
Probe	2,869	sequence-based probes and primers
SNP	11,889	short genetic variations
SRA	6	high-throughput DNA and RNA sequence read archive

		organisms
PopSet	7	sequence sets from phylogenetic and population studies
UniGene	145	clusters of expressed transcripts

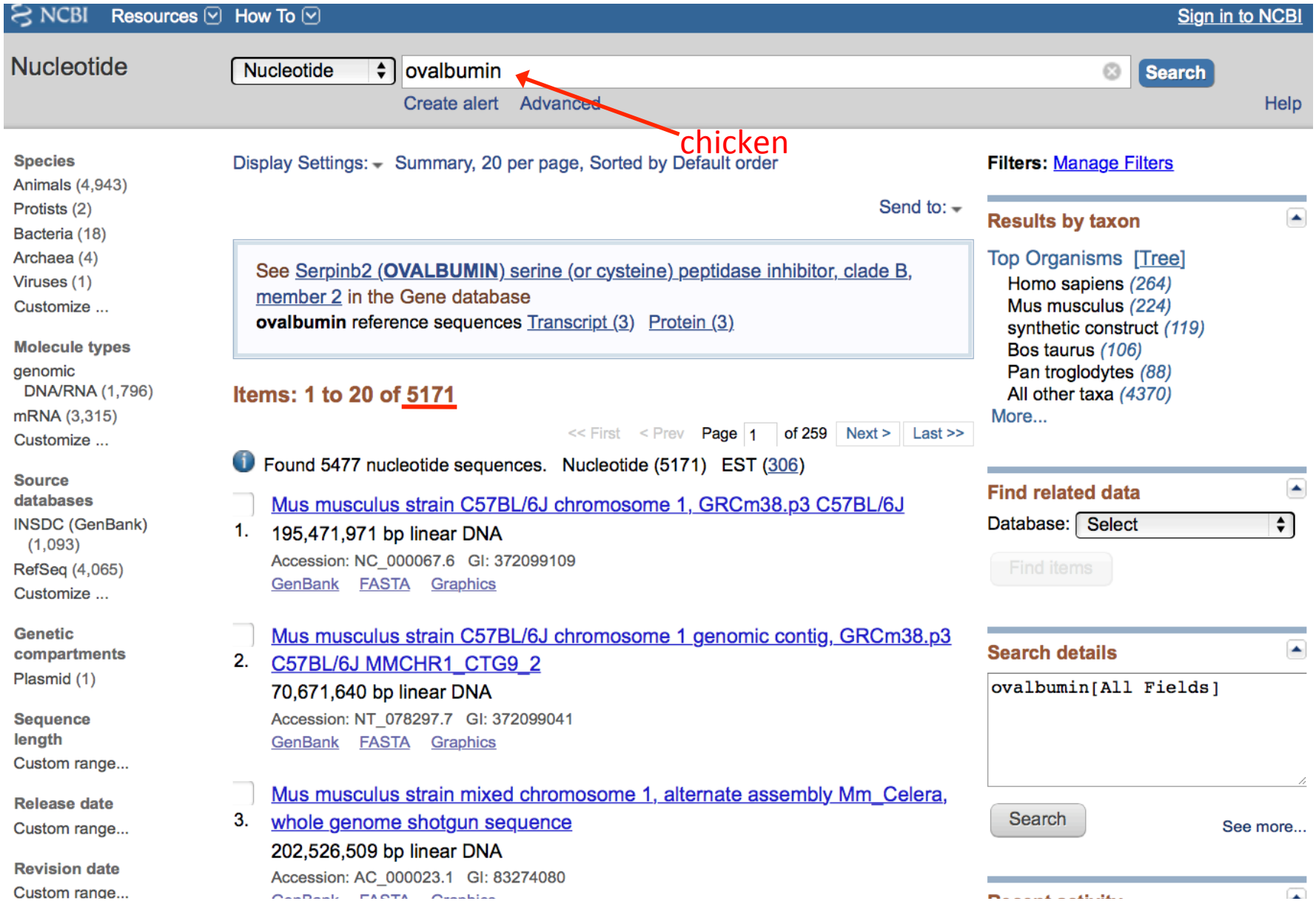
Proteins

Conserved Domains	7	conserved protein domains
Protein	2,414	protein sequences
Protein Clusters	1	sequence similarity-based protein clusters
Structure	53	experimentally-determined biomolecular structures

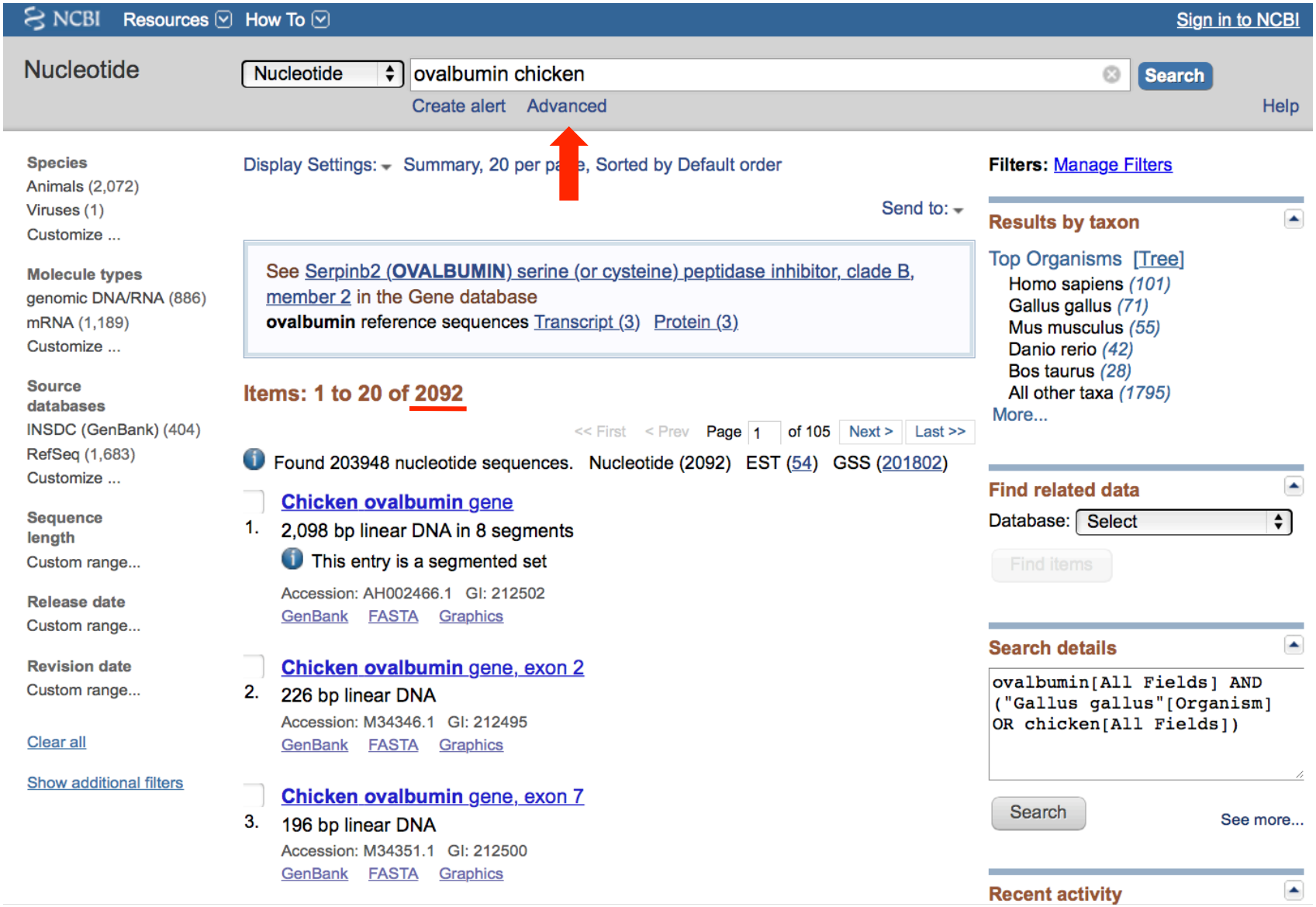
Chemicals

BioSystems	692	molecular pathways with links to genes, proteins and chemicals
PubChem BioAssay	1,312	bioactivity screening studies
PubChem Compound	3	chemical information with structures, information and links
PubChem Substance	874	deposited substance and chemical information

