



Accessing the Data: Query, Reporting and Examples

www.iedb.org

Presented by: Randi Vita, M.D. Lead Ontology and Quality Manager

Home Page Query



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

An IEDB Case Study: TB	Sept 3
* webinar recording here	
FOCIS Virtual Booth	Oct 28-31
User Workshop	Nov 5-6
* register for workshop here	

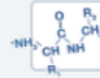
Summary Metrics

Peptidic Epitopes	971,496
Non-Peptidic Epitopes	3,051
T Cell Assays	383,184
B Cell Assays	549,059
MHC Ligand Assays	2,927,353
Epitope Source Organisms	3,974
Restricting MHC Alleles	860
References	21,564

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

Antigen Name



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



Reset

Search

Epitope Analysis Resource

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

B Cell Epitope Prediction ?

Predict linear B cell epitopes using:

[Antigen Sequence Properties](#)

Predict discontinuous B cell epitopes using antigen structure via:

- [DiscoTope](#)
- [ElliPro](#)

Epitope Analysis Tools ?

Analyze epitope sets of:

- [Population Coverage](#)
- [Conservation Across Antigens](#)
- [Clusters with Similar Sequences](#)

Epitope Search Pane

START YOUR SEARCH HERE ?

Epitope ?

Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

Exact M ▾ Ex: SIINFEKL

Assay ?

Positive A
 T Cell As
 MHC Lig
Ex: neutral


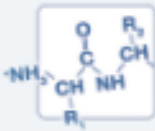
Antigen ?

Organism
Ex: influenza, peanut

Antigen Name
Ex: core, capsid, myosin

MHC Restriction ?

Any MHC
 MHC Cla
 MHC Cla
 MHC Nor
 Ex: HLA



START YOUR SEARCH HERE ?

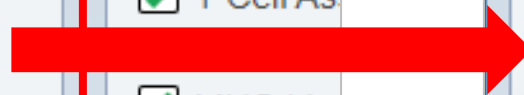

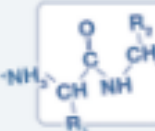
Epitope ?

Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

Exact M ▾ Ex: SIINFEKL

Exact Matches
Substring
Blast - 90%
Blast - 80%
Blast - 70%

Antigen ?




Antigen Search Pane: Organism

Exact M ▾ Ex: SIINFEKL

Discontinuous Epitopes

Non-peptidic Epitopes


Antigen ? 


Organism

Ex: influenza, peanut


Antigen Name

Ex: core, capsid, myosin

Host ? 

Antigen ? 

Organism

MHC Restriction ? 

Any MHC Restriction

MHC Class I

A **Coronavirus (ID:11118)**

Betacoronavirus (ID:694002)

Alphacoronavirus (ID:693996)

H Human coronavirus 229E (Coronavirus 229E) (ID:11137, **Coron...**)

Gammacoronavirus (ID:694013)

Middle East respiratory syndrome-related coronavirus (MERS c...

Severe acute respiratory syndrome-related coronavirus (Human...

Avian coronavirus (ID:694014)

Betacoronavirus 1 (ID:694003)

Coronavirus HKU15 (ID:1965089)




Antigen Search Pane: Antigen

Exact M ▾ Ex: SIINFEKL

Discontinuous Epitopes

Non-peptidic Epitopes


Antigen ? 


Organism

Ex: influenza, peanut

Antigen Name

Ex: core, capsid, myosin

Host ? 


Antigen ? 

Organism

Ex: influenza, peanut

Antigen Name

capsid

MHC Restriction ? 

Any MHC Restriction

MHC Class I

MHC Class II

MHC Nonclassical

Ex: HLA-A*02:01

- Nucleocapsid [Q91MK3] (Menangle pararubulavirus)
- Nucleocapsid [A0A0F6N4C5] (Bovine respirovirus 3 (Bovine pa...))
- Nucleocapsid [T1UFE7] (Human respirovirus 3 (Human parainf...))
- Nucleocapsid [Q83138] (Small ruminant morbillivirus (Pseudori...))
- Nucleocapsid [A0A0H5BN46] (Rinderpest morbillivirus (Rinder...))
- Capsid protein [Q91PS7] (Torque teno virus 8)
- Capsid protein [Q9JH33] (Torque teno virus 15)
- Capsid protein [Q9DUB7] (Torque teno douroucouli virus)
- Capsid protein [Q8QVL3] (Torque teno felis virus)
- Capsid protein [Q8QVL9] (Torque teno sus virus 1a (Torque ten...))



Host Search Pane

Host ?


Any Host


Humans

Mice

Non-human Primates

Ex: dog, camel

 Find



HOST ORGANISM FINDER ?

