BRENDA Tutorial

…how to search for organisms

TaxTree

The BRENDA TaxTree Explorer is based on the Taxonomy Database of the NCBI.
(http://www.ncbi.nlm.nih.gov/taxonomy)

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

TaxTree Browser

- Taxonomy
  - cellular organisms
  - other sequences
  - unclassified sequences
  - Viruses (superkingdom)

You can either browse or search the TaxTree.

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of use for full details.

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

TaxTree Browser

- Taxonomy
- cellular organisms
- other sequences
- unclassified sequences
- Viruses (superkingdom)

Use of this online version of BRENDA is free under the CC BY 4.0 license. See ...

You can run a search by entering the organism name, the synonym, or the scientific name.

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Scientific name or synonym: exact SARS-Cov2 (use AND, OR, AND NOT for simple Boolean queries)

type of synonym (optional): all types of synonyms

NCBI Taxonomy ID: =

Rank: all types of ranks

Search

Details for Severe acute respiratory syndrome coronavirus 2

132 aa sequences of Severe acute respiratory syndrome coronavirus 2

NCBI 2697049

Found 6 enzymes for Severe acute respiratory syndrome coronavirus 2

2.7.7.48

Show enzyme

Synonyms

1. 2019-nCoV
2. COVID-19
3. COVID19
4. COVID-19 virus
5. HCoV-19
6. Human coronavirus 2019
7. SARS-2
8. SARS2
9. SARS-CoV2
10. SARS-CoV-2
11. Wuhan coronavirus
12. Wuhan seafood market pneumonia virus

Condensed Tree View

- Viruses (superkingdom)
  - Riboviria B (clade)
    - Orthornavirae B (kingdom)
      - Pisuviricota B (phylum)
        - Pisoniviricetes B (class)
          - Nidovirales B (order)
            - Cornidovirineae B (suborder)
              - Coronaviridae B (family)
                - Orthocoronavirinae B (subfamily)
                  - Betacoronavirus B (genus)
                    - Sarbecovirus B (subgenus)
                      - Severe acute respiratory syndrome-related coronavirus B (species)
                        - Severe acute respiratory syndrome coronavirus 2 B

On the result page the systematic classification of the searched organisms is displayed in the Tree View.

back to top

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of use for full details.

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Scientific name or synonym: exact SARS-Cov2 (use AND, OR, AND NOT for simple Boolean queries)

type of synonym (optional): all types of synonyms

NCBI Taxonomy ID: =

Rank: all types of ranks

Search

Details for Severe acute respiratory syndrome coronavirus 2

132 aa sequences of Severe acute respiratory syndrome coronavirus 2

NCBI 2697049

Found 6 enzymes for Severe acute respiratory syndrome coronavirus 2

2.7.7.48

Show enzyme

Synonyms

1. 2019-nCoV
2. COVID-19
3. COVID19
4. COVID-19 virus
5. HCoV-19
6. Human coronavirus 2019
7. SARS-2
8. SARS2
9. SARS-CoV2
10. SARS-CoV-2
11. Wuhan coronavirus
12. Wuhan seafood market pneumonia virus

Condensed Tree View

- Viruses (superkingdom)
  - Riboviria (clade)
    - Orthornavirae (kingdom)
      - Pisuviricota (phylum)
        - Pisoniviricetes (class)
          - Nidovirales (order)
            - Cornidovirineae (suborder)
              - Coronaviridae (family)
                - Orthocoronavirinae (subfamily)
                  - Betacoronavirus (genus)
                    - Sarbecovirus (subgenus)
                      - Severe acute respiratory syndrome-related coronavirus (species)
                        - Severe acute respiratory syndrome coronavirus 2

Detailed information on the known protein sequences of this organism

back to top

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of use for full details.