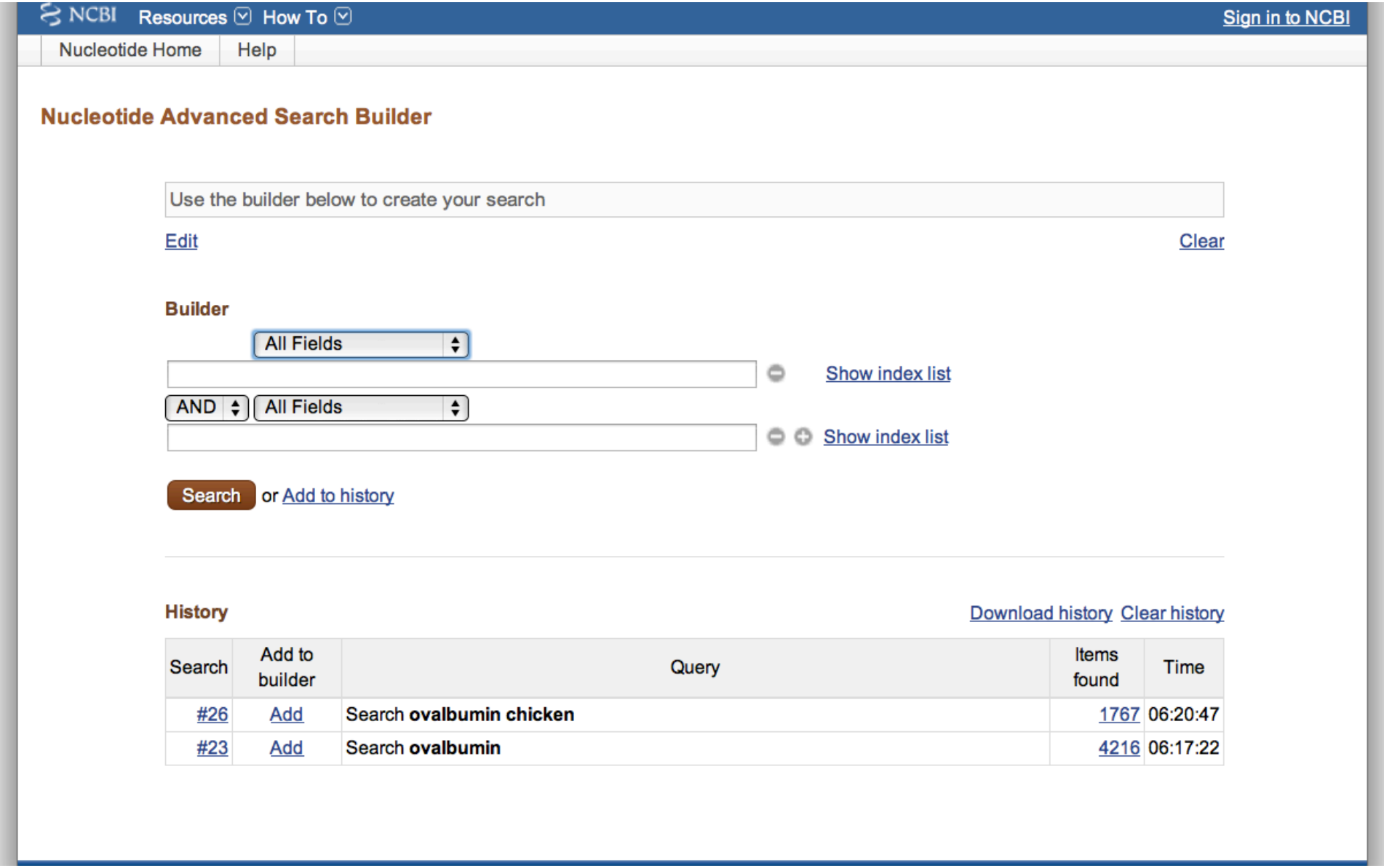
演習　（キーワードを追加して絞り込む）



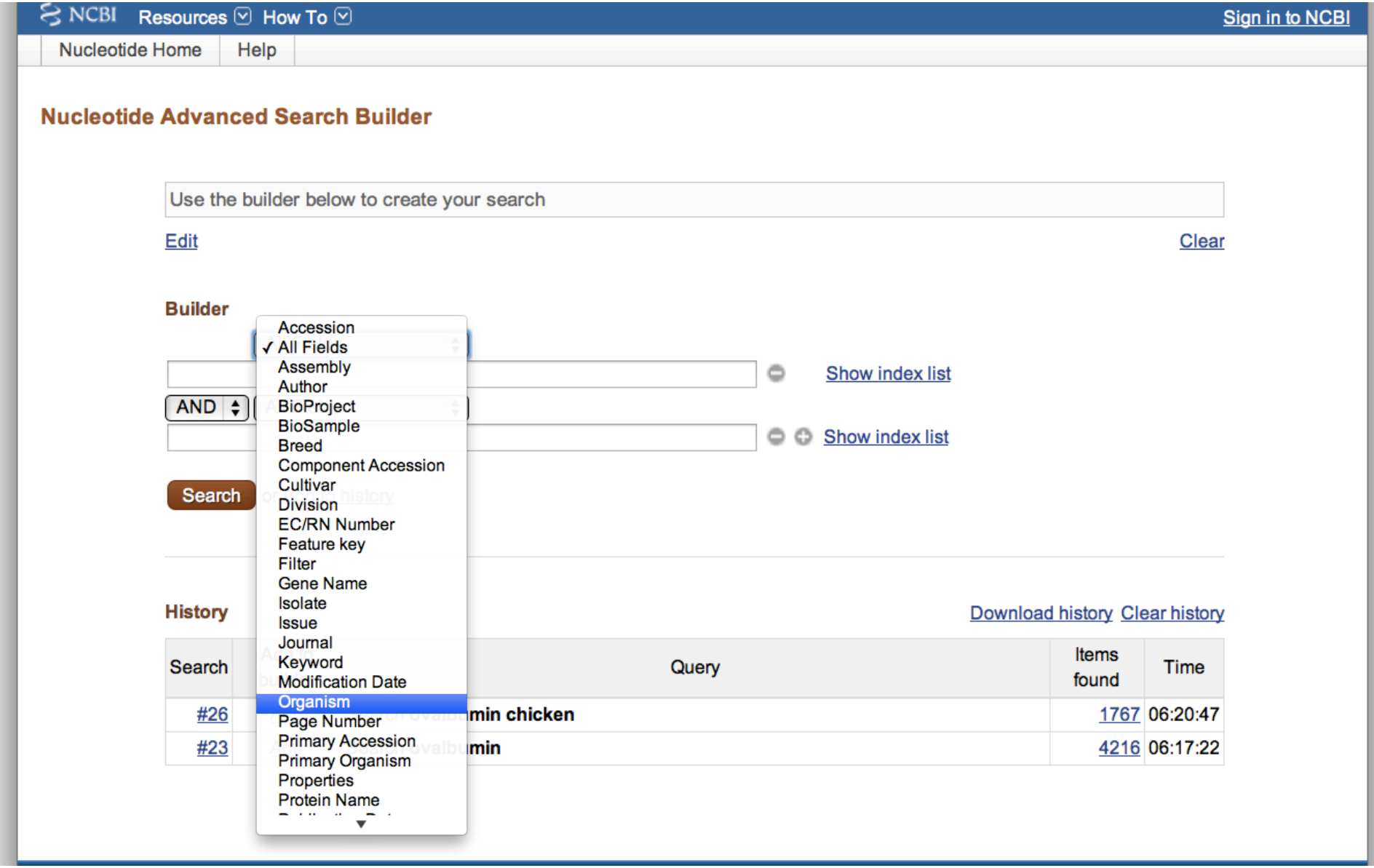
演習　（Advanced searchを使う）



演習 （Fieldsを選択）



演習 （生物種名の入力）


NCBI
Resources
How To
Sign in to NCBI
Nucleotide Home
Help
Nucleotide Advanced Search Builder
Use the builder below to create your search
Edit
Clear
Builder
Accession
All Fields
Assembly
Author
BioProject
BioSample
Breed
Component Accession
Cultivar
Division
EC/RN Number
Feature key
Filter
Gene Name
Isolate
Issue
Journal
Keyword
Modification Date
Organism
Page Number
Primary Accession
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Show index list
AND
Show index list
Search
History
Download history
Clear history
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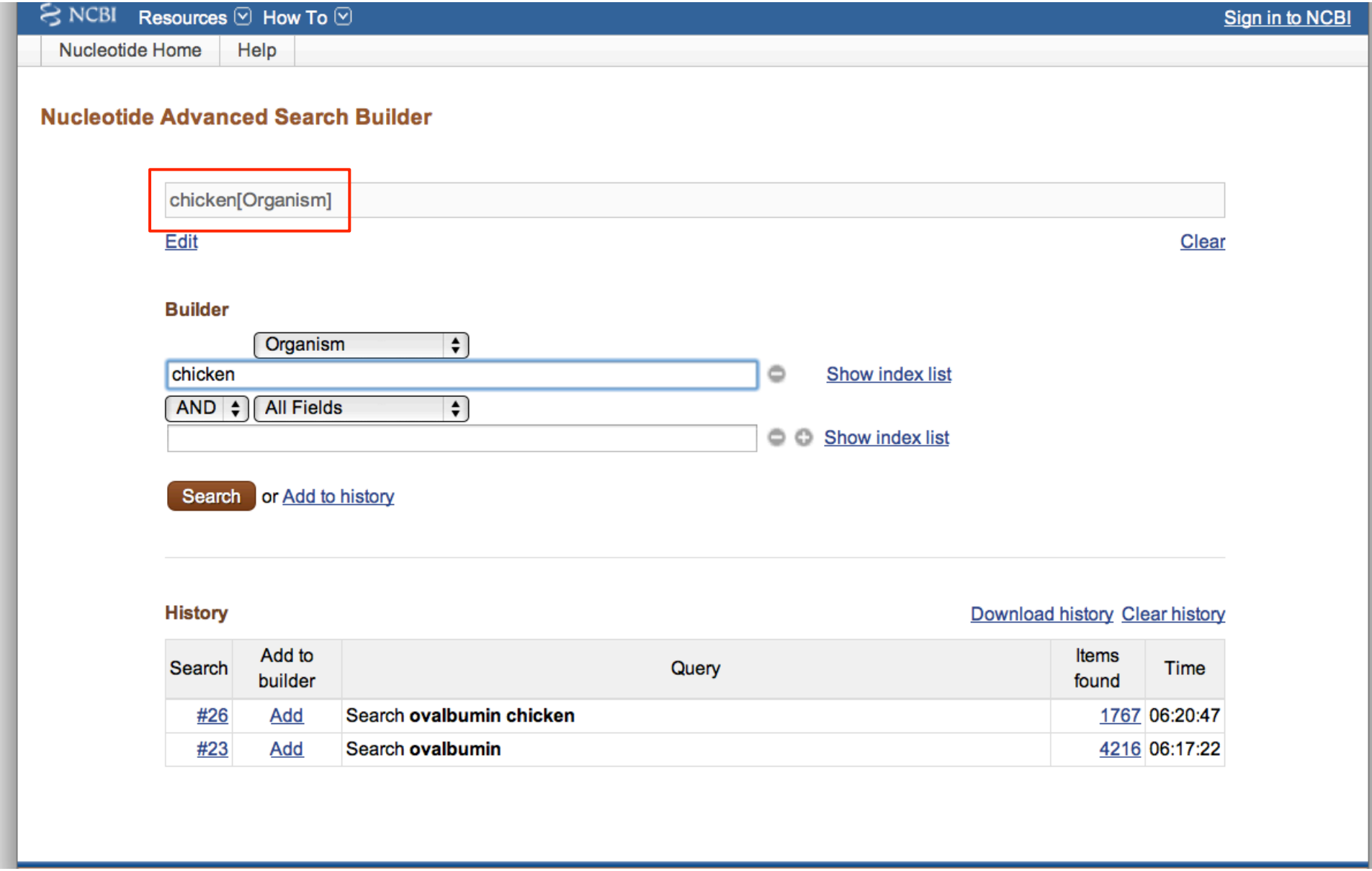
演習 （生物種名の入力）


