

Ontology Search の使用例1 : ヒトで lipase 活性をもつタンパク質は？

1: Ontology Search の部分をクリックする。約1分から2分程度、vocabularies の load に時間がかかります。

The screenshot shows the BIOBASE Knowledge Library interface. On the left, a navigation menu is visible with the following sections:

- Quick Search
- Ontology Search** (highlighted with a red box)
- Advanced Search
- Genome
 - Gene
 - Promoter
 - Functional Region
 - Composite Element
 - Site
 - ChIP-chip
 - Browse by TF
 - Matrix
- Transcriptome
 - RNA
- Proteome
 - Protein
 - Family
 - TF Classification
- Reactome
 - Map
 - Pathway
 - Reaction

The main content area is titled "QUICK SEARCH" and contains the following search options:

- Search by**: Radio buttons for Name (selected), Identifier, and Keyword. A dropdown menu is set to "Search all species". A "Find" button is to the right.
- Use wildcards
- Exact word search
- Fuzzy
- Search for disease biomarkers**: A search input field with a "Find" button.
- Gene Set Analysis**: A button with a help icon. Below it, text reads: "Upload your gene set for analysis of over-representation by disease, expression, canonical pathways, etc & create a customized report."

2: 上のウィンドーを少し大きくする。多くの場合、検索ウィンドーが隠れています。

The screenshot shows the BIOBASE web interface. At the top, there are navigation tabs: "Browse" (selected), "Upload", "Results", and "Help". The BIOBASE logo and "BIOLOGICAL DATABASE" are in the top right. Below the navigation is a search bar with a "Term lookup" button and a "Results" dropdown. A red box highlights the search input field, and a red arrow points to it from the instruction box above. Another red arrow points to the search bar area from the instruction box above. Below the search bar is a list of terms. The first term, "119933 Characterization", is selected and highlighted in blue. To its right, there are statistics: "51982 Predicted", "38673 Characterized", and "29278 Uncharacterized". A red box highlights the "Term lookup" button, and a red arrow points to it from the instruction box below. A red box highlights the search input field, and a red arrow points to it from the instruction box below. A red box highlights the statistics, and a red arrow points to it from the instruction box below. At the bottom, there are tabs for "Basic query", "Detailed Query", and "Term Stats". Below these are buttons for "Exclude", "Focus on term", and "View all 119933 proteins".

View [parents](#) / [children](#)

119933 Characterization | 51982 Predicted | 38673 Characterized | 29278 Uncharacterized

- 107118 Species and genetic location
- 100103 Calculated property
- 79846 Gene on
- 76749 Protein c
- 74774 Regulate
- 43965 Orthologs related to current set
- 29645 Expression
- 26969 Family classification
- 17990 Interaction with other proteins

Basic query | Detailed Query | Term Stats

CH: Characterization | Exclude | Focus on term | View all 119933 proteins

BIOBASE Knowledge Library

* 境界を下に下げてください。

3: ここに lipase と打ち込んで、Term lookup ボタンを押す。

4: Search resultsの中から、MF: lipase activity を選択し、Focus on term をクリックする。

The screenshot shows the BIOBASE Knowledge Library search results for the term 'lipase'. The search bar contains 'lipase' and the 'Term lookup' button. A dropdown menu lists various Molecular Function (MF) terms, with 'MF: lipase activity' highlighted in a red box. Below the search bar, there are statistics for the term: 51982 Predicted, 38673 Characterized, and 29278 Uncharacterized. On the left, there is a navigation menu with categories like 'Characterization', 'Species and genetic location', etc. At the bottom, there are buttons for 'Detailed Query', 'Term Stats', 'Exclude', and 'Focus on term' (highlighted in a red box). A 'View all 119933 proteins' button is also visible.