Amino acid sequence search

These search is restricted to following organism or group: **Severe acute respiratory syndrome coronavirus 2**
Search again in all organisms

Amino acid Sequence: contains

No. of results: 10

Recommended name: (of enzyme) contains

EC Number: contains

1st Accession Code: (UniProt) contains

Organism: contains

Number of amino acids: =

Molecular weight [Da]: =

Transmembrane helices: =

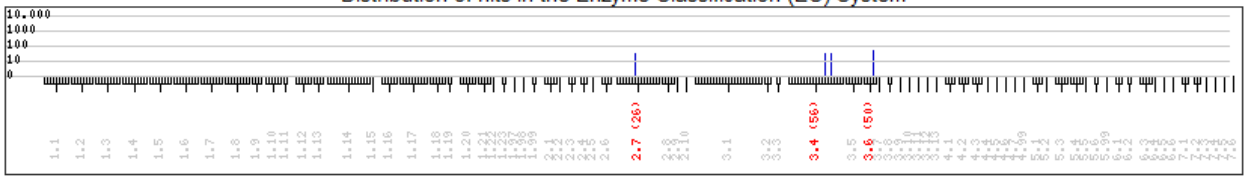
N-terminus: ☐ inside ☐ outside

Source: ☐ SwissProt ☐ TREMBL

search reset

Detailed information on the known protein sequences of this organism

Distribution of hits in the Enzyme Classification (EC) System



Results **1** - **10** of **132**

EC Number	Recommended Name Organism	UNIPROT	No of trans. helices No of amino acids	MW [Da]	Source	Tools/Links
2.7.7.48	RNA-directed RNA polymerase *Severe acute respiratory syndrome coronavirus 2*	P0DTD1	14 transm. helices 7096 amino acids	794058	Swiss-Prot	
2.7.7.48	RNA-directed RNA polymerase *Severe acute respiratory syndrome coronavirus 2*	A0A679G4C7	14 transm. helices 7096 amino acids	794086	TrEMBL	
2.7.7.48	RNA-directed RNA polymerase *Severe acute respiratory syndrome coronavirus 2*	A0A679G4B7	14 transm. helices 7096 amino acids	794044	TrEMBL	

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Scientific name or synonym: exact SARS-Cov2

type of synonym (optional): all types of synonyms

NCBI Taxonomy ID: =

Rank: all types of ranks

Search

Details for Severe acute respiratory syndrome coronavirus 2

132 aa sequences of Severe acute respiratory syndrome coronavirus 2

NCBI 2697049

Found 6 enzymes for Severe acute respiratory syndrome coronavirus 2

2.7.7.48

Show enzyme

Synonyms

1. 2019-nCoV
2. COVID-19
3. COVID19
4. COVID-19 virus
5. HCoV-19
6. Human coronavirus 2019
7. SARS-2
8. SARS2
9. SARS-CoV2
10. SARS-CoV-2
11. Wuhan coronavirus
12. Wuhan seafood market pneumonia virus

Condensed Tree View

- Viruses (superkingdom)
  - Riboviria (clade)
    - Orthornavirae (kingdom)
      - Pisuviricota (phylum)
        - Pisoniviricetes (class)
          - Nidovirales (order)
            - Cornidovirineae (sub
              - Coronaviridae
                - Orthocoronavirina
                - Betacoronavirus
                - Sarbecovirus (subgenus)
                - Severe acute respiratory syndrome-related coronavirus (species)
                - Severe acute respiratory syndrome coronavirus 2

NCBI Taxonomy Browser

Entrez | PubMed | Nucleotide | Protein | Genome | Structure | PMC | Taxonomy | BioCollections

Search for [ ] as complete name lock Go Clear

Display 3 levels using filter: none

Severe acute respiratory syndrome coronavirus 2

Taxonomy ID: 2697049 (for references in articles please use NCBI:txid2697049)

current name

Severe acute respiratory syndrome coronavirus 2

genbank acronym: **SARS-CoV-2**

equivalent: **2019-nCoV**

NCBI BLAST name: **viruses**
Rank: **no rank**
Genetic code: Translation table 1 (Standard)
Host: human|vertebrates

Lineage (*full*)
Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Nidovirales; Cornidovirineae; Coronaviridae; Orthocoronavirinae; Betacoronavirus; Sarbecovirus;
Severe acute respiratory syndrome-related coronavirus

Entrez records	
Database name	Direct links
Nucleotide	118,006
Protein	1,248,477
Structure	1,038
Genome	1
Popset	71
Conserved Domains	2
GEO Datasets	551
PubMed Central	3,937
Gene	22
SRA Experiments	378,040
Identical Protein Groups	152,321
Bio Project	322
Bio Sample	412,487
Assembly	116
Genetic Testing Registry	30
PubChem BioAssay	23
Taxonomy	1

Comments and References:

Latest 2019-nCoV sequences available in GenBank

View and Analyze sequences in NCBI Virus
ICTV homepage

A direct link to the NCBI Taxonomy Database

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of use for full details.