NCBI
Resources
How To
Sign in to NCBI
Nucleotide Home
Help
Nucleotide Advanced Search Builder
chicken[Organism]
Edit
Clear
Builder
Organism
chicken
Show index list
AND
All Fields
Show index list
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or Add to history
History
Download history
Clear history
Search
Add to builder
Query
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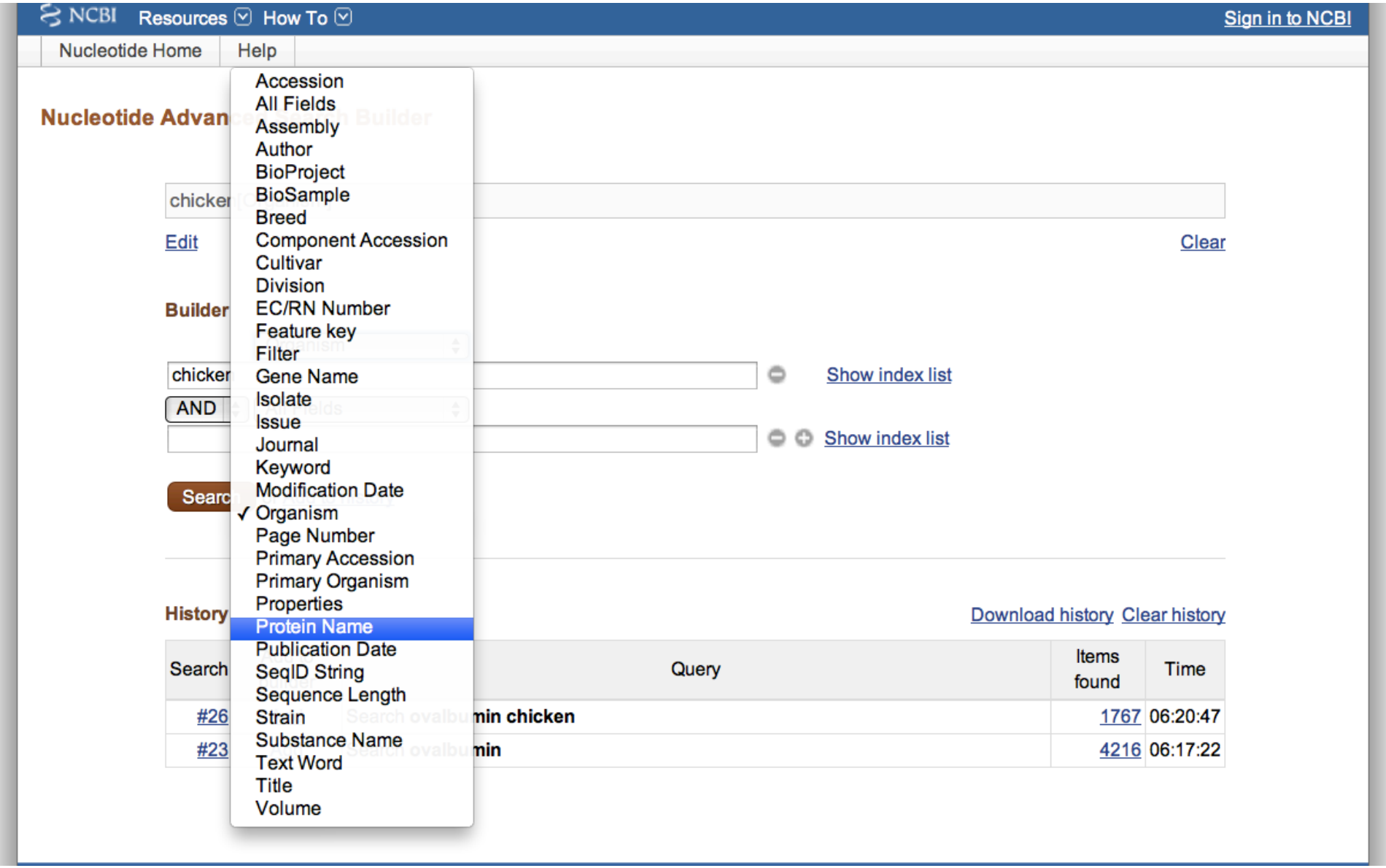
06:17:22

演習 （タンパク質名の入力）



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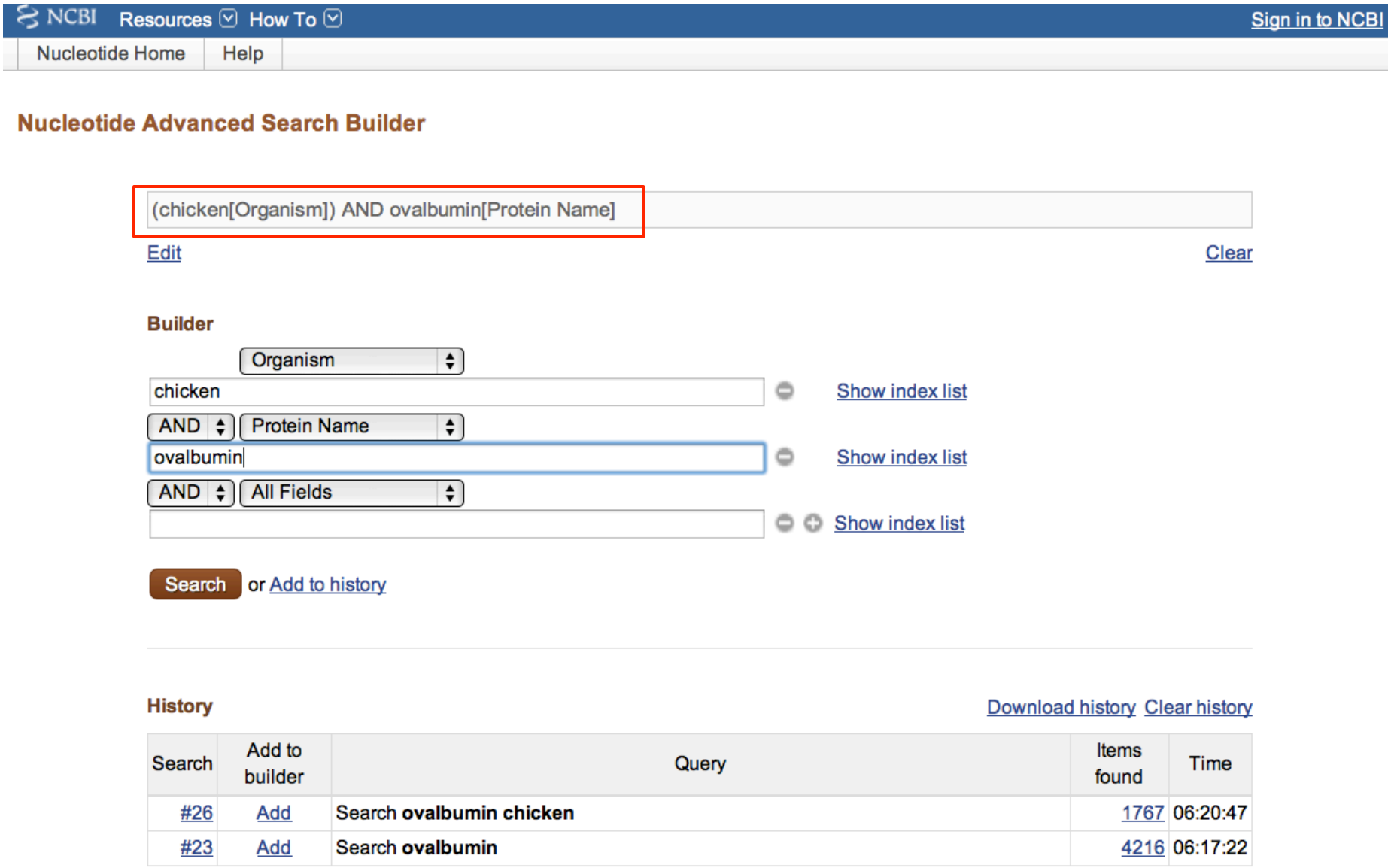
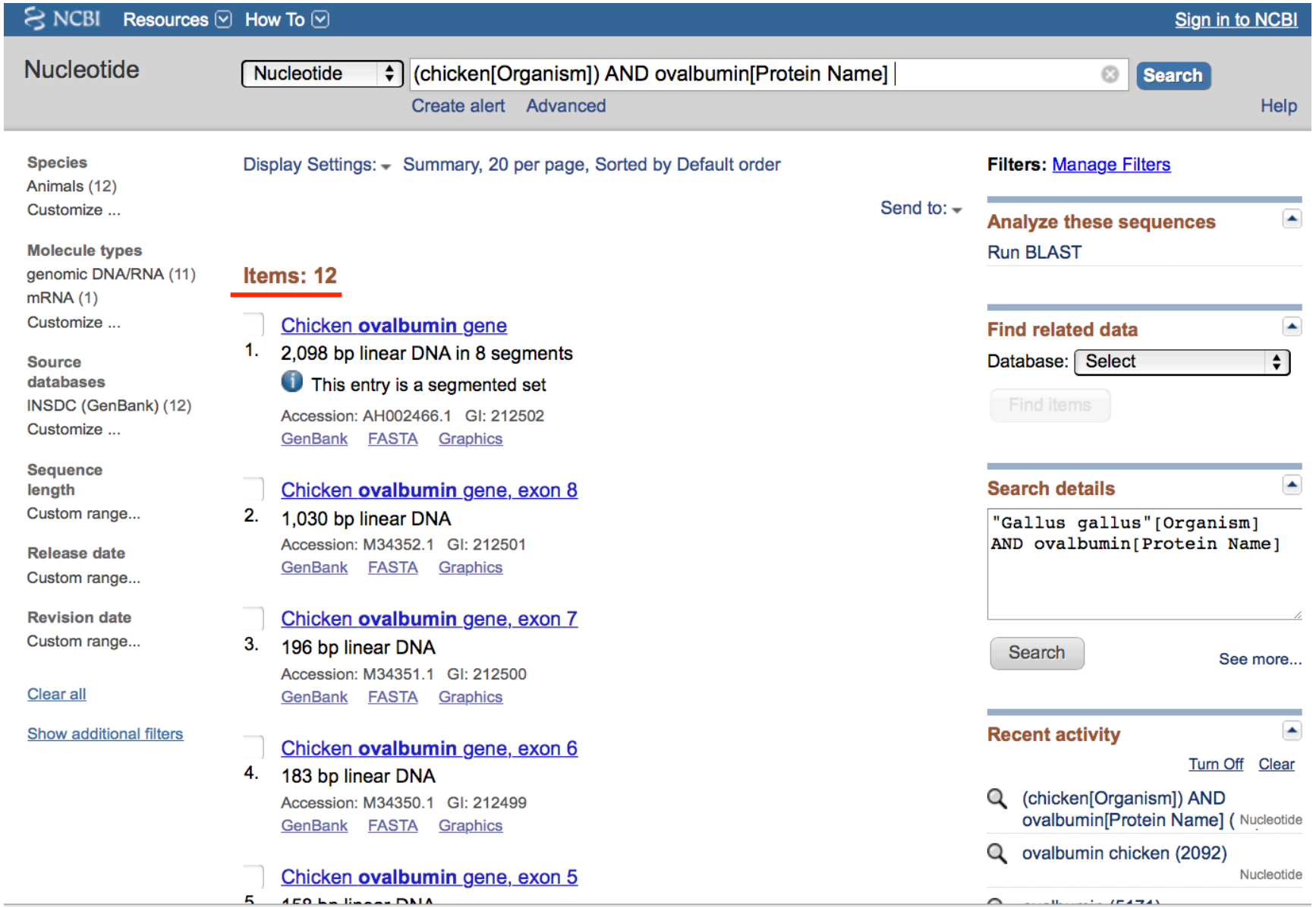