* Focus on Term は、その後の検索を、絞り込むために使用。今回の場合は、lipase activity を持つとされる分子群のみから、以降の検索を行うことを意味する。

5: Species and genetic location から Mammal、Human と必要がある部分まで絞り込んで、Focus on term ボタンを押す。これで、ヒトの lipase 活性を有する分子を検索したことになります。

The screenshot shows the BIOBASE web interface. At the top, there are navigation tabs: 'Browse' (selected), 'Upload', 'Results', and 'Help'. The BIOBASE logo and 'BIOLOGICAL DATABASES' are in the top right. Below the navigation, there is a search bar with 'lipase' entered, a 'Term lookup' button, and a dropdown menu showing 'MF:lipase activity'. A 'Reset' button is on the right. A red arrow points from the instruction box to the 'Species and genetic location' category in the left sidebar. The main content area shows a tree view of categories and their counts:

- 417 Species and genetic location (highlighted)
- 392 Protein domains
- 370 Calculated property
- 305 Regulatory factors and targets
- 221 Family classification
- 210 Orthologs related to current set
- 179 Expression
- 80 Phenotype
- 72 Protein modifications
- 60 Disease

The 'Species and genetic location' category is expanded to show a tree structure:

- > 230 Mammal
- > 131 Fungus
- > 56 Invertebrate
- > 0 Plant

The 'Mammal' category is further expanded to show:

- > 95 Human
- > 84 Mouse
- > 51 Rat

The 'Human' category is expanded to show a list of human chromosomes:

- > 13 Human chromosome
- > 10 Human chromosome
- > 8 Human chromosome
- > 7 Human chromosome
- > 7 Human chromosome
- > 6 Human chromosome
- > 5 Human chromosome
- > 5 Human chromosome
- > 5 Human chromosome
- > 5 Human chromosome
- > 4 Human chromosome

At the bottom, there are tabs for 'Basic Query', 'Detailed Query', and 'Term Stats'. Below these, there is a summary bar showing '1 MF: lipase activity' and '417' (highlighted with a red box). Below the summary bar, there is a 'Focus on term' button (highlighted with a red box) and a 'View all 417 proteins' button. The text 'SP: Human' and an 'Exclude' button are also visible.

* 417 の分子が、lipase activity を有する。ただし、ヒト以外の多くの生物種を含む。

Browse Upload Results Help

[View parents / children](#)

lipase

Term lookup

MF:lipase activity

- > 82 Orthologs related to current set
- > 72 Expression
- > 53 Family classification
- > 43 Disease
- > 28 Interaction with
- > 25 Protein modification
- > 15 Pathway

5: lipase activity を持つ分子417 分子のうち、ヒトの分子は、96である。これらの分子からさらに絞り込む必要がない場合は、view all 96 proteins をクリックする。

Basic Query Detailed Query Term Stats

Unfocus	1	MF: lipase activity	417
Unfocus	2	SP: Human	95

SP: Species and genetic location

Exclude

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Focus on term

View all 95 proteins

6: 個々の分子の詳細な情報を検索したり、保存したりすることが可能である。

Browse Upload **Results** Help

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Reset

Export Save

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Result: 95 proteins View statistics Deselect all BKL Pathfinder

Protein	Description
<input checked="" type="checkbox"/> Human 14-3-3zeta	Tyrosine 3-monooxygenase-tryptophan 5-monooxygenase activation protein zeta polypeptide, involved in apoptosis, overexpressed in pancreatic adenocarcinoma; increased mRNA correlates with cognition disorders associated with Alzheimer disease tree #1
<input checked="" type="checkbox"/> Human 60 kDa lysophospholipase	Protein with high similarity to rat Aspg, which is a lysophospholipase that is involved in lipid and asparagine metabolic process, contains an asparaginase domain and three ankyrin repeats, which may mediate protein-protein interactions tree #2
<input checked="" type="checkbox"/> Human 85 kDa calcium-independent phospholipase A2	Phospholipase A2 group VI, a transferase that plays a role in cellular lipid metabolic process, protein catabolic process, and protein secretion, regulates cell cycle and cell proliferation; gene mutations are associated with neurodegenerative diseases tree #3
<input checked="" type="checkbox"/> Human A-SMase	Sphingomyelin phosphodiesterase 1 acid lysosomal, acts in DNA damage response signal transduction resulting in induction of apoptosis and sphingomyelin metabolic process, upregulated in atopic dermatitis; gene mutations causes Niemann-Pick diseases tree #4