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Scientific name or synonym: exact SARS-Cov2 (use AND, OR, AND NOT for simple Boolean queries)

type of synonym (optional): all types of synonyms

NCBI Taxonomy ID: =

Rank: all types of ranks

Search

Details for Severe acute respiratory syndrome coronavirus 2

132 aa sequences of Severe acute respiratory syndrome coronavirus 2

NCBI 2697049

Found 6 enzymes for Severe acute respiratory syndrome coronavirus 2

2.7.7.48

- 2.7.7.48
- 3.4.19.12
- 3.4.22.69
- 3.4.22.B80
- 3.6.4.12
- 3.6.4.13

9. SARS-CoV2
10. SARS-CoV-2
11. Wuhan coronavirus
12. Wuhan seafood market pneumonia virus

Condensed Tree View

- Viruses (superkingdom)
  - Riboviria [B] (clade)
    - Orthornavirae [B] (kingdom)
      - Pisuviricota [B] (phylum)
        - Pisoniviricetes [B] (class)
          - Nidovirales [B] (order)
            - Cornidovirineae [B] (suborder)
              - Coronaviridae [B] (family)
                - Orthocoronavirinae [B] (subfamily)
                  - Betacoronavirus [B] (genus)
                    - Sarbecovirus [B] (subgenus)
                      - Severe acute respiratory syndrome-related

A list of EC numbers with organism-specific enzyme data in BRENDA, directly linked to the Enzyme Summary Page

back to top

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of use for full details.

Information on EC 3.4.22.69 - SARS coronavirus main proteinase

for references in articles please use BRENDA:EC3.4.22.69

Enzyme Summary Page
(cf. BRENDA Tutorial - Enzyme Search -)

EC Tree

- 3 Hydrolases
  - 3.4 Acting on peptide bonds (peptidases)
    - 3.4.22 Cysteine endopeptidases
      - 3.4.22.69 SARS coronavirus main proteinase

Specify your search results

Mark a special word or phrase in this record: Mark!

Search Reference ID: Search

Search UniProt Accession: Search

Select one or more organisms in this record:

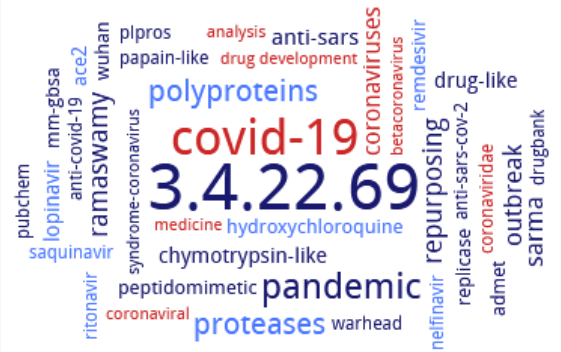
All organisms
Alphacoronavirus
Alphamesonivirus 1
feline coronavirus
Middle East respiratory syndrome-related coronavirus

Submit

Show additional data

- (•) Do not include text mining results
- ( ) Include AMENDA (text mining) results
- ( ) Include FRENDA results (AMENDA + additional results, but less precise)

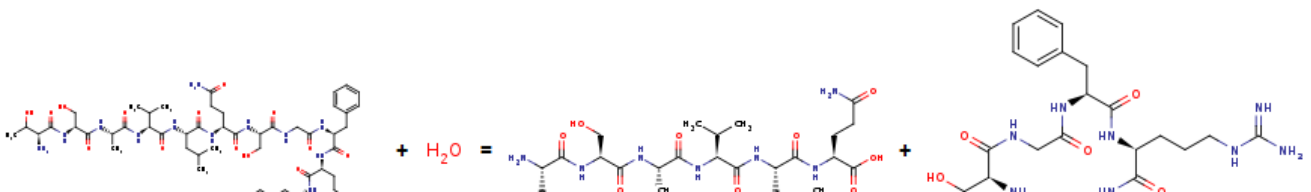
Word Map hide



The enzyme appears in viruses and cellular organisms

Reaction Schemes hide

TSAVLQSGFRK-NH2 + H2O = TSAVLQ + SGFRK-NH2



Information on EC 3.4.22.69 - SARS coronavirus main proteinase

for references in articles please use BRENDA:EC3.4.22.69

Enzyme Summary Page
(cf. BRENDA Tutorial - Enzyme Search -)

EC Tree

- 3 Hydrolases
  - 3.4 Acting on peptide bonds (peptidases)
    - 3.4.22 Cysteine endopeptidases
      - 3.4.22.69 SARS coronavirus main proteinase

Specify your search results

Mark a special word or phrase in this record: Mark!

