



Finding data using the query interface

www.iedb.org

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How can the search interface be useful to me?

Find experimentally tested epitopes

- ‘Big picture’ meta-analyses
What has and has not been done
- Validation
Part of prediction or informatics pipeline
- Species and response specific

IEDB Jargon

Terms used to describe fields in the IEDB

- Epitope sources

source antigen, source organism

- Assay parts

immunogen, antigen, in vivo process, in vitro process

- Ontological relationships


parent, child, sibling

- Field Descriptions and Curation Manual

<http://curationwiki.iedb.org>


Homepage search interface

START YOUR SEARCH HERE ?

Epitope ? 


Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

Exact M ▾ Ex: SIINFEKL

Assay ? 


Positive Assays Only
 T Cell Assays
 B Cell Assays
 MHC Ligand Assays

Ex: neutralization **Find**

Antigen ? 


Organism
Ex: influenza, peanut

Antigen Name
Ex: core, capsid, myosin


MHC Restriction ? 

Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical

Ex: HLA-A*02:01 **Find**

Host ? 

Any Host
 Humans
 Mice
 Non-human Primates
 Ex: dog, camel **Find**

Disease ? 

Any Disease
 Infectious Disease
 Allergic Disease
 Autoimmune Disease
 Ex: asthma, diabetes **Find**

Reset **Search**

- Search by:
 - Epitope sequence
 - Antigen
 - Host
 - Assay type
 - MHC restriction
 - Disease

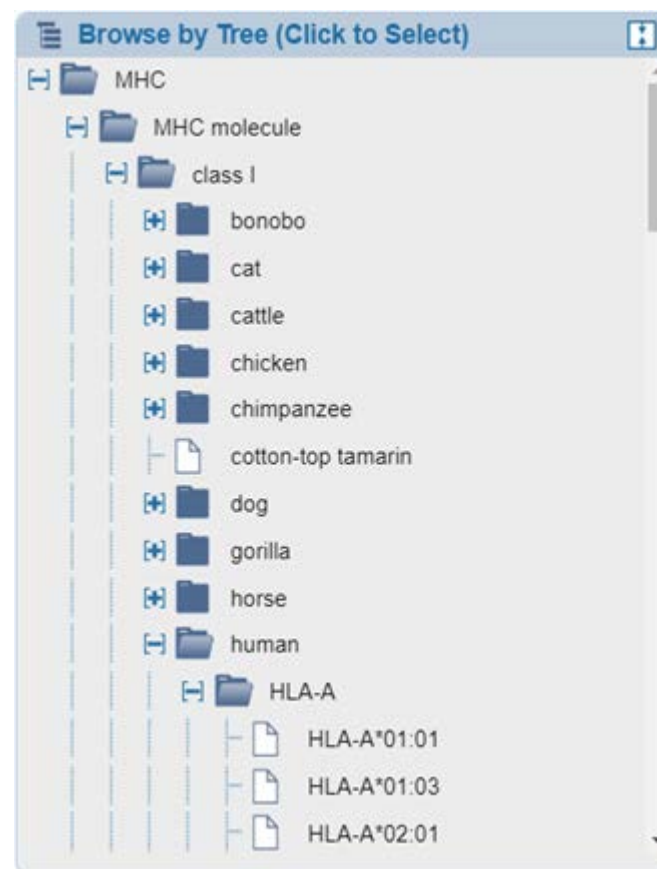
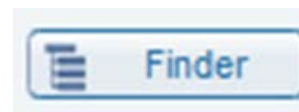
Finders and data trees provide standardization and organization

Finders

- Unique feature of IEDB
- Search enormous amount of data using collapsible 'data trees'
- Enables big picture or granularity

Data trees

- Ontological or taxonomical-based parent/child relationships
- Used to organize:
 - Proteins (UniProt)
 - Non-peptidic structures (ChEBI)
 - Organisms (NCBI taxonomy)
 - MHC molecules (MRO)
 - Assays (OBI)
 - Disease (DO)
 - Geolocation (Gaz)



Identifier Search

A quick way to retrieve data by using an identifier

IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

Home Specialized Searches Analysis Resources

IDENTIFIER SEARCH

IEDB Identifiers

Epitope ID Ex: 44920

Reference ID Ex: 315120

Submission ID Ex: 1000548

Assay ID Ex: 1710106

External Identifiers

PubMed ID Ex: 24196962

PDB ID Ex: 4NM8

ChEBI ID Ex: CHEBI:28494

Search


Unique identifiers created by IEDB

Unique identifiers from other resources

Demo Query

START YOUR SEARCH HERE ?

Epitope ?


Any Epitopes 

Linear Epitope

Exact M ▾ Ex: SIINFEKL

Discontinuous Epitopes

Non-peptidic Epitopes

Assay ? 


Positive Assays Only

T Cell Assays

B Cell Assays

MHC Ligand Assays

Ex: neutralization


Antigen ? 

Organism

Ex: influenza, peanut

Antigen Name

Ex: core, capsid, myosin

MHC Restriction ? 


Any MHC Restriction

MHC Class I

MHC Class II

MHC Nonclassical

Ex: HLA-A*02:01

Host ? 


Any Host

Humans

Mice

Non-human Primates

Ex: dog, camel

Disease ? 

Any Disease

Infectious Disease

Allergic Disease

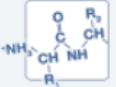
Autoimmune Disease

Ex: asthma, diabetes

Demo Query: Organism Search

START YOUR SEARCH HERE ?

Epitope ?


Any Epitopes 

Linear Epitope

Exact M ▾ Ex: SIINFEKL

Discontinuous Epitopes

Non-peptidic Epitopes

Assay ? 


Positive Assays Only

T Cell Assays


B Cell Assays

MHC Ligand Assays

Ex: neutralization

Antigen ? 

Organism

MHC Restriction ? 

Any MHC Restriction

MHC Class I

Human Herpesvirus 5 (Human cytomegalovirus) (ID:10359, her...)

Rhesus cytomegalovirus strain 68-1 (Rhesus cytomegalovirus (strai...)

Guinea pig cytomegalovirus (strain 22122 / ATCC VR682) (GPCMV...)

Humans

Mice

Non-human Primates

Ex: dog, camel

Infectious Disease

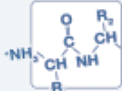
Allergic Disease

Autoimmune Disease


Ex: asthma, diabetes

Demo Query: Multi-select


START YOUR SEARCH HERE ?

Epitope ? 


Any Epitopes
 Linear Epitope
Exact M:
 Discontinuous Epitopes
 Non-peptidic Epitopes

Assay ? 


Positive Assays Only
 T Cell Assays
 B Cell Assays
 MHC Ligand Assays
Ex: neutralization

Antigen ? 


Human herpesvirus 5 (Human cytomegalovirus) **1**
 Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-...
 Human herpesvirus 4 type 2 (Epstein-Barr virus type 2) (ID:12509, ...)
 Macacine gammaherpesvirus 4 (Rhesus lymphocryptovirus) (ID:4...)
 Human herpesvirus 4 type 1 (Epstein-Barr virus type 1) (ID:36352, ...)

MHC Restriction ? 

Any MHC Restriction
 MHC Class I

Host ? 

Any Host
 Humans
 Mice
 Non-human Primates
Ex: dog, camel

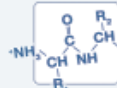
Disease ? 

Any Disease
 Infectious Disease
 Allergic Disease
 Autoimmune Disease
Ex: asthma, diabetes

Demo Query: MHC Search

START YOUR SEARCH HERE ?

Epitope ?

Any Epitopes 


Linear Epitope

Exact M:

Discontinuous Epitopes

Non-peptidic Epitopes

Assay ?

Positive Assays Only 

T Cell Assays


B Cell Assays

MHC Ligand Assays

Ex: neutralization

Antigen ?


Organism

2 

Antigen Name

Ex: core, capsid, myosin

MHC Restriction ?


Any MHC Restriction 

MHC Class I

MHC Class II

MHC Nonclassical

Host ?

Any Host 

Humans

Mice

Non-human Primates

Ex: dog, camel

Disease ?

- A
- In
- A
- A
- A
- A

BF1*0201 protein complex (ID:MRO_0000914, BF10201)

BF2*0201 protein complex (ID:MRO_0000915, BF20201)

BoLA-3*00201 protein complex (ID:MRO_0000930, N*00201)

Mafa-DQB protein complex (ID:MRO_0002015, Mafa-DQB)

Mafa-DRB protein complex (ID:MRO_0002016, Mafa-DRB)

HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Patr-B*02:01 protein complex (ID:MRO_0001395, Patr-B0201)

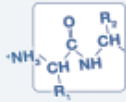
Eqca-1*00201 protein complex (ID:MRO_0001895, Eqca-100201)

HLA-A*29:02 protein complex (ID:MRO_0001042, HLA-A*290201)


HLA-B*07:02 protein complex (ID:MRO_0001062, HLA-B*070201)

Demo Query: Search Button


START YOUR SEARCH HERE ?

Epitope ? 


Any Epitopes
 Linear Epitope
Exact M:
 Discontinuous Epitopes
 Non-peptidic Epitopes

Assay ? 


Positive Assays Only
 T Cell Assays
 B Cell Assays
 MHC Ligand Assays
Ex: neutralization

Antigen ? 


Organism
 2
Antigen Name

MHC Restriction ? 

Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical
 HLA-A*02:01 protein **1**

Host ? 

Any Host
 Humans
 Mice
 Non-human Primates
Ex: dog, camel

Disease ? 

Any Disease
 Infectious Disease
 Allergic Disease
 Autoimmune Disease
Ex: asthma, diabetes

Exploring the results page: Current Filters

Pending Filters

Reset
Search


Epitope ?

Any Epitopes

Linear Epitope

Discontinuous Epitopes

Non-peptidic Epitopes



3D structure available

Amino Acid Modification


Antigen ?

Organism

Human herpesvirus 5 (Hun²)

Antigen Name

Ex: core, capsid, myosin



Receptor ?


Has receptor sequence

Type Any Type

Chain Any Type

Sequence Exact Matches

Assay ?

Positive Assays Only 

T Cell Assays

B Cell Assays

Current Filters: ✖ Positive Assays Only

✖ Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5,CMV,HHV5,HSV-5,HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)

✖ MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Epitopes

(182)

Antigens

(28)

Assays


(1495)

Receptors

(8172)

References

(332)

Go To Records Starting At 1200 GO Export Results 

182 Records Found Page 1 of 8 25 Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
|---------|------------|---|---|--------------|----------|
| 44920 | NLVPMVATV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 230 | 576 |
| 20788 | GLCTLVAML | mRNA export factor ICP27 homolog | Human herpesvirus 4 (Epstein Barr virus) | 88 | 183 |
| 6568 | CLGGLTMV | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 59 | 147 |
| 69452 | VLEETSVML | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 31 | 54 |
| 76333 | YVLDHLIVV | Replication and transcription activator | Human herpesvirus 4 (Epstein Barr virus) | 22 | 40 |
| 16979 | FLYALALLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 18 | 41 |
| 74774 | YLLEMLWRL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 19 |
| 74886 | YLQQNWWTL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 20 |
| 37153 | LLDFVRFMGV | Epstein-Barr nuclear antigen 6 | Human herpesvirus 4 (Epstein Barr virus) | 9 | 12 |
| 37960 | LLWTLVLLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 8 | 11 |
| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTECCAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 0 |

2019 IED

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Exploring the results page: Tabs

Pending Filters

Reset Search

Epitope ?



- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen ?



Organism
Human herpesvirus 5 (Hun²)

Antigen Name
Ex: core, capsid, myosin

Receptor ?



Has receptor sequence

Type

Chain

Sequence

Assay ?



- Positive Assays Only
- T Cell Assays
- B Cell Assays

Current Filters: Positive Assays Only

Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5, CMV, HHV5, HSV-5, HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)

MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

| | | | | |
|-------------------|------------------|------------------|---------------------|---------------------|
| Epitopes (182) | Antigens (28) | Assays (1495) | Receptors (8172) | References (332) |
|-------------------|------------------|------------------|---------------------|---------------------|

Go To Records Starting At [Export Results](#)

182 Records Found Page of 8 25 Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
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| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTECCAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |

Exploring the results page: Headers

Pending Filters

Reset Search

Epitope ?



- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen ?



Organism
Human herpesvirus 5 (Hun²)

Antigen Name
Ex: core, capsid, myosin

Receptor ?



Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Matches

Assay ?



- Positive Assays Only
- T Cell Assays
- B Cell Assays

Current Filters: ✗ Positive Assays Only

✗ Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5, CMV, HHV5, HSV-5, HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)

✗ MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Epitopes (182) Antigens (28) Assays (1495) Receptors (8172) References (332)

Go To Records Starting At 1200 GO Export Results

182 Records Found Page 1 of 8 25 Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
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| 37960 | LLWTLVLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 8 | 11 |
| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTECCAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 9 |

Exploring the results page: Epitopes

Pending Filters

Reset Search

Epitope

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen

Organism
Human herpesvirus 5 (Hun²)

Antigen Name
Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Matches

Assay

Positive Assays Only

T Cell Assays

B Cell Assays

Current Filters: Positive Assays Only

Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5, CMV, HHV5, HSV-5, HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)

MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Epitopes (182) **Antigens** (28) **Assays** (1495) **Receptors** (8172) **References** (332)

Go To Records Starting At 1200 Export Results

182 Records Found Page 1 of 8 25 Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
|---------|------------|---|---|--------------|----------|
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| 76333 | YVLDHLIVV | Replication and transcription activator | Human herpesvirus 4 (Epstein Barr virus) | 22 | 40 |
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| 74774 | YLLEMLWRL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 19 |
| 74886 | YLQQNWWTL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 20 |
| 37153 | LLDFVRFMGV | Epstein-Barr nuclear antigen 6 | Human herpesvirus 4 (Epstein Barr virus) | 9 | 12 |
| 37960 | LLWTLVLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 8 | 11 |
| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTFGGAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |

Exploring the results page: Antigens

Epitopes (182) **Antigens (28)** Assays (1495) Receptors (8172) References (332)

Go To Records Starting At 1200 GO Export Results

28 Records Found Page 1 of 2 25 Per Page

| Antigen | Organism | # Epitopes | # Assays | # References |
|---|--|------------|----------|--------------|
| 65 kDa phosphoprotein | H | 34 | 18 | 16 |
| mRNA export factor ICP27 homolog | H | 3 | 12 | 21 |
| Latent membrane protein 2 | H | 1 | 10 | 1 |
| 55 kDa immediate-early protein 1 | H | 10 | 12 | 10 |
| Replication and transcription activator | H | 1 | 5 | 2 |
| Two components: Latent membrane protein 1 & Latent membrane protein 1 | H | 1 | 5 | 1 |
| Epstein-Barr nuclear antigen 6 | H | 3 | 5 | 10 |
| Epstein-Barr nuclear antigen 3 | H | 3 | 4 | 3 |
| DNA polymerase processivity factor BMRF1 | H | 1 | 6 | 2 |
| Envelope glycoprotein B | H | 1 | 5 | 3 |
| Epstein-Barr nuclear antigen 1 | H | 3 | 4 | 3 |
| Envelope glycoprotein H | H | 1 | 6 | 2 |
| Trans-activator protein BZLF1 | Human herpesvirus 4 (Epstein Barr virus) | 10 | 12 | 4 |
| Envelope glycoprotein B | Human herpesvirus 4 (Epstein Barr virus) | 1 | 5 | 3 |
| Envelope glycoprotein GP350 | Human herpesvirus 4 (Epstein Barr virus) | 1 | 5 | 3 |
| Epstein-Barr nuclear antigen 4 | Human herpesvirus 4 (Epstein Barr virus) | 3 | 5 | 3 |
| Epstein-Barr nuclear antigen 2 | Human herpesvirus 4 (Epstein Barr virus) | 3 | 4 | 3 |
| Ribonucleoside-diphosphate reductase small chain | Human herpesvirus 4 (Epstein Barr virus) | 1 | 6 | 2 |

Click icon to view Immunome Browser

Influenza A Hemagglutinin Host: Homo sapiens Assay: B cell assays

Response Frequency

The Immunome Browser maps epitopes retrieved from a query onto their source protein to visualize how often different regions in a protein have been tested and how often they were positive.

[Learn More](#)

Exploring the results page: Antigens

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | |
|---|--|---|--|---|----------|--|--|---------------------|--|
| Go To Records Starting At <input type="text" value="1200"/> <input type="button" value="GO"/> | | | | | | Export Results | | | |
| 28 Records Found | | Page <input type="text" value="1"/> of 2 | | <input type="button" value="Previous"/> <input type="button" value="Next"/> | | 25 <input type="button" value="v"/> Per Page | | | |
| Antigen | | Organism | | # Epitopes | # Assays | # References | | | |
| 65 kDa phosphoprotein | | Human herpesvirus 5 (Human cytomegalovirus) | | 58 | 698 | 234 | | | |
| mRNA export factor ICP27 homolog | | Human herpesvirus 4 (Epstein Barr virus) | | 2 | 184 | 88 | | | |
| Latent membrane protein 2 | | Human herpesvirus 4 (Epstein Barr virus) | | 21 | 228 | 66 | | | |
| 55 kDa immediate-early protein 1 | | Human herpesvirus 5 (Human cytomegalovirus) | | 32 | 136 | 43 | | | |
| Replication and transcription activator | | Human herpesvirus 4 (Epstein Barr virus) | | 1 | 40 | 22 | | | |
| Two components: Latent membrane protein 1 & Latent membrane protein 1 | | Human herpesvirus 4 (Epstein Barr virus) | | 12 | 51 | 21 | | | |
| Epstein-Barr nuclear antigen 6 | | Human herpesvirus 4 (Epstein Barr virus) | | 3 | 16 | 10 | | | |
| Epstein-Barr nuclear antigen 3 | | Human herpesvirus 4 (Epstein Barr virus) | | 4 | 15 | 8 | | | |
| DNA polymerase processivity factor BMRF1 | | Human herpesvirus 4 (Epstein Barr virus) | | 3 | 17 | 7 | | | |
| Envelope glycoprotein B | | Human herpesvirus 5 (Human cytomegalovirus) | | 2 | 9 | 5 | | | |
| Epstein-Barr nuclear antigen 1 | | Human herpesvirus 4 (Epstein Barr virus) | | 5 | 10 | 5 | | | |
| Envelope glycoprotein H | | Human herpesvirus 4 (Epstein Barr virus) | | 5 | 17 | 5 | | | |
| Trans-activator protein BZLF1 | | Human herpesvirus 4 (Epstein Barr virus) | | 10 | 12 | 4 | | | |
| Envelope glycoprotein B | | Human herpesvirus 4 (Epstein Barr virus) | | 1 | 5 | 3 | | | |
| Envelope glycoprotein GP350 | | Human herpesvirus 4 (Epstein Barr virus) | | 1 | 5 | 3 | | | |
| Epstein-Barr nuclear antigen 4 | | Human herpesvirus 4 (Epstein Barr virus) | | 3 | 5 | 3 | | | |