演習 （検索結果の表示）


NCBI Resources How To Sign in to NCBI
Nucleotide
Nucleotide
(chicken[Organism]) AND ovalbumin[Protein Name]
Search
Create alert Advanced Help
Species
Animals (12)
Customize ...
Molecule types
genomic DNA/RNA (11)
mRNA (1)
Customize ...
Source databases
INSDC (GenBank) (12)
Customize ...
Sequence length
Custom range...
Release date
Custom range...
Revision date
Custom range...
Clear all
Show additional filters
Display Settings: Summary, 20 per page, Sorted by Default order
Send to:
Items: 12
Chicken ovalbumin gene
1. 2,098 bp linear DNA in 8 segments
This entry is a segmented set
Accession: AH002466.1 GI: 212502
GenBank FASTA Graphics
Chicken ovalbumin gene, exon 8
2. 1,030 bp linear DNA
Accession: M34352.1 GI: 212501
GenBank FASTA Graphics
Chicken ovalbumin gene, exon 7
3. 196 bp linear DNA
Accession: M34351.1 GI: 212500
GenBank FASTA Graphics
Chicken ovalbumin gene, exon 6
4. 183 bp linear DNA
Accession: M34350.1 GI: 212499
GenBank FASTA Graphics
Chicken ovalbumin gene, exon 5
Filters: Manage Filters
Analyze these sequences
Run BLAST
Find related data
Database: Select
Find items
Search details
"Gallus gallus"[Organism]
AND ovalbumin[Protein Name]
Search
See more...
Recent activity
Turn Off Clear
(chicken[Organism]) AND ovalbumin[Protein Name] (Nucleotide
ovalbumin chicken (2092) Nucleotide

演習　データの見方(1)

Display Settings: GenBank　　Send:

Gallus gallus ovalbumin gene, complete cds

GenBank: J00895.1

FASTA　Graphics

Go to:

```
LOCUS       CHKOVAL                 9206 bp    DNA     linear   VRT 29-MAR-
2007
DEFINITION  Gallus gallus ovalbumin gene, complete cds.
ACCESSION   J00895 M24999
VERSION     J00895.1  GI:212504
KEYWORDS    .
SOURCE      Gallus gallus (chicken)
  ORGANISM  Gallus gallus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Testudines + Archosauria group; Archosauria; Dinosauria;
            Saurischia; Theropoda; Coelurosauria; Aves; Neognathae;
            Galliformes; Phasianidae; Phasianinae; Gallus.
REFERENCE   1  (bases 1343 to 8906)
  AUTHORS   McReynolds,L., O'Malley,B.W., Nisbet,A.D., Fothergill,J.E.,
            Givol,D., Fields,S., Robertson,M. and Brownlee,G.G.
  TITLE     Sequence of chicken ovalbumin mRNA
  JOURNAL   Nature 273 (5665), 723-728 (1978)
   PUBMED   661981
REFERENCE   2  (bases 1357 to 1389; 2941 to 3052)
  AUTHORS   Breathnach,R., Benoist,C., O'Hare,K., Gannon,F. and Chambon,P.
  TITLE     Ovalbumin gene: evidence for a leader sequence in mRNA and DNA
            sequences at the exon-intron boundaries
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 75 (10), 4853-4857 (1978)
   PUBMED   283395
REFERENCE   3  (bases 5576 to 5624)
  AUTHORS   Lai,E.C., Woo,S.L., Dugaiczyk,A. and O'Malley,B.W.
  TITLE     The ovalbumin gene: alleles created by mutations in the
intervening
            sequences of the natural gene
```

Change region shown

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Articles about the OVAL gene

Restricted aeroallergen access to airway mucosal dendritic cells [J Immunol. 2011]

Strong stabilization of amorphous calcium carbonat [J Am Chem Soc. 2011]

Antigen localization controls T cell-mediated tumor immuni [J Immunol. 2011]

See all...

Reference sequence information

RefSeq mRNA

See reference mRNA sequence for the OVAL gene (NM_205152.2).

More about the OVAL gene

OVAL gene

演習　データの見方(2)

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                     /db_xref="taxon:9031"
                     /tissue_type="oviduct"
     misc_signal     443..611
                     /note="steroid-dependent regulatory element"
                     /citation=[9]
     variation       1282
                     /note="g may be c"
                     /citation=[7]
     variation       1309
                     /note="g may be a"
                     /citation=[7]
     mRNA            join(1343..1389,2979..3163,3415..3465,4047..4175,
                     4576..4693,5652..5794,6126..6281,7864..8906)
                     /product="ovalbumin"
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                     /citation=[8]
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                     /citation=[6]
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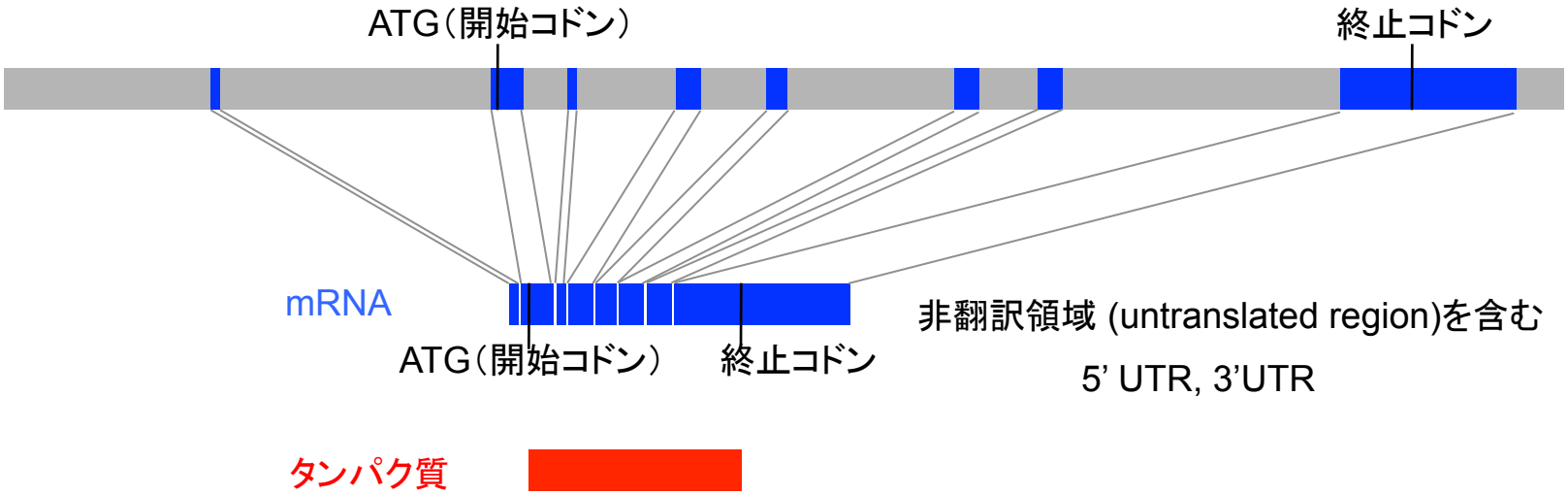
演習　データの見方（3）

ニワトリovalbuminをコードする遺伝子のエキソン・イントロン構造



エキソン：mRNAとして発現する領域

CDS：タンパク質のアミノ酸配列を指定している領域

演習　データの見方(4)

```
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                     /replace=""
     exon            2979..3163
                     /number=2
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                     5652..5794,6126..6281,7864..8259)
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VLQPSSVDSQTAMVLVNAIVFKGLWEKAFKDEDTQAMPFRVTEQESKPVQMMYQIGLF

RVASMASEKMKILELPFASGTMSMLVLLPDEVSGLEQLESIINFEKLTEWTSSNVMEE

RKIKVYLPRMKMEEKYNLTSVLMAMGITDVFSSSANLSGISSAESLKISQAVHAAHAE
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                     /note="t may be c"
                     /citation=[7]
     variation       3154
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                     /citation=[7]
     intron          3164..3414
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演習　データの見方(5)

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      121 tgattaaaaa caaaatgaaa caaaaaaaat cagttgatac ctgtggtgta gacatccagc
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      361 tctctatgta tgtcctgaag aattatgttg tacttttttc ccccatttt aaatcaaaca
      421 gtgctttaca gaggtcagaa tggtttcttt actgtttgtc aattctatta tttcaataca
      481 gaacaatagc ttctataact gaaatatatt tgctattgta tattatgatt gtccctcgaa
      541 ccatgaacac tcctccagct gaatttcaca attcctctgt catctgccag gccattaagt
      601 tattcatgga agatctttga ggaacactgc aagttcatat cataaacaca tttgaaattg
      661 agtattgttt tgcattgtat ggagctatgt tttgctgtat cctcagaaaa aaagtttgtt
      721 ataaagcatt cacacccata aaaagataga tttaaatatt ccagctatag gaaagaaagt
      781 gcgtctgctc ttcactctag tctcagttgg ctccttcaca tgcatgcttc tttatttctc
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      901 gctcagatgc acgttgtaga tacaagaagg atcaaatgaa acagacttct ggtctgttac
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     1021 gttcccacat ttttctgttt tcttaaagat cccattatct ggttgtaact gaagctcaat
     1081 ggaacatgag caatatttcc cagtcttctc tcccatccaa cagtcctgat ggattagcag
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     2461 ttgaagatct actcatagca agtagtgtgc aacaaacaga tatttctcta catttatttt
     2521 tagggaataa aaataagaaa taaaatagtc agcaagcctc tgctttctca tatatctgtc
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```

演習　データの見方(6)