Ontology Search の使用例2: マウスの 分子量 50~65 kDa で、等電点 7~8 のタンパク質の検索

7: Reset ボタンをクリックし、Browse ボタンをクリックし、初期画面へ移動する。

The screenshot displays the BIOBASE Ontology Search interface. At the top, there are navigation buttons: **Browse**, **Upload**, **Results**, and **Help**. The **Browse** button is currently selected. In the top right corner, the **BIOBASE** logo is visible with the tagline "BIOLOGICAL DATABASES". Below the navigation bar, there is a search area with a text input field, a **Term lookup** button, a **Results** dropdown menu, and a **Reset** button. The main content area shows a hierarchical tree view of ontology terms. The term **> 119933 Characterization** is selected and highlighted in blue. To its right, a summary table shows the following data:

51982 Predicted
38673 Characterized
29278 Uncharacterized

Below the tree view, there are three tabs: **Basic Query**, **Detailed Query**, and **Term Stats**. The **Basic Query** tab is active. Below the tabs, the text **CH: Characterization** is displayed next to an **Exclude** button. To the right, there is a **Focus on term** button. At the bottom right, a button labeled **View all 119933 proteins** is visible. The BIOBASE Knowledge Library logo is also present in the bottom right corner.

8: Species and genetic location から Mammal、mouse と必要がある部分まで
絞り込んで、Focus on term ボタンを押す。今回は、先に種を限定することにする。

The screenshot shows the BIOBASE Knowledge Library interface. At the top, there are navigation buttons: **Browse**, Upload, Results, and Help. The BIOBASE logo (BIOLOGICAL DATABASES) is in the top right. Below the navigation is a search bar with a 'Term lookup' button and a 'Results' dropdown. A red arrow points from the instruction box to the 'Species and genetic location' term in the left-hand tree. The tree is expanded to show 'Mammal', 'Fungus', 'Invertebrate', and 'Plant'. The 'Mouse' term is selected, showing its sub-terms: '1563 Mouse chromo', '1477 Mouse chromo', '1458 Mouse chromo', '1124 Mouse chromo', '1093 Mouse chromo', '1083 Mouse chromo', '1038 Mouse chromo', '1031 Mouse chromo', '955 Mouse chromos', and '929 Mouse chromos'. At the bottom, there are tabs for 'Basic Query', 'Detailed Query', and 'Term Stats'. Below the tabs, it says 'SP: Mouse' with an 'Exclude' button. A 'Focus on term' button is also visible. At the bottom right, there is a button 'View all 119933 proteins' and the text 'BIOBASE Knowledge Library'.

9: calculated property から、Protein molecular weight in Daltons と選択し、50~60 kDa にもっと近い、50,000 to 59,999 Daltons を選ぶ。

The screenshot shows the BIOBASE Knowledge interface. At the top, there are navigation tabs: 'Browse', 'Upload', 'Results', and 'Help'. Below these is a search bar with a 'Term lookup' button and a 'Results' dropdown. A red arrow points from the instruction box to the 'Calculated property' section in the left sidebar. The main content area displays a list of properties with their counts and ranges. The property 'Protein molecular weight in Daltons' is selected, and its sub-entries are listed. The sub-entry '50,000 to 59,999 Daltons' is highlighted. At the bottom, there are tabs for 'Basic Query', 'Detailed Query', and 'Term Stats'. Below these, there is a search bar with '1 SP: Mous' and the number '20544' highlighted in a red box. Below the search bar, there is a button 'RG: Protein molecular weight in Daltons' and an 'Exclude' button. On the right side, there is a 'Focus on term' button.