Exploring the results page: Antigens

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | |
|--|--|---------------|----------|---------------|--|------------------|--|------------------|--|
| Go To Records Starting At <input type="text" value="A,b"/> <input type="button" value="GO"/> | | | | | | | | | |
| 28 Records Found | | | | | | | | | |
| Page <input type="text" value="1"/> of 2 <input type="button" value="GO"/> | | | | | | | | | |
| 25 Per Page | | | | | | | | | |
| Antigen | Organism | # Epitopes | # Assays | # References | | | | | |
| Other Human herpesvirus 4 (Epstein Barr virus) protein | Human herpesvirus 4 (Epstein Barr virus) | 1 | 1 | 1 | | | | | |
| Major tegument protein | Human herpesvirus 4 (Epstein Barr virus) | 1 | 3 | 1 | | | | | |
| Envelope glycoprotein B | Human herpesvirus 4 (Epstein Barr virus) | 1 | 5 | 3 | | | | | |
| DNA polymerase processivity factor BMRF1 | Human herpesvirus 4 (Epstein Barr virus) | 3 | 17 | 7 | | | | | |
| Envelope glycoprotein GP350 | Human herpesvirus 4 (Epstein Barr virus) | 1 | 5 | 3 | | | | | |
| Epstein-Barr nuclear antigen 4 | Human herpesvirus 4 (Epstein Barr virus) | 3 | 5 | 3 | | | | | |
| Epstein-Barr nuclear antigen 6 | Human herpesvirus 4 (Epstein Barr virus) | 3 | 16 | 10 | | | | | |
| Trans-activator protein BZLF1 | Human herpesvirus 4 (Epstein Barr virus) | 10 | 12 | 4 | | | | | |
| Replication and transcription activator | Human herpesvirus 4 (Epstein Barr virus) | 1 | 40 | 22 | | | | | |
| Epstein-Barr nuclear antigen 1 | Human herpesvirus 4 (Epstein Barr virus) | 5 | 10 | 5 | | | | | |
| Secreted protein BARF1 | Human herpesvirus 4 (Epstein Barr virus) | 5 | 21 | 1 | | | | | |
| Two components: Latent membrane protein 1 & Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 12 | 51 | 21 | | | | | |
| Envelope glycoprotein H | Human herpesvirus 4 (Epstein Barr virus) | 5 | 17 | 5 | | | | | |
| Ribonucleoside-diphosphate reductase small chain | Human herpesvirus 4 (Epstein Barr virus) | 1 | 6 | 2 | | | | | |
| Epstein-Barr nuclear antigen 3 | Human herpesvirus 4 (Epstein Barr virus) | 4 | 15 | 8 | | | | | |

Exploring the results page: Assays

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | |
|--|-------------------------------------|---|---|--|--|--|-----------------|-------------------------------------|--|
| T Cell Assays (1331) | | B Cell Assays (0) | | MHC Ligand Assays (164) | | | | | |
| Go To Records Starting At <input type="text" value="A,b"/> <input type="button" value="GO"/> | | | | | | Export Results | | | |
| 1331 Records Found | | | Page <input type="text" value="1"/> of 54 <input type="button" value="Previous"/> <input type="button" value="Next"/> | | | 25 <input type="button" value="v"/> Per Page | | | |
| ID | Reference | Epitope | Host | Immunization | Assay Antigen | Antigen Epitope Relation | MHC Restriction | Assay Description | |
| 1603138 | Haiyan Qin; Hum Immunol 2008 | NLVPMVATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesvirus 5 (Source Organism) without evidence for disease | NLVPMVATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus 5 | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive | |
| 3794226 | C Retière; J Virol 2000 | PPWQAGILARN LVPM VATVQGQN tegument protein pp65 (485-507) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesvirus 5 (Source Organism) without evidence for disease followed by restimulation in vitro | tegument protein pp65 tegument protein pp65 Human betaherpesvirus 5 | Source Antigen | HLA-A*02:01 | 3H-thymidine proliferation Positive | |
| 1397552 | Virginie Prod'homme; J Immunol 2003 | YILEETSVLM 55 kDa immediate-early protein 1 Human betaherpesvirus 5 | Homo sapiens | Exposure to endemic/ubiquitous agent Human betaherpesvirus 5 (Source Organism) without evidence for disease followed by | YILEETSVLM 55 kDa immediate-early protein 1 Human betaherpesvirus 5 | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive | |

Exploring the results page: Receptors

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | |
|---|----------------------|----------------------|----------------|--|--|----------------------------------|--|------------------|--|
| T Cell Receptors (8172) | | B Cell Receptors (0) | | | | | | | |
| Go To Records Starting At <input type="text" value="1200"/> <input type="button" value="GO"/> | | | | | | Export Results | | | |
| 8172 Records Found | | | | Page <input type="text" value="1"/> of 327 | | 25 <input type="text"/> Per Page | | | |
| Group ID | Species | Type | Chain 1 CDR3 | Chain 2 CDR3 | | | | | |
| 257 | Homo sapiens (human) | $\alpha\beta$ | AEDNNARLM | SARDGTGNGYT | | | | | |
| 324 | Homo sapiens (human) | $\alpha\beta$ | AVRDMNSGNTPLV | ASSYVSQNNEQF | | | | | |
| 823 | Homo sapiens (human) | $\alpha\beta$ | AVNYGNMLT | ASSKTSQSPYNEQF | | | | | |
| 824 | Homo sapiens (human) | $\alpha\beta$ | ILDNNNDMR | ASSLAPGTTNEKLF | | | | | |
| 825 | Homo sapiens (human) | $\alpha\beta$ | ILDNNNDMR | ASSLAPGATNEKLF | | | | | |
| 826 | Homo sapiens (human) | $\alpha\beta$ | AVFFGNVLHC | ASSRTGGAPEKLF | | | | | |
| 827 | Homo sapiens (human) | $\alpha\beta$ | AVGYGNQFY | ASIKTGGAPEKLF | | | | | |
| 828 | Homo sapiens (human) | $\alpha\beta$ | AFPYNNNDMR | ASSLEGYTEAF | | | | | |
| 829 | Homo sapiens (human) | $\alpha\beta$ | AFPYNNNDMR | ASQIQGYTEAF | | | | | |
| 830 | Homo sapiens (human) | $\alpha\beta$ | ALGWANNLF | ASSPGTGHTGELF | | | | | |
| 831 | Homo sapiens (human) | $\alpha\beta$ | ARNTGNQFY | ASSYXTGTGTGYGX | | | | | |
| 832 | Homo sapiens (human) | $\alpha\beta$ | AVRDISARLM | ATAGTGGLF | | | | | |
| 833 | Homo sapiens (human) | $\alpha\beta$ | AFVTGNQFY | ASSPVTGTGTGYGT | | | | | |
| 834 | Homo sapiens (human) | $\alpha\beta$ | ILDRDGGGATNKLI | ATSPGLAGAYQETQY | | | | | |
| 835 | Homo sapiens (human) | $\alpha\beta$ | ALRDDKII | ATSPGLAGAYQETQY | | | | | |
| 836 | Homo sapiens (human) | $\alpha\beta$ | VPPYEKLT | ASSLLVEQF | | | | | |
| 837 | Homo sapiens (human) | $\alpha\beta$ | VPPYEKLT | VPPYEKLT | | | | | |

Exploring the results page: References

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | |
|--|----------|--|--|---|------|---------------------|--|--|--|
| Go To Records Starting At 1982 <input type="button" value="GO"/> | | | | | | | | Export Results | |
| 332 Records Found | | | | | | | | Page 1 of 14 <input type="button" value="Previous"/> <input type="button" value="Next"/> | |
| 25 | | Per Page | | | | | | | |
| Ref ID | PMID | Author | Title | Abstract | Date | | | | |
| 1035476 | 31398327 | Tomasz Kula; Mohammad H Dezfulian; Charlotte I Wang; Nouran S Abdelfattah; Zachary C Hartman; Kai W Wucherpennig; Herbert Kim Lyerty; Stephen J Elledge | T-Scan: A Genome-wide Method for the Systematic Discovery of T Cell Epitopes. | T cell recognition of specific antigens mediates protection from pathogens and controls neoplasias, but can also cause autoimmunity. Our knowledge of T cell antigens and their implications for human h ...more... | 2019 | | | | |
| 1035029 | 31105686 | Paul V Lehmann; Maneewan Suwansaard; Ting Zhang; Diana R Roen; Greg A Kirchenbaum; Alexey Y Karulin; Alexander Lehmann; Pedro A Reche | Comprehensive Evaluation of the Expressed CD8+ T Cell Epitope Space Using High-Throughput Epitope Mapping. | T cell immunity is traditionally assessed through functional recall assays, which detect the consequences of the T cells' antigen encounter, or via fluorescently labeled multimers that selectively bin ...more... | 2019 | | | | |
| 1034802 | 30777378 | Ilenia Cammarata; Carmela Martire; Alessandra Citro; Domenico Raimondo; Doriana Fruci; Ombretta Melaiu; Valentina D'Oria; Chiara Carone; Giovanna Peruzzi; Cristina Cerboni; Angela Santoni; John Sidney; Alessandro Sette; Marino Paroli; Rosalba Caccavale; Edoardo Milanetti; Mara Riminucci; Eleonora Timperi; Silvia Piconese; Antonio Manzo; Carlomaurizio Montecucco; Rossana Scivo; Guido Valesini; Elisabetta Cariani; Vincenzo Barnaba | Counter-regulation of regulatory T cells by autoreactive CD8+ T cells in rheumatoid arthritis. | The mechanisms whereby autoreactive T cells escape peripheral tolerance establishing thus autoimmune diseases in humans remain an unresolved question. Here, we demonstrate that autoreactive polyfuncti ...more... | 2019 | | | | |
| 1035321 | 31324690 | Sunil Kumar Saini; Tripti Tamhane; Raghavendra Anjanappa; Ankur Saikia; Sofie | Empty peptide-receptive MHC class I molecules for efficient detection of antigen-specific T | The peptide-dependent stability of MHC class I molecules poses a substantial challenge | 2019 | | | | |