```
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4141 gactttatgc tgaagagaga tacccaatcc tgccagtaag ttgctctaaa atctgatctg
4201 agtgtattcc atgccaaagc tctaccattc tgtaatgcaa aaacagtcag agttccacat
4261 gtttcactaa gaaaatttct ttttctcttg tttttacaaa tgaaagagag gacaaataac
4321 atttctctat caccgacctg aaactctaca gtcttcagag aatgaatggc ttgctaaaag
4381 aatgtcaaat cttactatac agctatttca tattacacta ctaaatacac tataaggcat
4441 agcatgtagt aatacagtgt aaaatagctt tttacactac tatattatta atatctgtta
4501 attccagtct tgcatttcac atttgcaaaa cgttttgaaa ttcgtatctg aaagctgaat
4561 actcttgctt tacaggaata cttgcagtgt gtgaaggaac tgtatagagg aggcttggaa
4621 cctatcaact ttcaaacagc tgcagatcaa gccagagagc tcatcaattc ctgggtagaa
4681 agtcagacaa atggtaaggt agaacatgct ttgtacatag tgagagttgg t
4741 tactgagaac ttggatatag ctcagccagc gtgctttgcg ttcaagctta c
4801 tgtatgcctg ttaagcaggg catacagtca tgaggctctt gaaaaatctt a
4861 gggcaatgga aaatcggagt taagggatgg tagggataaa atgcatagaa a
```