Property	Count	Range
Protein length in amino acids	3763	30,000 to 39,999 Daltons
Isoelectric point (pI)	2648	20,000 to 29,999 Daltons
Protein molecular weight in Daltons	2307	40,000 to 49,999 Daltons
Predicted transmembrane segments	2299	10,000 to 19,999 Daltons
	2021	50,000 to 59,999 Daltons
	1385	60,000 to 69,999 Daltons
	1036	70,000 to 79,999 Daltons
	846	80,000 to 89,999 Daltons
	626	90,000 to 99,999 Daltons
	559	100,000 to 124,999 Daltons

* マウスの20544 の分子から検索をスタートする。

10: 分子量を、下のウィンドーで、65000に訂正し、50~65 kDa とし、Focus on term をクリックし、ヒトで、50~65 kDa のタンパク質に限定してその後の検索を行う。

View [parents](#) / [children](#)

2021 50,000 to 59,999 Daltons		
1385 60,000 to 69,999 Daltons		
1036 70,000 to 79,999 Daltons		
846 80,000 to 89,999 Daltons		
626 90,000 to 99,999 Daltons		
559 100,000 to 124,999 Daltons		
345 0 to 9,999 Daltons		
3 150,000 to 199,999 Daltons		
1 200,000 to 249,999 Daltons		

Basic Query Detailed Query Term Stats

1 SP: [Mouse](#) 20544

50000 - 59999 Da

11: 等電点を、分子量の時と同様に選び、下のウインドーで7.49を8に訂正し7~8とし、Focus on termをクリックする。これで、分子量50~65 kDaで等電点7~8のマウスタンパク質を検索できたことになる。

Browse Upload Results Help

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View [parents](#) / [children](#)

Term lookup Results Reset

- > 2789 Calculated property
- > 2789 Characterization
- > 2789 Species and genetic location
- > 2626 Regulatory factors and targets
- > 2477 Gene ontology (GO)
- > 2292 Protein domains
- > 2068 Orthologs related to current set
- > 1431 Expression
- > 858 Family classification
- > 720 Phenotype

> 2789 Protein length in amino acids	160 7.50 to 7.99 pI
> 2789 Protein molecular weight in Daltons	158 4.50 to 4.99 pI
> 2788 Isoelectric point (pI)	152 7.00 to 7.49 pI
> 1736 Predicted transmembrane segments	116 9.50 to 9.99 pI
	36 10.0 to 10.99 pI
	24 4.00 to 4.49 pI
	3 11.0 to 11.99 pI
	2 3.00 to 3.99 pI
	1 12.0 to 12.99 pI

Basic Query Detailed Query Term Stats

Unfocus	1	SP: Mouse	20544
Unfocus	2	Range MW: 50000 to 65000	2789

7.00 7.49 7.00 - 7.49 pI Exclude Focus on term

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12: 最後に、view all 314 proteins をクリックし、全ての検索結果を表示したり、保存したりする。

The screenshot shows the BIOBASE Knowledge Library interface. At the top, there are navigation tabs: **Browse**, Upload, Results, and Help. The BIOBASE BIOLOGICAL DATA logo is in the top right. Below the tabs, there are links for "View [parents](#) / [children](#)", a search input field, a "Term lookup" button, and a "Results" dropdown menu. A sidebar on the left lists categories: "> 215 Orthologs related to current set", "> 166 Expression", "> 108 Family classification", and "> 70 Phenotype". The main content area features a table with three rows of search results. Each row has an "Unfocus" button, a number, a description, and a count. Below the table, there are buttons for "RG: Calculated property" and "Exclude". At the bottom right, there are buttons for "Focus on term" and "View all 314 proteins". A red arrow points from the text box above to the "View all 314 proteins" button, which is also circled in red.

Basic Query	Detailed Query	Term Stats
<input type="button" value="Unfocus"/>	1	SP: Mouse 20544
<input type="button" value="Unfocus"/>	2	Range MW: 50000 to 65000 2789
<input type="button" value="Unfocus"/>	3	Range PI: 7.00 to 8 314

RG: Calculated property