Exploring the results page: More Filters

Pending Filters

Reset Search

Epitope

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen

Organism
Human herpesvirus 5 (Hun²)

Antigen Name
Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Matches

Assay

- Positive Assays Only
- T Cell Assays
- B Cell Assays

Current Filters: Positive Assays Only

Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5, CMV, HHV5, HSV-5, HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)

MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Epitopes (182) | Antigens (28) | Assays (1495) | Receptors (8172) | References (332)

Go To Records Starting At 1200 Export Results

182 Records Found Page 1 of 8 25 Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
|---------|------------|---|---|--------------|----------|
| 44920 | NLVPMVATV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 230 | 576 |
| 20788 | GLCTLVAML | mRNA export factor ICP27 homolog | Human herpesvirus 4 (Epstein Barr virus) | 88 | 183 |
| 6568 | CLGGLTMV | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 59 | 147 |
| 69452 | VLEETSVML | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 31 | 54 |
| 76333 | YVLDHLIVV | Replication and transcription activator | Human herpesvirus 4 (Epstein Barr virus) | 22 | 40 |
| 16979 | FLYALALLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 18 | 41 |
| 74774 | YLLEMLWRL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 19 |
| 74886 | YLQQNWWTL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 20 |
| 37153 | LLDFVRFMGV | Epstein-Barr nuclear antigen 6 | Human herpesvirus 4 (Epstein Barr virus) | 9 | 12 |
| 37960 | LLWTLVLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 8 | 11 |
| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTECCAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 0 |

Filter panel: Epitope

Exact or similar
results

sequence of
choice

The screenshot shows the 'Epitope' filter panel. On the left, there are four radio buttons: 'Any Epitopes' (selected), 'Linear Epitope', 'Discontinuous Epitopes', and 'Non-peptidic Epitopes'. Below these is a checkbox for '3D structure available' and a section for 'Amino Acid Modification'. A dropdown menu is open, showing options: 'Exact Matc', 'Exact Matches', 'Substring', 'Blast - 90%', 'Blast - 80%', and 'Blast - 70%'. To the right of the dropdown is a text input field containing 'Ex: SIINFEKL' and a 'Finder' button. Below the dropdown is a 'Select Multiple Options' section with 'Select All' and 'Unselect All' buttons, followed by a list of modification options with checkboxes: '1,2-dimethylpropylamine', '2-aminoisabutaric acid', '4-azidobenzoic acid (ABA)', 'Acetylation|ACET', and 'Amidation|AMID'. A chemical structure diagram is visible in the top right corner of the panel.

Use radio
button to select
specific type of
structure

Multi-select option for modifications

Exploring the results page: More Filters

Pending Filters

Reset Search

Epitope

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen

Organism
Human herpesvirus 5 (Hun²)

Antigen Name
Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Matches

Assay

- Positive Assays Only
- T Cell Assays
- B Cell Assays

Current Filters: Positive Assays Only

- Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5, CMV, HHV5, HSV-5, HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)
- MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Go To Records Starting At [Export Results](#)

182 Records Found Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
|---------|------------|---|---|--------------|----------|
| 44920 | NLVPMVATV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 230 | 576 |
| 20788 | GLCTLVAML | mRNA export factor ICP27 homolog | Human herpesvirus 4 (Epstein Barr virus) | 88 | 183 |
| 6568 | CLGGLTMV | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 59 | 147 |
| 69452 | VLEETSVML | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 31 | 54 |
| 76333 | YVLDHLIVV | Replication and transcription activator | Human herpesvirus 4 (Epstein Barr virus) | 22 | 40 |
| 16979 | FLYALALLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 18 | 41 |
| 74774 | YLLEMLWRL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 19 |
| 74886 | YLQQNWWTL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 20 |
| 37153 | LLDFVRFMGV | Epstein-Barr nuclear antigen 6 | Human herpesvirus 4 (Epstein Barr virus) | 9 | 12 |
| 37960 | LLWTLVLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 8 | 11 |
| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTECCAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 0 |

Filter panel: Receptor

The diagram illustrates the 'Receptor' filter panel and its associated dropdown menus. The main panel is titled 'Receptor' and includes a checkbox for 'Has receptor sequence', a 'Type' dropdown menu, a 'Chain' dropdown menu, a 'Region' dropdown menu, a 'Sequence' dropdown menu, and a text input field for 'Ex: CARNTGNQFYF'. Three red arrows point from the 'Type', 'Chain', and 'Region' dropdowns to their respective expanded lists.

Expanded Type dropdown:

- Any Type
- BCR heavy-light
- BCR heavy-heavy
- BCR heavy
- BCR scFV
- BCR construct
- BCR light-light
- BCR light
- TCR $\alpha\beta$
- TCR TscFV

Expanded Chain dropdown:

- Any Type
- heavy
- light
- α
- β

Expanded Region dropdown:

- CDR3
- Full length
- CDR1
- CDR2

Expanded Sequence dropdown:

- Exact Match
- Substring
- Identity – 90%
- Identity – 80%
- Identity – 70%
- Identity – 60%

Exploring the results page: More Filters

Assay ?

Positive Assays Only

T Cell Assays

B Cell Assays

MHC Ligand Assays

MHC Restriction ?

Any MHC Restriction

MHC Class I

MHC Class II

MHC Nonclassical

Specific MHC Restriction

Host ?

Any Host

Humans

Mice

Non-human Primates

Specific Host

Disease ?

Any Disease

Infectious Disease

Allergic Disease

Autoimmune Disease

Transplant Disease

No Disease (Healthy)

Specific Disease

| | | | | | |
|------|--|----------------------|---------------|------------|--------------------|
| 835 | | Homo sapiens (human) | $\alpha\beta$ | ALRDDKII | ATSPGLAGAYQETQY |
| 836 | | Homo sapiens (human) | $\alpha\beta$ | VPPYEKLT | ASSLLVEQF |
| 837 | | Homo sapiens (human) | $\alpha\beta$ | VPPYEKLT | VPPYEKLT |
| 838 | | Homo sapiens (human) | $\alpha\beta$ | AVVHNDMR | ASSQDVSRLAHLSTDTQN |
| 839 | | Homo sapiens (human) | $\alpha\beta$ | ATDGDDYKLS | ASSPGLAGGWEQY |
| 840 | | Homo sapiens (human) | $\alpha\beta$ | ATDGDDYKLS | SARDNLRANYGYT |
| 841 | | Homo sapiens (human) | $\alpha\beta$ | AVSYGNMLT | ASNPVAGLPGEQY |
| 1163 | | Homo sapiens (human) | $\alpha\beta$ | ARNTGNQFY | ASSPVTGGIYGYT |
| 1510 | | Homo sapiens (human) | $\alpha\beta$ | ASGNNARLM | ASSEDHTGFYEQY |
| 1521 | | Homo sapiens (human) | $\alpha\beta$ | AFITGNQFY | ASSQTQLWETQY |
| 1522 | | Homo sapiens (human) | $\alpha\beta$ | ARNTGNQFY | ASSPQTGVGNIGYT |

8172 Records Found

Page 1 of 327

25 Per Page

Go To Records Starting At 1200

Export Results

Reference ?

Filter panel: Reference

Default setting 'Any Reference Type'

Reference ?

Any Reference Type

Journal Article

PubMed ID

Submission

Author

Title

Date (Year) to

PubMed
US National Library of Medicine
National Institutes of Health

PubMed

Advanced

Format: Abstract

Send to

mSphere, 2018 Oct 10;3(5): pii: e00453-18. doi: 10.1128/mSphere.00453-18.

Identification of a Shared Cytochrome p4502E1 Epitope Found in Anesthetic Drug-Induced and Viral Hepatitis.

McCarthy EK¹, Vakos A¹, Cottagiri M¹, Mantilla Ju¹, Santhanam L¹, Thomas DL², Amzel LM³, Rose NR⁴, Njoku DB^{5,6}.