```
join(1343..1389,2979..3163,3415..3465,4047..4175,
4576..4693,5652..5794,6126..6281,7864..8906)
/product="ovalbumin"
```

このページをテキストファイルで保存しておく

課題

- **大腸菌のRNAポリメラーゼのサブユニットのアミノ酸配列を集めよ。**

  - 大腸菌のRNAポリメラーゼ　$\alpha_2\beta\beta'\ \omega(+\ \sigma)$
  - 遺伝子名 rpoA: αサブユニット　(329 aa.)
    rpoB: βサブユニット　(1342 aa.)
    rpoC: β’サブユニット　(1407 aa.)
    rpoZ: ωサブユニット　(91 aa.)

  - complete cds. を探すこと。partial sequenceではない。
  - protein data baseを検索する方が絞り込みが効果的
  - メールの本分にこれらの配列を整理し（書式を整える）
  - 件名は「講義３課題1」

キーワードの代わりに配列で検索する

- **ニワトリのOvalbuminに似たアミノ酸配列を持つタンパク質は人にも存在するの？**

  - Human, ovalbumin などのキーワードでデータベースを検索する。

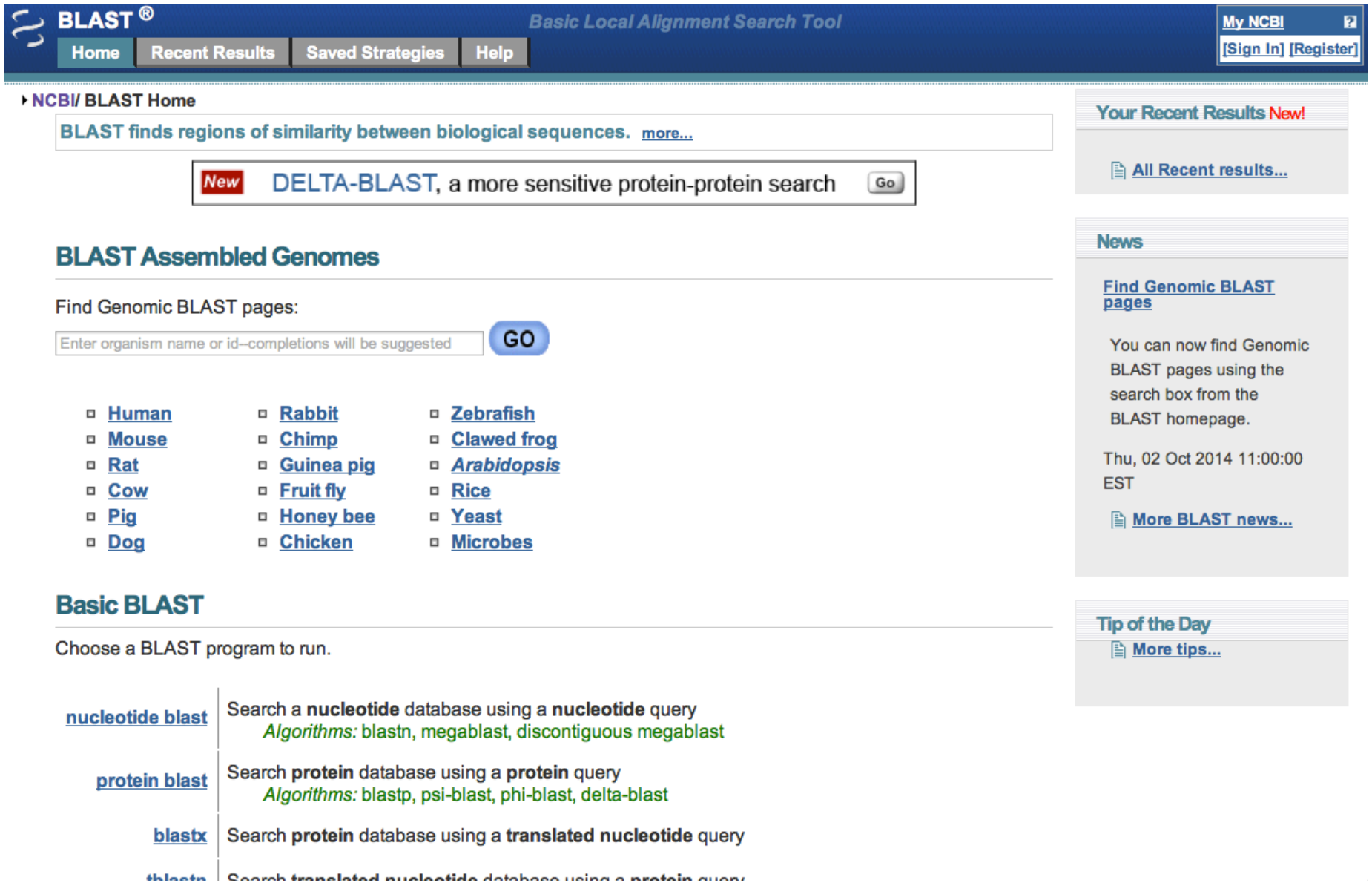
  - ニワトリovalbuminのアミノ酸配列に似たヒトのタンパク質を検索する。

    BLASTサーチ：塩基配列やアミノ酸配列のデータベースを検索して、似た配列を持つ遺伝子やタンパク質を選抜することができる。

    （芦苅先生の講義で詳細に説明される。）

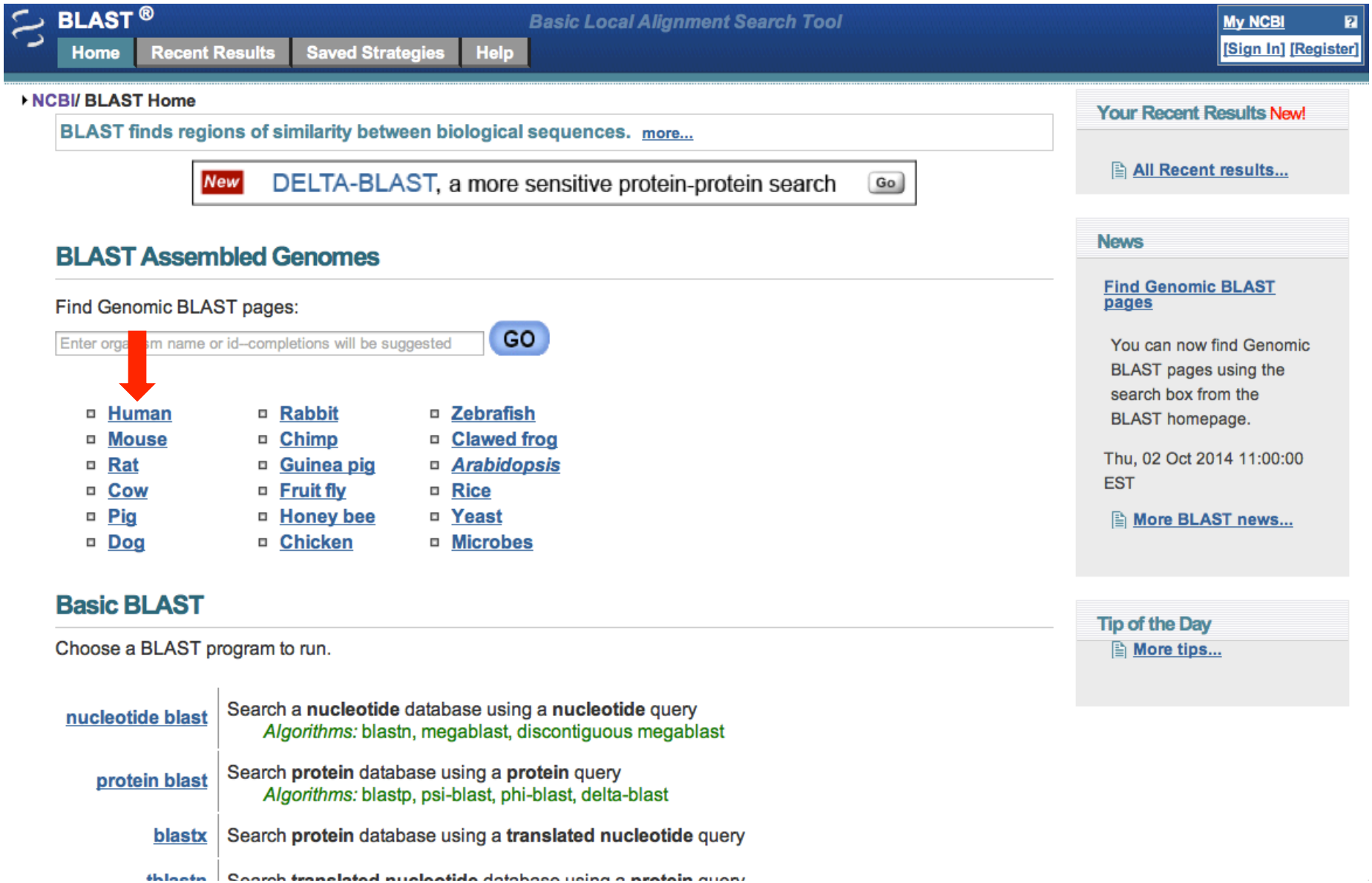
キーワードの代わりに配列で検索する

NCBI-Blastを使う (http://blast.ncbi.nlm.nih.gov/Blast.cgi)



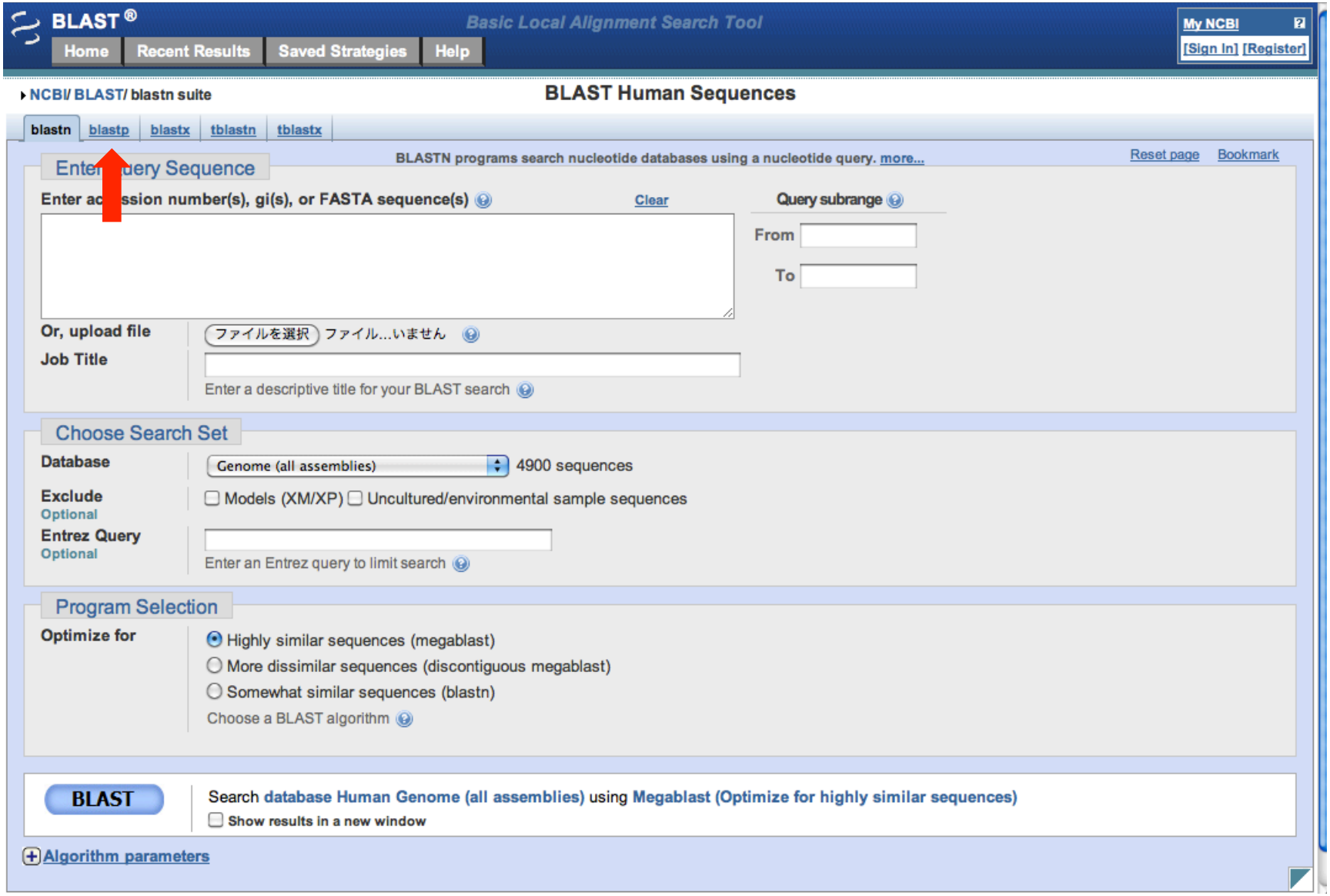
キーワードの代わりに配列で検索する

human genomic databaseへ



キーワードの代わりに配列で検索する

Blast検索のページ（blastpに入る）

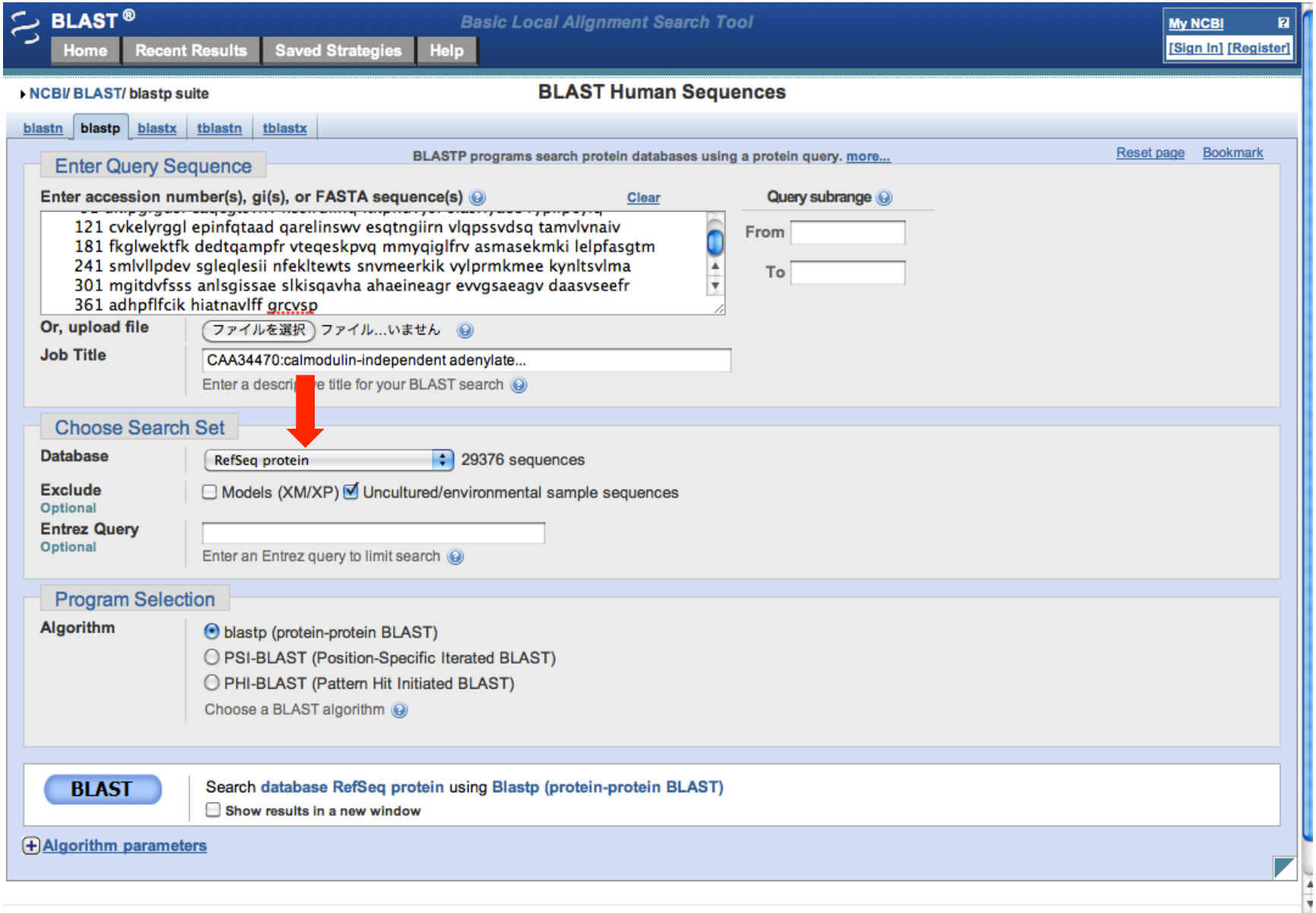


キーワードの代わりに配列で検索する

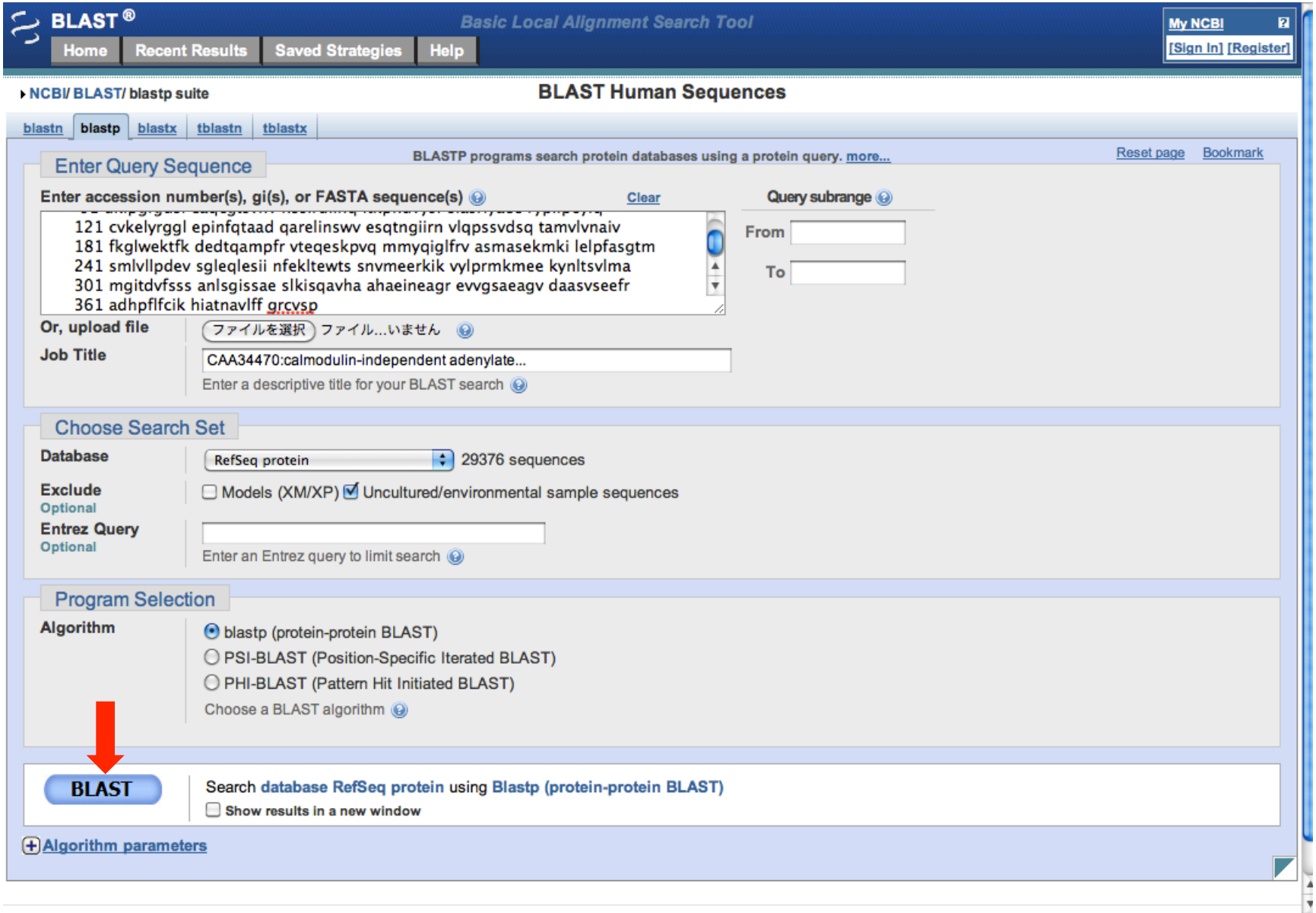
ニワトリovalbuminのアミノ酸配列をコピー

misc_difference 1538..1539
/note="conflict"
/citation=[6]
/replace=""
misc_difference 2681
/note="conflict"
/citation=[6]
/replace=""
misc_difference 2696
/note="conflict"
/citation=[6]
/replace=""
exon 2979..3163
/number=2
CDS join(2996..3163,3415..3465,4047..4175,4576..4693,
5652..5794,6126..6281,7864..8259)
/codon_start=1
/product="ovalbumin"
/protein_id="AAB59956.1"
/db_xref="GI:212505"
/translation="MGSIGAASMEFCFDVFKELKVHHANENIFYCPIAIMSALAMVYL
GAKDSTRTQINKVVRFDKLPGFGDSIEAQCGTSVNVHSSLRDILNQITKPNDVYSFSL
ASRLYAEERYPILPEYLQCVKELYRGGLEPINFQTAADQARELINSWVESQTNGIIRN
VLQPSSVDSQTAMVLVNAIVFKGLWEKAFKDEDTQAMPFRVTEQESKPVQMMYQIGLF
RVASMASEKMKILELPFASGTMSMLVLLPDEVSGLEQLESIINFEKLTEWTSSNVMEE
RKIKVYLPRMKMEEKYNLTSVLMAMGITDVFSSSANLSGISSAESLKISQAVHAAHAE
INEAGREVVGSAEAGVDAASVSEEFRADHPFLFCIKHIATNAVLFFGRCVSP"
variation 3010
/note="t may be c"
/citation=[7]
variation 3154
/note="a may be g"
/citation=[7]
intron 3164..3414
/note="oval intron B"
exon 3415..3465
/number=3
intron 3466..4046
/note="oval intron C"
misc_difference 3552
/note="conflict"
/citation=[6]
/replace=""
misc_difference 3683
/note="conflict"
/citation=[6]

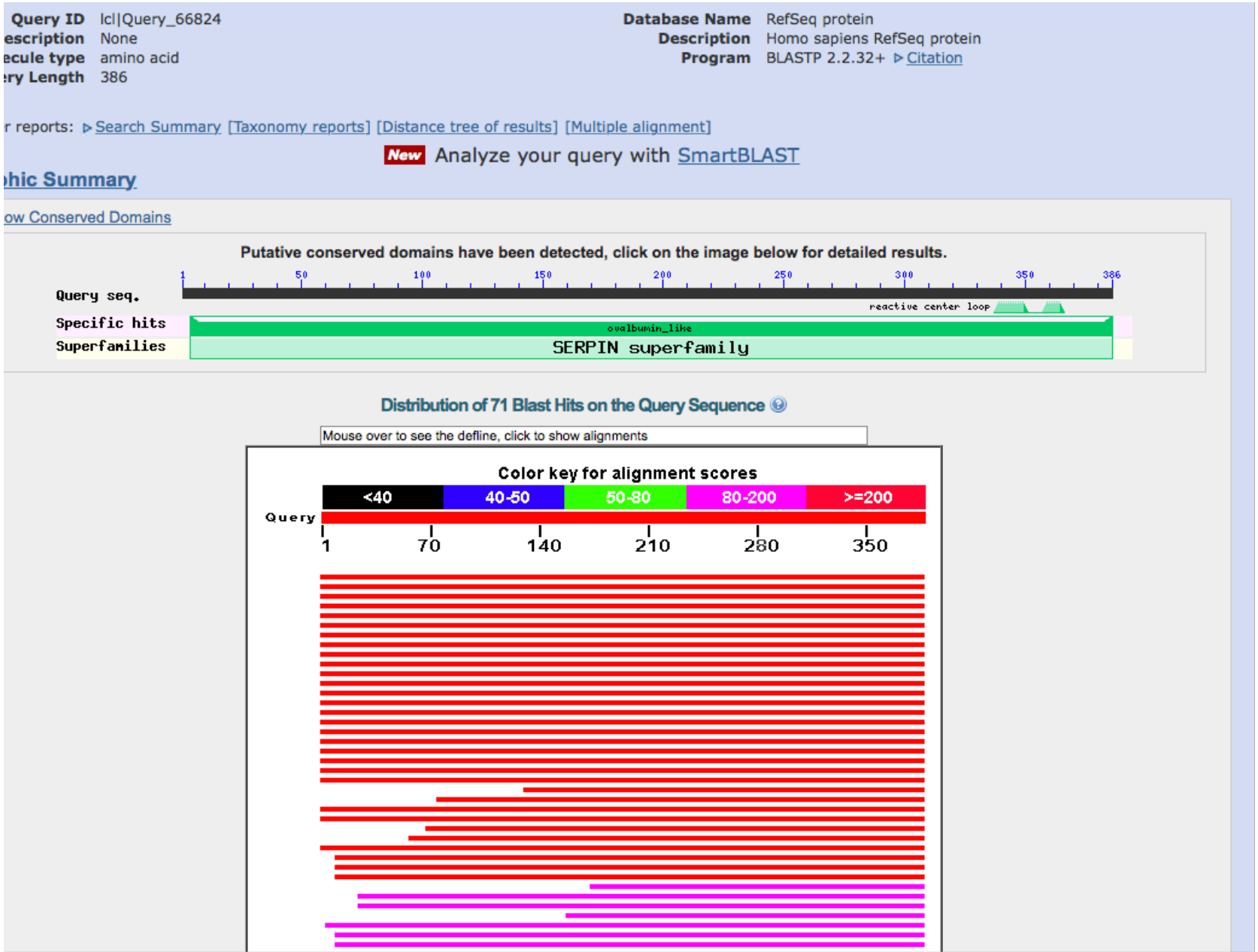
キーワードの代わりに配列で検索する
データベースを指定



キーワードの代わりに配列で検索する
検索プログラムを指定



検索結果の表示(1)


Query ID lcl|Query_66824
escription None
ecule type amino acid
ry Length 386
Database Name RefSeq protein
Description Homo sapiens RefSeq protein
Program BLASTP 2.2.32+ ▷Citation
r reports: ▷Search Summary [Taxonomy reports] [Distance tree of results] [Multiple alignment]
New Analyze your query with SmartBLAST
hic Summary
ow Conserved Domains