Search Reference ID: Search

Search UniProt Accession: Search

Select one or more organisms in this record:

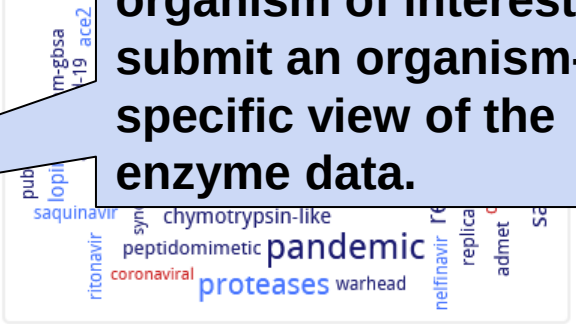
- porcine epidemic diarrhea virus
- SARS coronavirus Tor2
- Severe acute respiratory syndrome coronavirus 2
- Severe acute respiratory syndrome-related coronavirus
- Severe acute respiratory syndrome-related coronavirus Tor2

Submit

Show additional data

- (•) Do not include text mining results
- ( ) Include AMENDA (text mining) results
- ( ) Include FRENDA results (AMENDA + additional results, but less precise)

Word M

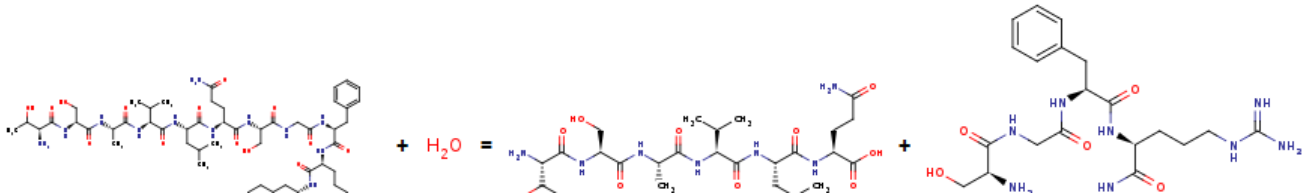


You can choose the organism of interest and submit an organism-specific view of the enzyme data.

The enzyme appears in viruses and cellular organisms

Reaction Schemes hide

TSAVLQSGFRK-NH2 + H2O = TSAVLQ + SGFRK-NH2



TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Scientific name or synonym: exact SARS-Cov2 (use AND, OR, AND NOT for simple Boolean queries)

type of synonym (optional): all types of synonyms

NCBI Taxonomy ID: =

Rank: all types of ranks

Search

Details for Severe acute respiratory syndrome coronavirus 2

132 aa sequences of Severe acute respiratory syndrome coronavirus 2

NCBI 2697049

Found 6 enzymes for Severe acute respiratory syndrome coronavirus 2

2.7.7.48

Show enzyme

Synonyms

1. 2019-nCoV
2. COVID-19
3. COVID19
4. COVID-19 virus
5. HCoV-19
6. Human coronavirus 2019
7. SARS-2
8. SARS2
9. SARS-CoV2
10. SARS-CoV-2
11. Wuhan coronavirus
12. Wuhan seafood market pneumonia virus

Condensed Tree View

- Viruses (superkingdom)
  - Riboviria B (clade)
    - Orthornavirae B (kingdom)
      - Pisuviricota B (phylum)
        - Pisoniviricetes B (class)
          - Nidovirales B (order)
            - Cornidovirineae B (suborder)
              - Coronaviridae B (family)
                - Orthocoronavirinae B (subfamily)
                  - Betacoronavirus B (genus)
                    - Sarbecovirus B (subgenus)
                      - Severe acute respiratory syndrome-related coronavirus B (species)
                        - Severe acute respiratory syndrome coronavirus 2 B

The synonyms of the organism are shown here.

back to top

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of use for full details.

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

TaxTree Browser

- Taxonomy
- cellular organisms
- other sequences
- unclassified sequences
- Viruses (superkingdom)

You can use the browse function to find an organism.