Author information

Erratum in
Erratum for McCarthy et al., "Identification of a Shared Cytochrome p4502E1 Epitope Found in Anesthetic Drug-Induced and Viral Hepatitis". [mSphere. 2018]

Abstract
Cytochrome p4502E1 (CYP2E1) autoantibodies are biomarkers for drug-induced hepatitis and chronic hepatitis C. However, major histocompatibility-restricted CYP2E1 epitopes associated with these diseases have not been identified. We hypothesized that CYP2E1 epitopes associated with different types of hepatitis may be shared and may impact immune responses and metabolism. SYFPEITHI epitope prediction identified CYP2E1 candidate epitopes that would be recognized by MHC II haplotypes. Candidate epitopes were tested for induction of hepatitis and CYP2E1 autoantibodies in mice and recognition by sera from patients with anesthetic drug-induced and viral hepatitis. Human liver cells treated with epitope hybridoma serum were analyzed for mitochondrial stress. CYP2E1 activity was measured in human microsomes similarly treated. Epitope antibodies in viral hepatitis sera were analyzed using linear regression to uncover associations with liver pathology. A *P* value of <0.05 was considered significant. One epitope (Gly¹¹³-Leu¹³⁵) induced hepatitis and CYP2E1 autoantibodies in mice after modification of Lys¹²³ (*P* < 0.05). Gly¹¹³-Leu¹³⁵ antiserum recognized mitochondria and endoplasmic reticula (*P* < 0.05), upregulated HSP27 (*P* < 0.01) and mitochondrial oxidative stress via complex 1 inhibition (*P* < 0.001), and inhibited CYP2E1 activity. Gly¹¹³-Leu¹³⁵ IgG4 detected in viral hepatitis sera was associated with severe hepatic fibrosis (*P* = 0.0142). We found a novel CYP2E1 epitope that was detected in anesthetic and viral hepatitis and that triggered hepatitis in mice. Our findings may improve understanding of hepatic immune responses triggered by metabolism or viruses. **IMPORTANCE** Drug-induced hepatitis is the leading reason that an approved drug is removed from the commercial market. Halogenated anesthetics can induce hepatitis in susceptible persons, and cytochrome p4502E1 (CYP2E1) enzymes responsible for their metabolism induce antibodies in addition to hepatitis. CYP2E1 antibodies detected in anesthetic hepatitis patients have been detected in patients with viral hepatitis, suggesting that these different forms of hepatitis could develop immune reactions to a common segment or epitope of CYP2E1. We have found a common MHC-restricted CYP2E1 epitope in anesthetic and viral hepatitis that is a dominant epitope in anesthetic hepatitis and is significantly associated with fibrosis in patients with viral hepatitis. Along with conformational epitopes, our identification of MHC-restricted CYP2E1 epitopes can be used to develop specific diagnostic tests for drug-induced or viral hepatitis or associated fibrosis or to predict individuals at risk for developing these diseases or their sequelae.

Copyright © 2018 McCarthy et al.

KEYWORDS: autoantibody; mitochondria complex 1; oxidative stress

PMID: 30305319 PMCID: PMC6180222 DOI: 10.1128/mSphere.00453-18

Exploring the results page: Epitopes

Pending Filters

Reset Search

Epitope

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen

Organism
Human herpesvirus 5 (Hun²)

Antigen Name
Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Matches

Assay

Positive Assays Only

- T Cell Assays
- B Cell Assays

Current Filters: Positive Assays Only

- Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5, CMV, HHV5, HSV-5, HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)
- MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Epitopes (182) | **Antigens** (28) | **Assays** (1495) | **Receptors** (8172) | **References** (332)

Go To Records Starting At 1200 [Export Results](#)

182 Records Found Page 1 of 8 25 Per Page

| Details | Epitope | Antigen | Organism | # References | # Assays |
|--------------|------------|---|---|--------------|----------|
| 44920 | NLVPMVATV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 230 | 576 |
| 20788 | GLCTLVAML | mRNA export factor ICP27 homolog | Human herpesvirus 4 (Epstein Barr virus) | 88 | 183 |
| 6568 | CLGGLTMV | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 59 | 147 |
| 69452 | VLEETSVML | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 31 | 54 |
| 76333 | YVLDHLIVV | Replication and transcription activator | Human herpesvirus 4 (Epstein Barr virus) | 22 | 40 |
| 16979 | FLYALALLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 18 | 41 |
| 74774 | YLLEMLWRL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 19 |
| 74886 | YLQQNWWTL | Latent membrane protein 1 | Human herpesvirus 4 (Epstein Barr virus) | 13 | 20 |
| 37153 | LLDFVRFMGV | Epstein-Barr nuclear antigen 6 | Human herpesvirus 4 (Epstein Barr virus) | 9 | 12 |
| 37960 | LLWTLVLL | Latent membrane protein 2 | Human herpesvirus 4 (Epstein Barr virus) | 8 | 11 |
| 65277 | TMYGGISLL | 55 kDa immediate-early protein 1 | Human herpesvirus 5 (Human cytomegalovirus) | 8 | 13 |
| 42013 | MLNIPSINV | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 12 |
| 65748 | TDVTECCAM | 65 kDa phosphoprotein | Human herpesvirus 5 (Human cytomegalovirus) | 7 | 9 |

Epitope Details Page

<http://www.iedb.org/epitope/44920>

EPITOPE SUMMARY

NLVPMVATV is a linear peptidic epitope (epitope ID 44920) studied as part of 65 kDa phosphoprotein from Human herpesvirus 5 (Human cytomegalovirus). This epitope has been studied for immune reactivity in 304 publication(s), tested in 699 T cell assays, 8 B cell assays, 50 MHC ligand assays and has 3D structure(s) 3GSN, 5D2N, 5D2L, 6Q3K, 3GSO and 2X4R.

COMPILED DATA

MHC Ligand Assay(s) 50

| MHC molecule | Positive / All |
|--------------|----------------|
| HLA-A*02:01 | 36/36 |
| HLA-A2 | 4/4 |
| HLA-A*02:03 | 1/1 |
| HLA-A*02:06 | 1/1 |
| HLA-A*02:11 | 1/1 |
| HLA-A*02:12 | 1/1 |
| HLA-A*02:16 | 1/1 |
| HLA-A*02:19 | 1/1 |
| HLA-A*69:01 | 1/1 |
| HLA-A*03:01 | 0/1 |
| HLA-A*24:02 | 0/1 |
| HLA-B*07:02 | 0/1 |

Epitope Details

Page cont'd

| T Cell Assay(s) 699 | |
|---------------------------------|----------------|
| Assay Type | Positive / All |
| qualitative binding | 260/263 |
| IFNg release | 172/176 |
| cytotoxicity | 122/124 |
| TNFa release | 27/28 |
| proliferation | 25/26 |
| IL-2 release | 14/16 |
| granzyme B release | 12/12 |
| degranulation | 11/11 |
| dissociation constant KD | 7/7 |
| perforin release | 5/5 |
| 3D structure | 4/4 |
| CCL4/MIP-1b release | 3/3 |
| pathogen burden after challenge | 2/3 |
| activation | 2/2 |
| GM-CSF release | 2/2 |
| IL-4 release | 2/2 |
| T cell- APC binding | 2/2 |
| tumor burden after challenge | 2/2 |
| IL-5 release | 1/2 |
| CXCL9/MIG release | 1/1 |
| decreased disease | 1/1 |
| IL-1b release | 1/1 |
| IL-6 release | 1/1 |
| survival from challenge | 1/1 |
| TNF release | 1/1 |
| IL-10 release | 0/1 |
| IL-13 release | 0/1 |
| type IV hypersensitivity (DTH) | 0/1 |

Epitope Details Page cont'd

| B Cell Assay(s) 8 | |
|--------------------------|-----------------------|
| Assay Type | Positive / All |
| qualitative binding | 5/5 |
| dissociation constant KD | 1/1 |
| off rate | 1/1 |
| on rate | 1/1 |

Exploring the results page: Assays

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | | |
|--|--|---|----------------------|--|--|--------------------------|----------------------------------|---|--|--|
| T Cell Assays (1331) | | | B Cell Assays (0) | | MHC Ligand Assays (164) | | | | | |
| Go To Records Starting At <input type="text" value="A,b"/> <input type="button" value="GO"/> | | | | | | | | Export Results | | |
| 1331 Records Found | | | | Page <input type="text" value="1"/> of 54 | | | 25 <input type="text"/> Per Page | | | |
| ID | Reference | Epitope | Host | Immunization | Assay Antigen | Antigen Epitope Relation | MHC Restriction | Assay Description | | |
| 1603138 | Haiyan Qin; Hum Immunol | NLVPMTATV phosphorylated matrix protein pp65 (482-490) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesviru s 5 (Source Organism) without evidence for disease | NLVPMTATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesviru s 5 | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive | | |
| 3794226 | C Retière; J Virol 2000 | PPWQAGILARN LVPM VATVQQQN tegument protein pp65 (485-507) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesviru s 5 (Source Organism) without evidence for disease followed by restimulation in vitro | tegument protein pp65 tegument protein pp65 Human betaherpesviru s 5 | Source Antigen | HLA-A*02:01 | 3H-thymidine proliferation Positive | | |
| 1397552 | Virginie Prod'homme; J Immunol 2003 | YILEETSVLM 55 kDa immediate-early protein 1 Human betaherpesvirus 5 | Homo sapiens | Exposure to endemic/ubiqiti ous agent Human betaherpesviru s 5 (Source Organism) without evidence for disease followed by | YILEETSVLM 55 kDa immediate- early protein 1 Human betaherpesviru s 5 | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive | | |

Explored in next presentation

Exploring the results page: 3D structures

Epitope ?

Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

Exact Match

3D structure available

Amino Acid Modification

Protein complex (ID:MRO_0001007, HLA-A0201)

Go To Records Starting At

Page of 54

| ID | Host | Immunization | Assay | Antigen | Antigen Epitope Relation | MHC Rest |
|---------|------------------------------|---|--|--|--------------------------|----------|
| 1603138 | Haiyan Qin; Hum Immunol 2008 | NLVPMTATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus 5 | Immune reactivity to Human betaherpesvirus s 5 (Source Organism) without evidence for disease | NLVPMTATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus s 5 | Epitope | HLA- |
| 3794226 | C Retière; J Virol 2000 | PPWQAGILARN LVPM VATVQGQN tegument protein pp65 (485-507) Human betaherpesvirus 5 | Immune reactivity to Human betaherpesvirus s 5 (Source Organism) without evidence for disease followed by restimulation in vitro | tegument protein pp65 tegument protein pp65 Human betaherpesvirus s 5 | Source Antigen | HLA- |
| 1397552 | Virginie | YILEETSVLM | Exposure to endemic/ubiqiti | YILEETSVLM 55 kDa | Epitope | HLA- |

Antigen ?

Organism

Antigen Name

Receptor ?

Has receptor sequence

Type

Chain

Sequence

Exploring the results page: 3D Structures

✖ Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5,CMV,HHV5,HSV-5,HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)
✖ MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201) ✖ 3D structure available

Epitopes (3) Antigens (3) Assays (13) Receptors (8) References (7)

T Cell Assays (4) B Cell Assays (0) MHC Ligand Assays (9)

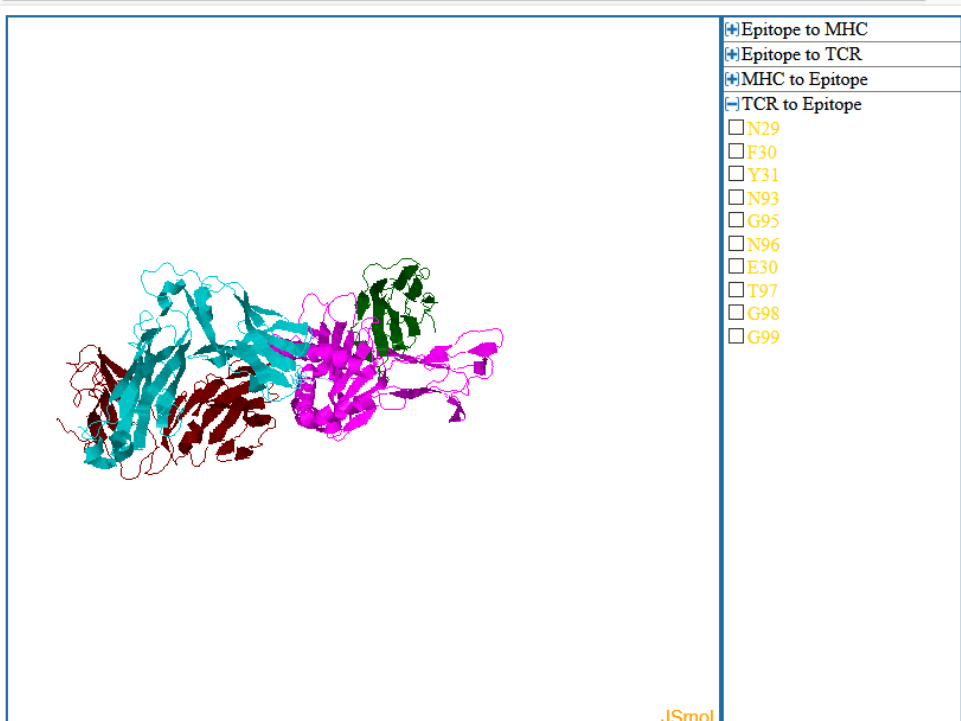
Go To Records Starting At Export Results

4 Records Found

| ID | Reference | Epitope | Host |
|---------|---|---|---------|
| 1714843 | Stéphanie Gras; Click to view 3D Structure | NLVPMTATV β5 (485-493) man betaherpesvirus 5 | Homo sa |
| 2579979 | Xinbo Yang; J Biol Chem 2015 | NLVPMTATV 64 kDa lower matrix phosphoprotein (485-493) Human betaherpesvirus 5 | Homo sa |
| 2579980 | Xinbo Yang; | | Homo sa |

Mozilla Firefox

https://www.iedb.org/3dViewer.php?complex=1354150



Epitope to MHC
 Epitope to TCR
 MHC to Epitope
 TCR to Epitope
 N29
 F30
 Y31
 N93
 G95
 N96
 E30
 T97
 G98
 G99

Chains: MHC-alpha MHC-b2m TCR-alpha TCR-beta Epitope Chain

Calculated contacts: Epitope to MHC Epitope to TCR MHC to Epitope TCR to Epitope

JSmol

Exploring the results page: Receptors

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | | |
|-------------------------|----------------------|----------------------|----------------|---|--|------------------|--|------------------|--|--------------------------------|
| T Cell Receptors (8172) | | B Cell Receptors (0) | | Go To Records Starting At <input type="text" value="1200"/> <input type="button" value="GO"/> | | | | | | Export Results |
| 8172 Records Found | | | | Page <input type="text" value="1"/> of 327 | | 25 Per Page | | | | |
| Group ID | Species | Type | Chain 1 CDR3 | Chain 2 CDR3 | | | | | | |
| 257 | Homo sapiens (human) | $\alpha\beta$ | AEDNNARLM | SARDGTGNGYT | | | | | | |
| 324 | Homo sapiens (human) | $\alpha\beta$ | AVRDMNSGNTPLV | ASSYVSQNNEQF | | | | | | |
| 823 | Homo sapiens (human) | $\alpha\beta$ | AVNYGNMLT | ASSKTSGSPYNEQF | | | | | | |
| 824 | Homo sapiens (human) | $\alpha\beta$ | ILDNNNDMR | ASSLAPGTTNEKLF | | | | | | |
| 825 | Homo sapiens (human) | $\alpha\beta$ | ILDNNNDMR | ASSLAPGATNEKLF | | | | | | |
| 826 | Homo sapiens (human) | $\alpha\beta$ | AVFFGNVLHC | ASSRTGGAPEKLF | | | | | | |
| 827 | Homo sapiens (human) | $\alpha\beta$ | AVGYGNQFY | ASIKTGGAPETQY | | | | | | |
| 828 | Homo sapiens (human) | $\alpha\beta$ | AFPYNNNDMR | ASSLEGYTEAF | | | | | | |
| 829 | Homo sapiens (human) | $\alpha\beta$ | AFPYNNNDMR | ASQIQGYTEAF | | | | | | |
| 830 | Homo sapiens (human) | $\alpha\beta$ | ALGWANNLF | ASSPGTGHTGELF | | | | | | |
| 831 | Homo sapiens (human) | $\alpha\beta$ | ARNTGNQFY | ASSYXTGTGTGYX | | | | | | |
| 832 | Homo sapiens (human) | $\alpha\beta$ | AVRDISARLM | ATAGTGGLF | | | | | | |
| 833 | Homo sapiens (human) | $\alpha\beta$ | AFVTGNQFY | ASSPVTGTGTGYT | | | | | | |
| 834 | Homo sapiens (human) | $\alpha\beta$ | ILDRDGGGATNKLI | ATSPGLAGAYQETQY | | | | | | |
| 835 | Homo sapiens (human) | $\alpha\beta$ | ALRDDKII | ATSPGLAGAYQETQY | | | | | | |
| 836 | Homo sapiens (human) | $\alpha\beta$ | VPPYEKLT | ASSLLVEQF | | | | | | |
| 837 | Homo sapiens (human) | $\alpha\beta$ | VPPYEKLT | VPPYEKLT | | | | | | |

Receptor Details

<http://www.iedb.org/receptor/1163>

T cell receptor (receptor group ID 1163)

Alpha beta TCR with alpha chain CDR3 of ARNTGNQFY and beta chain CDR3 of ASSPVTGGIYGYT was reported in Homo sapiens (human). This TCR has accessions for alpha chain [3GSN_A](#) and beta chain [3GSN_B](#) and was shown in 3D Structures [3GSN](#).

| alpha | | beta | | Epitopes (# assays) |
|---|---|--|---|--|
| Gene usage | CDR sequences | Gene usage | CDR sequences | |
| V:TRAV24*01 D: J:TRAJ49*01 | CDR1:SSNFYA CDR2:MTLNGDE CDR3:ARNTGNQFY | V:TRBV6-5*01 D: J:TRBJ1-2*01 | CDR1:MNHEY CDR2:SVGAGI CDR3:ASSPVTGGIYGYT | NLVPMVATV (1) |
| V Domain: NVEQSPQSLHVQEGDSINFTCSFP SSNFYA... | | V Domain: GVTQTPKFKVLKTKGQSMTLQCAQD MNHEYM... | | |
| V:TRAV24*01 D: J:TRAJ49*01 | CDR1:SSNFYA CDR2:MTLNGDE CDR3:ARNTGNQFY | V:TRBV6-5*01 D: J:TRBJ1-2*01 | CDR1:MNHEY CDR2:SVGAGI CDR3:ASSPVTGGIYGYT | NLVPMVATV (2), NLVGMVATV (1), NLVPMVASV (1), NLVAMVATV (1), NLVPQVATV (1), NLVPTVATV (1), NLVPVATV (1) |
| V Domain: | | V Domain: | | |

Epitope summary

This TCR was studied for the following epitopes NLVPMVATV studied as part of 65 kDa phosphoprotein from Human herpesvirus 5 (Human cytomegalovirus) (epitope ID 44920, 1 publication, 3 assays), NLVGMVATV (epitope ID 133253, 1 publication, 1 assay), NLVPMVASV (epitope ID 133259, 1 publication, 1 assay), NLVAMVATV (epitope ID 135855, 1 publication, 1 assay), NLVPQVATV (epitope ID 135858, 1 publication, 1 assay), NLVPTVATV (epitope ID 135860, 1 publication, 1 assay) and NLVPVATV (epitope ID 135861, 1 publication, 1 assay).