Putative conserved domains have been detected, click on the image below for detailed results.
1 50 100 150 200 250 300 350 386
Query seq.
reactive center loop
Specific hits
ovalbumin_like
Superfamilies
SERPIN superfamily
Distribution of 71 Blast Hits on the Query Sequence
Mouse over to see the defline, click to show alignments
Color key for alignment scores
<40 40-50 50-80 80-200 >=200
Query
1 70 140 210 280 350

検索結果の表示(2)

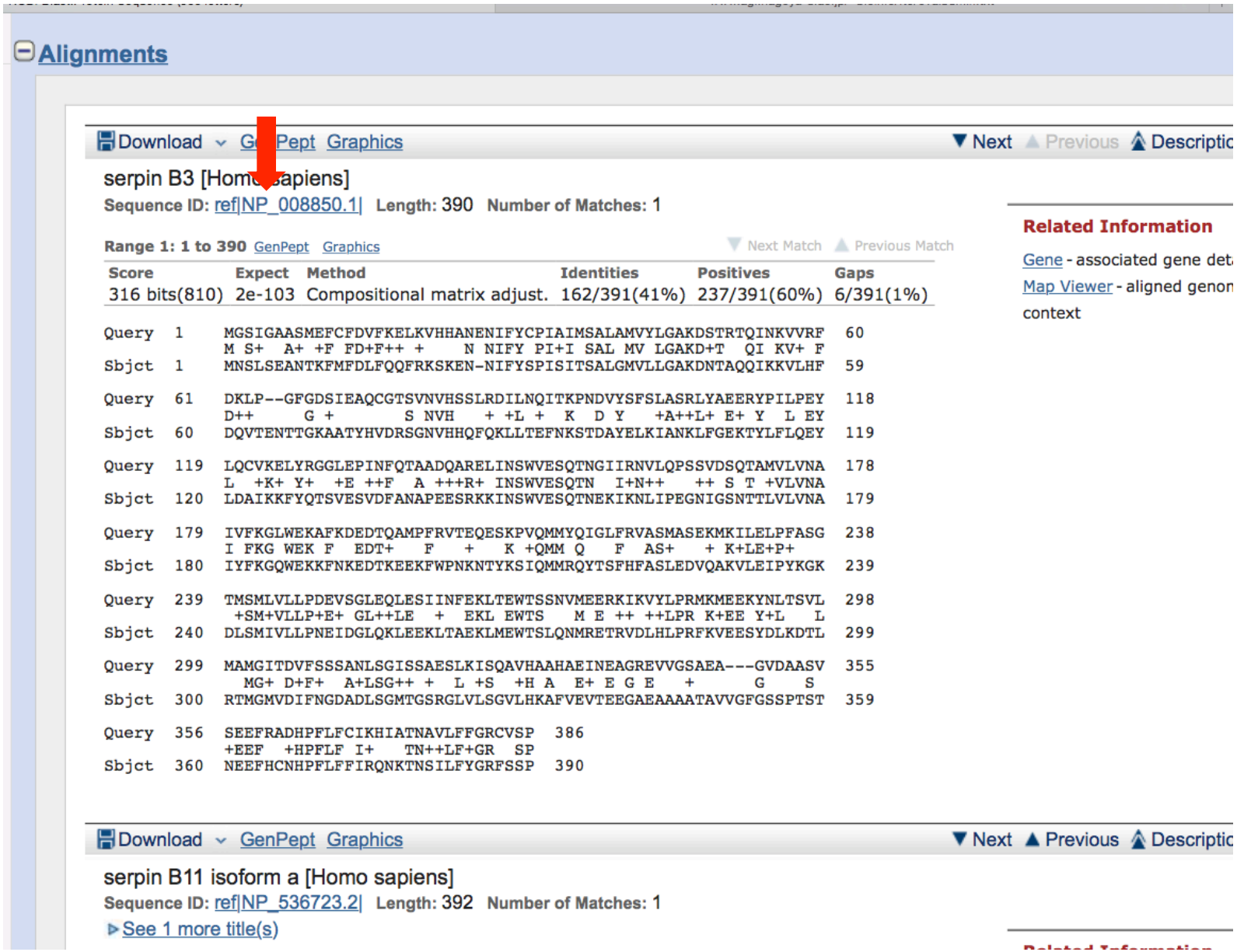
Sequences producing significant alignments:

Select: All None Selected:0

Alignments Download GenPept Graphics Distance tree of results Multiple alignment

Description	Max score	Total score	Query cover	E value	Ident	Accession
serpin B3 [Homo sapiens]	316	316	100%	2e-103	41%	NP_008850.1
serpin B11 isoform a [Homo sapiens]	314	314	100%	1e-102	39%	NP_536723.2
PREDICTED: serpin B11 isoform X2 [Homo sapiens]	314	314	100%	1e-102	39%	XP_011524552.1
serpin B10 [Homo sapiens]	310	310	100%	4e-101	40%	NP_005015.1
serpin B4 isoform 1 [Homo sapiens]	307	307	100%	4e-100	40%	NP_002965.1
PREDICTED: serpin B13 isoform X2 [Homo sapiens]	292	292	100%	3e-94	39%	XP_011524331.1
serpin B13 [Homo sapiens]	291	291	100%	9e-94	39%	NP_036529.1
serpin B13 isoform 1 [Homo sapiens]	289	289	100%	6e-93	38%	NP_001294852.1
serpin B4 isoform 2 [Homo sapiens]	286	286	100%	4e-92	39%	NP_778206.1
serpin B9 [Homo sapiens]	273	273	100%	9e-87	37%	NP_004146.1
serpin B12 isoform 2 [Homo sapiens]	272	272	100%	3e-86	37%	NP_536722.1
plasminogen activator inhibitor 2 [Homo sapiens]	269	269	100%	8e-85	37%	NP_002566.1
leukocyte elastase inhibitor [Homo sapiens]	266	266	100%	3e-84	38%	NP_109591.1
serpin B12 isoform 1 [Homo sapiens]	266	266	100%	7e-84	36%	NP_001294857.1
PREDICTED: serpin B12 isoform X2 [Homo sapiens]	267	267	100%	8e-84	36%	XP_011524548.1
PREDICTED: serpin B12 isoform X1 [Homo sapiens]	266	266	100%	1e-83	36%	XP_005266835.2
serpin B7 isoform 1 [Homo sapiens]	264	264	100%	2e-83	35%	NP_003775.1
serpin B6 isoform a [Homo sapiens]	258	258	100%	3e-81	35%	NP_004559.4
serpin B6 isoform b [Homo sapiens]	258	258	100%	4e-81	35%	NP_001182220.2
serpin B6 isoform d [Homo sapiens]	258	258	100%	4e-81	35%	NP_001258752.1
serpin B6 isoform c [Homo sapiens]	258	258	100%	5e-81	35%	NP_001258751.1
PREDICTED: serpin B6 isoform X2 [Homo sapiens]	258	258	100%	4e-80	35%	XP_011512974.1
PREDICTED: serpin B10 isoform X2 [Homo sapiens]	247	247	66%	2e-78	47%	XP_011524330.1

検索結果の表示(3)



Alignments

Download GenPept Graphics Next Previous Descriptio

serpin B3 [Homo sapiens]

Sequence ID: ref|NP_008850.1| Length: 390 Number of Matches: 1

Range 1: 1 to 390 GenPept Graphics Next Match Previous Match

Score	Expect	Method	Identities	Positives	Gaps
316 bits(810)	2e-103	Compositional matrix adjust.	162/391(41%)	237/391(60%)	6/391(1%)