Use of this online version of BRENDA is free under the CC BY 4.0 license. See terms of

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Details for cellular organisms

28455870 aa sequences of cellular organisms

NCBI 131567

Found 7438 enzymes for cellular organisms

1.1.1.1

Show enzyme

Synonyms

1. biota

back to top

TaxTree Browser

- Taxonomy
- cellular organisms
  - Archaea (superkingdom)
    - Archaea incertae sedis
    - Asgard group (clade)
    - Candidatus Hydrothermarchaeota (phylum)
    - DPANN group (clade)
    - environmental samples
    - Euryarchaeota (phylum)
    - TACK group (clade)
      - Candidatus Bathyarchaeota (phylum)
      - Candidatus Geoarchaeota (phylum)
      - Candidatus Geothermarchaeota (phylum)
      - Candidatus Korarchaeota (phylum)
      - Candidatus Marsarchaeota (phylum)
      - Candidatus Nezhaarchaeota (phylum)
      - Candidatus Verstraetearchaeota (phylum)
      - Crenarchaeota (phylum)
        - Crenarchaeota incertae sedis
        - environmental samples
        - Thermoprotei (class)
          - Acidilobales (order)
          - Desulfurococcales (order)
          - environmental samples
          - Fervidicoccales (order)
          - Sulfolobales (order)
            - environmental samples
            - Sulfolobaceae (family)
              - Acidianus (genus)
              - Candidatus Aramenus (genus)
              - environmental samples
              - Metallosphaera (genus)
              - Saccharolobus (genus)
                - Saccharolobus caldissimus (species)
                - Saccharolobus shibatae (species)
                - Saccharolobus solfataricus (species)
              - Stygiolobus (genus)
              - Sulfodiicoccus (genus)
              - Sulfolobus (genus)
              - Sulfuracidifex (genus)
              - Sulfurisphaera (genus)
              - unclassified Sulfolobaceae
            - unclassified Sulfolobales
          - Thermoproteales (order)

You can navigate along the hierarchical tree by clicking on the +-icon to find the desired organism.

TaxTree Explorer

[browse taxonomy tree] - [search] - [Example]

Details for Saccharolobus solfataricus

1622 aa sequences of Saccharolobus solfataricus

NCBI 2287

BacDive 2287

Found 533 enzymes for Saccharolobus solfataricus

1.1.1.1

Show enzyme

Synonyms

1. ATCC 35091
2. DSM 1616
3. IFO 15331
4. JCM 8930
5. NBRC 15331
6. Saccharolobus solfataricus (Zillig et al. 1980) Sakai and Kurosawa 2018
7. strain P1
8. Sulfolobus solfataricus
9. Sulfolobus solfataricus Zillig et al. 1980
10. Sulfolobus fataricus

back to top

TaxTree Browser

- Taxonomy
- cellular organisms
  - Archaea (superkingdom)
    - Archaea incertae sedis
    - Asgard group (clade)
    - Candidatus Hydrothermarchaeota (phylum)
    - DPANN group (clade)
    - environmental samples
    - Euryarchaeota (phylum)
    - TACK group
      - Candidatus Bathyarchaeota (phylum)
      - Candidatus Geoarchaeota (phylum)
      - Candidatus Geothermarchaeota (phylum)
      - Candidatus Korarchaeota (phylum)
      - Candidatus Marsarchaeota (phylum)
      - Candidatus Nezhaarchaeota (phylum)
      - Candidatus Verstraetearchaeota (phylum)
      - Crenarchaeota (phylum)
        - Crenarchaeota incertae sedis
        - environmental samples
        - Thermoprotei (class)
          - Acidilobales (order)
          - Desulfurococcales (order)
          - environmental samples
          - Fervidicoccales (order)
          - Sulfolobales (order)
            - environmental samples
            - Sulfolobaceae (family)
              - Acidianus (genus)
              - Candidatus Aramenus (genus)
              - environmental samples
              - Metallosphaera (genus)
              - Saccharolobus (genus)
                - Saccharolobus caldissimus (species)
                - Saccharolobus shibatae (species)
                - Saccharolobus solfataricus (species)
              - Stygiolobus (genus)
              - Sulfodiicoccus (genus)
              - Sulfolobus (genus)
              - Sulfuracidifex (genus)
              - Sulfurisphaera (genus)
              - unclassified Sulfolobaceae
            - unclassified Sulfolobales
          - Thermoproteales (order)
          - unclassified Thermoprotei

Similar to the results of the TaxTree „Search mode“ you can find the details about the protein sequences, the link to the NCBI Taxonomy, the synonyms, and to the organism-specific enzyme data in BRENDA.