Exploring the results page: Exporting

| Epitopes (182) | | Antigens (28) | | Assays (1495) | | Receptors (8172) | | References (332) | |
|--|-------------------------------------|---|--------------|--|--|---|-----------------|--|--|
| T Cell Assays (1331) | | B Cell Assays (0) | | MHC Ligand Assays (164) | | | | | |
| Go To Records Starting At <input type="text" value="A,b"/> <input type="button" value="GO"/> | | | | | | Export Results | | | |
| 1331 Records Found | | | | | | Page <input type="text" value="1"/> of 54 <input type="button" value="Previous"/> <input type="button" value="Next"/> | | 25 <input type="button" value="v"/> Per Page | |
| ID | Reference | Epitope | Host | Immunization | Assay Antigen | Antigen Epitope Relation | MHC Restriction | Assay Description | |
| 1603138 | Haiyan Qin; Hum Immunol 2008 | NLVPMVATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesvirus 5 (Source Organism) without evidence for disease | NLVPMVATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus 5 | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive | |
| 3794226 | C Retière; J Virol 2000 | PPWQAGILARN LVPM VATVQGQN tegument protein pp65 (485-507) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesvirus 5 (Source Organism) without evidence for disease followed by restimulation in vitro | tegument protein pp65 tegument protein pp65 Human betaherpesvirus 5 | Source Antigen | HLA-A*02:01 | 3H-thymidine proliferation Positive | |
| 1397552 | Virginie Prod'homme; J Immunol 2003 | YILEETSVLM 55 kDa immediate-early protein 1 Human betaherpesvirus 5 | Homo sapiens | Exposure to endemic/ubiquitous agent Human betaherpesvirus 5 (Source Organism) without evidence for disease | YILEETSVLM 55 kDa immediate-early protein 1 Human betaherpesvirus 5 | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive | |

Exploring the results page: Exporting

The screenshot displays the IEDB results page with a table of records. A red box highlights the export options: "Export to CSV file" and "Export to CSV file with IRIs".

| ID | Reference | Epitope | Host | Immunization | Antigen | Assay | HLA | Assessment |
|---------|-------------------------------------|---|--------------|--|---|----------------|-------------|-------------------------------------|
| 1603138 | Haiyan Qin; Hum Immunol 2008 | NLVPMTATV phosphorylated matrix protein (pp65) (482-490) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesvirus 5 (Source Organism) without evidence for disease | Matrix protein (pp65) (482-490) Human betaherpesvirus 5 | | | Positive |
| 3794226 | C Retière; J Virol 2000 | PPWQAGILARN LVPM VATVQGQN tegument protein pp65 (485-507) Human betaherpesvirus 5 | Homo sapiens | Immune reactivity to Human betaherpesvirus 5 (Source Organism) without evidence for disease followed by restimulation in vitro | tegument protein pp65 tegument protein pp65 Human betaherpesvirus 5 | Source Antigen | HLA-A*02:01 | 3H-thymidine proliferation Positive |
| 1397552 | Virginie Prod'homme; J Immunol 2003 | YILEETSVLM 55 kDa immediate-early protein 1 | Homo sapiens | Exposure to endemic/ubiquitous agent Human betaherpesvirus 5 | YILEETSVLM 55 kDa immediate-early protein 1 Human | Epitope | HLA-A*02:01 | 3H-thymidine proliferation Positive |

Exploring the results page: Exporting



IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

Home | Specialized Searches | Analysis Resource | Help | More IEDB

Current Filters: Positive Assays Only


Organism: Human herpesvirus 5 (Human cytomegalovirus) (ID:10359, herpes virus 5,CMV,HHV5,HSV-5,HSV5), Human herpesvirus 4 (Epstein Barr virus) (ID:10376, Epstein-Barr virus EBV)

MHC Restriction Type: HLA-A*02:01 protein complex (ID:MRO_0001007, HLA-A0201)

Your export is being built. This page can be left open or bookmarked to check back later (Note: exports will expire 24 hours after being created). Full downloads of the entire database can be found [Here](#)

Opening tcell_table_export_1573483714.zip

You have chosen to open:

 **tcell_table_export_1573483714.zip**
which is: Compressed (zipped) Folder
from: <http://www.iedb.org>

What should Firefox do with this file?

Open with Windows Explorer (default) v

Save File

Do this automatically for files like this from now on.

OK Cancel

Provide Feedback | Help Request | Solutions Center | Tool Licensing Information | Human Services. Last Updated: November 03, 2019

Supported by a contract from the National Institute of Allergy and Infectious Diseases

Exported Data

| Reference T Cell ID | Reference Reference ID | Reference Type | Reference PubMed ID | Reference Authors | Reference Journal | Reference Date | Reference Title | Reference Submission ID | Epitope Epitope ID | Epitope Object Type |
|------------------------|---------------------------|-------------------|------------------------|----------------------------|----------------------|-------------------|--|----------------------------|-----------------------|------------------------|
| 5599 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 76333 | Linear peptide |
| 5605 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 20788 | Linear peptide |
| 5608 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 64763 | Linear peptide |
| 5613 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 16548 | Linear peptide |
| 7377 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 76333 | Linear peptide |
| 7382 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 20788 | Linear peptide |
| 7385 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 64763 | Linear peptide |
| 7389 | 606 | Literature | 15684323 | Victoria A Pudney; Alisc | J Exp Med | 2005 | CD8+ immunodominance among Epstein-Barr virus ly | | 16548 | Linear peptide |
| 8566 | 807 | Literature | 12594271 | Eugene V Ravkov; Christ | J Immunol | 2003 | Immediate early effector functions of virus-specific C | | 20788 | Linear peptide |
| 8567 | 807 | Literature | 12594271 | Eugene V Ravkov; Christ | J Immunol | 2003 | Immediate early effector functions of virus-specific C | | 16878 | Linear peptide |
| 8569 | 807 | Literature | 12594271 | Eugene V Ravkov; Christ | J Immunol | 2003 | Immediate early effector functions of virus-specific C | | 53128 | Linear peptide |
| 8570 | 807 | Literature | 12594271 | Eugene V Ravkov; Christ | J Immunol | 2003 | Immediate early effector functions of virus-specific C | | 53128 | Linear peptide |
| 15972 | 807 | Literature | 12594271 | Eugene V Ravkov; Christ | J Immunol | 2003 | Immediate early effector functions of virus-specific C | | 44920 | Linear peptide |
| 21197 | 1341 | Literature | 11687239 | G T Brice; N L Graber; S L | J Immunol Methods | 2001 | Expression of the chemokine MIG is a sensitive and p | | 44920 | Linear peptide |
| 21198 | 1341 | Literature | 11687239 | G T Brice; N L Graber; S L | J Immunol Methods | 2001 | Expression of the chemokine MIG is a sensitive and p | | 44920 | Linear peptide |
| 317057 | 315377 | Literature | 11160752 | J A Zaia; G Gallez-Hawki | J Virol | 2001 | Infrequent occurrence of natural mutations in the pp | | 44919 | Linear peptide |
| 1007877 | 315012 | Literature | 1607654 | U Utz; S Koenig; J E Colig | J Immunol | 1992 | Presentation of three different viral peptides, HTLV-1 | | 125298 | Linear peptide |
| 1008482 | 315002 | Literature | 1331239 | K C Parker; M A Bednare | J Immunol | 1992 | Sequence motifs important for peptide binding to the | | 16158 | Linear peptide |
| 1008673 | 1000389 | Literature | 16301748 | Godelieve J de Bree; Est | J Exp Med | 2005 | Selective accumulation of differentiated CD8+ T cells | | 44920 | Linear peptide |
| 1031720 | 1000170 | Literature | 11592365 | C Fazou; H Yang; A J McN | Arthritis Rheum | 2001 | Epitope specificity of clonally expanded populations | | 20788 | Linear peptide |
| 1243102 | 1001083 | Literature | 16462803 | Mireille Toebes; Miriam | Nat Med | 2006 | Design and use of conditional MHC class I ligands. | | 44920 | Linear peptide |