```
Query  1    MGSIGAASMEFCFDVFKELKVHHANENIFYCPIAIMSALAMVYLGAKDSTRTQINKVVRF  60
            M S+  A+ +F FD+F++ +    N NIFY PI+I SAL MV LGAKD+T  QI KV+ F
Sbjct  1    MNSLSEANTKFMFDLFQQFRKSKEN-NIFYSPISITSALGMVLLGAKDNTAQQIKKVLHF  59

Query  61   DKLP--GFGDSIEAQCGTSVNVHSSLRDILNQITKPNDVYSFSLASRLYAEERYPILPEY  118
            D++     G +       S NVH   + +L +  K  D Y   +A++L+ E+ Y  L EY
Sbjct  60   DQVTENTTGKAATYHVDRSGNVHHQFQKLLTEFNKSTDAYELKIANKLFGEKTYLFLQEY  119

Query  119  LQCVKELYRGGLEPINFQTAADQARELINSWVESQTNGIIRNVLQPSSVDSQTAMVLVNA  178
            L  +K+ Y+  +E ++F  A +++R+ INSWVESQTN  I+N++   ++ S T +VLVNA
Sbjct  120  LDAIKKFYQTSVESVDFANAPEESRKKINSWVESQTNEKIKNLIPEGNIGSNTTLVLVNA  179

Query  179  IVFKGLWEKAFKDEDTQAMPFRVTEQESKPVQMMYQIGLFRVASMASEKMKILELPFASG  238
            I FKG WEK F  EDT+   F   +   K +QMM Q   F  AS+   + K+LE+P+
Sbjct  180  IYFKGQWEKKFNKEDTKEEKFWPNKNTYKSIQMMRQYTSFHFASLEDVQAKVLEIPYKGK  239

Query  239  TMSMLVLLPDEVSGLEQLESIINFEKLTEWTSSNVMEERKIKVYLPRMKMEEKYNLTSVL  298
             +SM+VLLP+E+ GL++LE  +  EKL EWTS   M E ++ ++LPR K+EE Y+L   L
Sbjct  240  DLSMIVLLPNEIDGLQKLEEKLTAEKLMEWTSLQNMRETRVDLHLPRFKVEESYDLKDTL  299

Query  299  MAMGITDVFSSSANLSGISSAESLKISQAVHAAHAEINEAGREVVGSAEA---GVDAASV  355
              MG+ D+F+  A+LSG++ +  L +S  +H A  E+ E G E   +      G    S
Sbjct  300  RTMGMVDIFNGDADLSGMTGSRGLVLSGVLHKAFVEVTEEGAEAAAATAVVGFGSSPTST  359

Query  356  SEEFRADHPFLFCIKHIATNAVLFFGRCVSP  386
            +EEF  +HPFLF I+   TN++LF+GR  SP
Sbjct  360  NEEFHCNHPFLFFIRQNKTNSILFYGRFSSP  390
```

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serpin B11 isoform a [Homo sapiens]

Sequence ID: ref|NP_536723.2| Length: 392 Number of Matches: 1

See 1 more title(s)

Related Information

Gene - associated gene det

Map Viewer - aligned genon

context

Ovalbuminに似たヒトのタンパク質

NCBI Resources How To

Protein Protein Search

Advanced

Display Settings: GenPept Send to:

serpin B3 [Homo sapiens]

NCBI Reference Sequence: NP_008850.1

Identical Proteins FASTA Graphics

Go to:

```
LOCUS       NP_008850                390 aa            linear   PRI 15-MAR-2015
DEFINITION  serpin B3 [Homo sapiens].
ACCESSION   NP_008850
VERSION     NP_008850.1  GI:5902072
DBSOURCE    REFSEQ: accession NM_006919.2
KEYWORDS    RefSeq.
SOURCE      Homo sapiens (human)
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;
            Catarrhini; Hominidae; Homo.
REFERENCE   1  (residues 1 to 390)
  AUTHORS   Turato C, Simonato D, Quarta S, Gatta A and Pontisso P.
  TITLE     MicroRNAs and SerpinB3 in hepatocellular carcinoma
  JOURNAL   Life Sci. 100 (1), 9-17 (2014)
   PUBMED   24496037
  REMARK    GeneRIF: SERPINB3 may enhance its oncogenic potential through
            inhibition of several tumor suppressive miRNAs. [Review]
            Review article
REFERENCE   2  (residues 1 to 390)
  AUTHORS   Heit C, Jackson BC, McAndrews M, Wright MW, Thompson DC, Silverman
            GA, Nebert DW and Vasiliou V.
  TITLE     Update of the human and mouse SERPIN gene superfamily
  JOURNAL   Hum. Genomics 7, 22 (2013)
   PUBMED   24172014
  REMARK    Publication Status: Online-Only
```

Change region shown

Customize view

Analyze this sequence

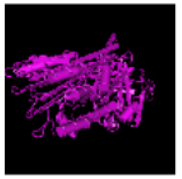
Run BLAST

Identify Conserved Domain

Highlight Sequence Featur

Find in this Sequence

Protein 3D Structure



Psoria
Pso P2
Compa
PDB:
Source
Metho
Diffrac

Resolution: 2 Å

Articles about the SERP

Prognostic significance of s
cell carcinoma antigen [Act

The molecular signature of
wound healing identifies s

課題

- **大腸菌のRNAポリメラーゼ βサブユニットに似した配列を持つヒトのタンパク質は？**

  - 先ほど保存したrpoBのテキストファイルを開き、アミノ酸配列をコピーする。
  - NCBI-Blastへ、さらにhuman genomic blast databaseに入り、サーチボックスにペーストする。
  - Refseq protein (database), BLASTP (program)を選択し、検索開始。
  - ヒットしたタンパク質名のリスト（Descriptionというタイトルのついた表）を含む画面を画像ファイルとして保存し、メールに添付して提出。
  - 最もよく似たタンパク質の名称、サイズ（アミノ酸数）、アミノ酸配列をメールに本文に整理して記載
  - 件名は「「講義３課題２」
  - 余裕があれば、α, β'サブユニットについても調べてみよう。

スクリーンショット
モニタで見えている画面を画像ファイルとして保存する

1．撮りたい画面が表示された状態にします。

2．キーボードの「**Print Screen**」キーを押下します。

3．「スタート」メニューから、「プログラム」→「アクセサリ」と選択して「ペイント」を起動します。

4．ペイントが起動したら、「編集」メニューから「貼り付け(P)」（またはCtrl+V）を選択して貼り付けます。

5．トリミングした後、JPEG, TIFFなどの互換性のあるファイル形式で保存

- **pUC19の遺伝子情報もテキスト保存しておく。**
  - やり方は同じ。
  - DBGETを使っても、NCBI databaseを使っても良い。
  - 先ほど保存したpUC18を同じ塩基配列から始まるものを選ぶこと