Exported Data

| Epitope | Epitope | Epitope | Epitope | Epitope | Epitope | Epitope | Epitope |
|-------------|------------|-----------|------------------------------------|--------------------------------|----------------|----------------------------------|--------------------------|
| Description | Starting P | Ending Po | Antigen Name | Parent Protein | Parent Protein | Organism Name | Parent Species |
| YVLDHLIVV | 109 | 117 | Transcription activator BRLF1 | Replication and transcription | P03209 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| GLCLTVAML | 259 | 267 | Transcriptional regulator IE63 hom | mRNA export factor ICP27 hor | Q04360 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| TLDYKPLSV | 208 | 216 | Early antigen protein D | DNA polymerase processivity | P03191 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| FLDKGTYTL | 276 | 284 | Glycoprotein GP110 precursor | Envelope glycoprotein B | P03188 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| YVLDHLIVV | 109 | 117 | Transcription activator BRLF1 | Replication and transcription | P03209 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| GLCLTVAML | 259 | 267 | Transcriptional regulator IE63 hom | mRNA export factor ICP27 hor | Q04360 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| TLDYKPLSV | 208 | 216 | Early antigen protein D | DNA polymerase processivity | P03191 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| FLDKGTYTL | 276 | 284 | Glycoprotein GP110 precursor | Envelope glycoprotein B | P03188 | Human herpesvirus 4 strain B95-8 | Human gammaherpesvirus 4 |
| GLCLTVAML | 259 | 267 | Transcriptional regulator IE63 hom | mRNA export factor ICP27 hor | Q04360 | Human gammaherpesvirus 4 | Human gammaherpesvirus 4 |
| FLRGRAYGL | 11 | 19 | nuclear antigen EBNA-3 | Epstein-Barr nuclear antigen 3 | P12977 | Human gammaherpesvirus 4 | Human gammaherpesvirus 4 |
| RAKFKQLL | 190 | 197 | Trans-activator protein BZLF1 | Trans-activator protein BZLF1 | P03206 | Human gammaherpesvirus 4 | Human gammaherpesvirus 4 |
| RAKFKQLL | 190 | 197 | Trans-activator protein BZLF1 | Trans-activator protein BZLF1 | P03206 | Human gammaherpesvirus 4 | Human gammaherpesvirus 4 |
| NLVPMVATV | 495 | 503 | tegument protein pp65 | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| NLVPMVATV | 495 | 503 | HCMVUL83 | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| NLVPMVATV | 495 | 503 | HCMVUL83 | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| NLVPIVATV | | | 65 kDa phosphoprotein | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| IAGNSAYEYV | 619 | 628 | Glycoprotein B precursor | Envelope glycoprotein B | F5HB53 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| FIAGNSAYEYV | 619 | 629 | glycoprotein B | Envelope glycoprotein B | F5HB53 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| NLVPMVATV | 495 | 503 | 65 kDa lower matrix phosphoprotei | 65 kDa phosphoprotein | Q6SW59 | Human herpesvirus 5 strain AD169 | Human betaherpesvirus 5 |
| GLCLTVAML | 259 | 267 | Transcriptional regulator IE63 hom | mRNA export factor ICP27 hor | Q04360 | Human gammaherpesvirus 4 | Human gammaherpesvirus 4 |
| NLVPMVATV | 495 | 503 | 65 kDa lower matrix phosphoprotei | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| NLVPMVATV | 495 | 503 | tegument protein pp65 | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| NLVPMVATV | 495 | 503 | tegument protein pp65 | 65 kDa phosphoprotein | Q6SW59 | Human betaherpesvirus 5 | Human betaherpesvirus 5 |
| GLCLTVAML | 259 | 267 | Transcriptional regulator IE63 hom | mRNA export factor ICP27 hor | Q04360 | Human gammaherpesvirus 4 | Human gammaherpesvirus 4 |

More Exports

The screenshot shows the IEDB website interface. At the top, there is a navigation bar with 'Home', 'Specialized Searches', and 'Analysis Resource'. A 'Help' link and a 'More IEDB' dropdown menu are located on the right. The 'More IEDB' menu is open, showing options: 'Database Export', 'Meta-Analyses', 'Citing the IEDB', 'Release Notes', and 'Links'. A red arrow points to 'Database Export'. Below the navigation bar is the 'START YOUR SEARCH HERE' section, which contains several search filters: Epitope (Any Epitopes, Linear Epitope, Discontinuous Epitopes, Non-peptidic Epitopes), Assay (Positive Assays Only, T Cell Assays, B Cell Assays, MHC Ligand Assays), Antigen (Organism, Antigen Name), MHC Restriction (Any MHC Restriction, MHC Class I, MHC Class II, MHC Nonclassical), Host (Any Host, Humans, Mice, Non-human Primates), and Disease (Any Disease, Infectious Disease, Allergic Disease, Autoimmune Disease). At the bottom of the search section are 'Reset' and 'Search' buttons. On the left side, there is a 'Welcome' section, 'Upcoming Events' (including a 2-day User Workshop), and 'Summary Metrics' table. On the right side, there are sections for 'Epitope Analysis Tools' and 'B Cell Epitope Prediction'.

IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

Home Specialized Searches Analysis Resource Help **More IEDB**

- Database Export
- Meta-Analyses
- Citing the IEDB
- Release Notes
- Links

START YOUR SEARCH HERE

Epitope

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes

Exact M Ex: SIINFEKL

Assay

- Positive Assays Only
- T Cell Assays
- B Cell Assays
- MHC Ligand Assays

Ex: neutralization Find

Antigen

Organism Ex: influenza, peanut

Antigen Name Ex: core, capsid, myosin

MHC Restriction

- Any MHC Restriction
- MHC Class I
- MHC Class II
- MHC Nonclassical

Ex: HLA-A*02:01 Find

Host

- Any Host
- Humans
- Mice
- Non-human Primates

Ex: dog, camel Find

Disease

- Any Disease
- Infectious Disease
- Allergic Disease
- Autoimmune Disease

Ex: asthma, diabetes Find

Reset Search

Welcome

The Immune Epitope Database (IEDB) is a freely available resource funded by NIAID. It catalogs experimental data on antibody and T cell epitopes studied in humans, non-human primates, and other animal species in the context of infectious disease, allergy, autoimmunity and transplantation. The IEDB also hosts tools to assist in the prediction and analysis of epitopes.

[Learn More](#)

Upcoming Events

2-day User Workshop (details) Nov 7-8
* webcast available

Antibody Society Booth Dec 9-13
AAAAI 2020 Booth Mar 13-16
AAI 2020 Booth May 8-12
FOCIS 2020 Booth June 23-26

Summary Metrics

| | |
|--------------------------|-----------|
| Peptidic Epitopes | 592,423 |
| Non-Peptidic Epitopes | 2,810 |
| T Cell Assays | 364,879 |
| B Cell Assays | 484,136 |
| MHC Ligand Assays | 1,207,448 |
| Epitope Source Organisms | 3,761 |
| Restricting MHC Alleles | 785 |
| References | 20,589 |

Epitope Analysis Tools

Analyze epitope sets of:

- Population Coverage
- Conservation Across Antigens
- Clusters with Similar Sequences

B Cell Epitope Prediction

Predict linear B cell epitopes using:

- Antigen Sequence Properties

Predict discontinuous B cell epitopes using antigen structure via:

- Discotope
- ElliPro

T Cell Epitope Prediction

Scan an antigen sequence for amino acid patterns indicative of:

- MHC I Binding
- MHC II Binding
- MHC I Processing (Proteasome, TAP)
- MHC I Immunogenicity

More Exports

http://www.iedb.org/database_export_v3

| XML Database Export | |
|--|-------|
| Complete Database Export | 209MB |
| iedbAccessionList.zip | 40kB |
| MhcAlleleNameList.zip | 29kB |
| OrganismList.zip | 32MB |
| AssayTypeList.zip | 5kB |
| GeoLocList.zip | 3kB |

| IEDB Schema | |
|--|-------|
| Curation.xsd (Primary IEDB schema) | 48kB |
| CurationSimpleTypes.xsd | 179kB |
| iedbAccessionList.xsd | 909B |
| MhcAlleleNameList.xsd | 1kB |
| OrganismList.xsd | 751B |
| AssayTypeList.xsd | 771B |
| GeoLocList.xsd | 642B |

| MySQL Database Export | |
|--------------------------------------|-------|
| SQL Statement Export | 252MB |
| MyISAM Binary Export | 500MB |

| Physical Entity Relationship Diagram | |
|--------------------------------------|------|
| iedb_public_erd.pdf | 31kB |

| CSV Metric Exports | |
|---------------------------------------|------|
| epitope_full_v3.zip | 36MB |
| antigen_full_v3.zip | 1MB |
| tcell_full_v3.zip | 25MB |
| bcell_full_v3.zip | 29MB |
| mhc_ligand_full.zip | 62MB |
| reference_full_v3.zip | 11MB |
| receptor_full_v3.zip | 1MB |
| iedb_3d_full.zip | 2MB |

Receptor_full export

- Receptor_full contains exports of all antibody and T cell sequences in the IEDB
- Provides nucleotide and protein full length sequences
- Includes CDR1, 2, and 3 sequences
- Includes gene usage
- Listed by each epitope that they were shown to recognize

iedb_3d_full export

- iedb_3d_full contains exports of all 3D structures in the IEDB
- Antibody, MHC, and T cell are in separate spreadsheets
- Provides structural details on receptor-Antigen interactions (inter-molecular contacts)
- Include PDB IDs and resolutions of complexes, PDB chain IDs of antibody, TCR, MHC, and Antigen chains
- Includes full length receptor and antigen sequences
- Can be combined with receptor export to get information on CDRs and VDJ gene usage