Current Selection(s) Reset Apply

Search By

Name:
Ex: dog, camel


Organism ID:
Ex: 9615

Search

Browse by Tree (Click to Select)

- Vertebrate
 - Ave (bird)
 - Fish
 - Mammal

Host Search Pane

HOST ORGANISM FINDER 


Current Selection(s) Reset Apply

Search By

Name:

Organism ID:

Search

Browse by Tree (Click to Select) 

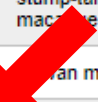
- Vertebrate
 - Ave (bird)
 - Fish
 - Mammal

Search Results (Click to Select)


7 Records Found Page 1 of 2 5 Per Page

Organism Name	Synonyms	Organism ID
Macaca (macaque)	macaque, Macaca, macaques	9539
Macaca arctoides (bear macaque)	stump-tailed macaque, Macaca arctoides, bear macaque	9540
Macaca cyclopis (Taiwan macaque)	Taiwan macaque, Macaca cyclopis	78449
Macaca mulatta (rhesus macaque)	Rhesus monkey, rhesus macaque, rhesus monkeys, rhesus macaques, Macaca mulatta	9544
Macaca radiata (bonnet macaque)	Macaca radiata, bonnet macaque	9548

7 Records Found Page 1 of 2 5 Per Page



Host Search Pane

HOST ORGANISM FINDER 

Current Selection(s) Reset Apply

Search By

Name:

Organism ID:

Search

Browse by Tree (Click to Select)

- Macaca (macaque)
 - Macaca arctoides (bear macaque)
 - Macaca cyclopis (Taiwan macaque)
 - Macaca fascicularis (crab eating mac...)
 - Macaca fuscata (Japanese monkey)
 - Macaca mulatta (rhesus macaque)**
 - Macaca radiata (bonnet macaque)
- Papio (baboon)
- Hominoid (ape)


Search Results (Click to Select)

7 Records Found Page 1 of 2 5 Per Page

Organism Name	Synonyms	Organism ID
Macaca (macaque)	macaque, Macaca, macaques	9539
Macaca arctoides (bear macaque)	stump-tailed macaque, Macaca arctoides, bear macaque	9540
Macaca cyclopis (Taiwan macaque)	Taiwan macaque, Macaca cyclopis	78449
Macaca mulatta (rhesus macaque)	Rhesus monkey, rhesus macaque, rhesus monkeys, rhesus macaques, Macaca mulatta	9544
Macaca radiata (bonnet macaque)	Macaca radiata, bonnet macaque	9548

7 Records Found Page 1 of 2 5 Per Page

Assay Search Pane

Assay ? 

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

Ex: neutralization

ASSAY FINDER ?

Current Selection(s)

Search By

Name:

Method/Technique:

Measurement Of:

Units:

Browse by Tree (Click to Select)

- immune epitope assay
 - T cell assay
 - B cell assay
 - 3D structure
 - binding constant
 - biological activity
 - qualitative binding
 - MHC ligand assay

Assay Search Pane

The screenshot displays the 'ASSAY FINDER' application window. At the top, the 'Current Selection(s)' field contains 'cytotoxicity'. Below this, there are 'Reset' and 'Apply' buttons. The interface is divided into two main sections: 'Search By' and 'Browse by Tree (Click to Select)'. The 'Search By' section includes fields for 'Name' (with an example 'Ex: purified MHC'), 'Method/Technique', 'Measurement Of', and 'Units', along with a 'Search' button. The 'Browse by Tree' section shows a hierarchical list of assay categories. A red box highlights the 'T cell assay' folder and its sub-items, including '3D structure', 'binding constant', 'biological activity', 'activation', 'cytokine release', 'cytotoxicity' (which is checked and highlighted in yellow), 'degranulation', 'helper response', 'in vivo activity', 'proliferation', and 'suppression'. Below these are 'B cell assay' and 'MHC ligand assay'.

ASSAY FINDER

Current Selection(s) ✕ cytotoxicity

Reset Apply

Search By

Name:
Ex: purified MHC

Method/Technique:

Measurement Of:


Units:

Search

Browse by Tree (Click to Select)

- immune epitope assay
 - T cell assay
 - 3D structure
 - binding constant
 - biological activity
 - activation
 - cytokine release
 - cytotoxicity
 - degranulation
 - helper response
 - in vivo activity
 - proliferation
 - suppression
 - qualitative binding
 - B cell assay
 - MHC ligand assay

MHC Restriction Search Pane

MHC Restriction ? 

Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical


Browse by Tree (Click to Select)

- MHC
 - MHC molecule
 - haplotype
 - serotype
 - mutant MHC molecule

Browse by Tree (Click to Select)

- MHC
 - MHC molecule
 - class I
 - black flying fox
 - bonobo
 - cat
 - FLA-E
 - FLA-E*01801
 - cattle
 - chicken
 - chimpanzee
 - clawed frog
 - cotton-top tamarin
 - dog**
 - duck
 - gorilla
 - horse

Disease Search Pane

Disease ? 

Any Disease
 Infectious Disease
 Allergic Disease
 Autoimmune Disease

Ex: asthma, diabetes

Browse by Tree (Click to Select)

- host health status
 - disease
 - additional diseases by category
 - allergic disease
 - animal model of disease
 - autoimmune disease
 - infectious disease
 - neoplasm
 - transplant-related disease and allo-reactivity
 - healthy
 - infection without disease

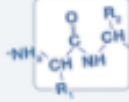
Browse by Tree (Click to Select)

- host health status
 - disease
 - additional diseases by category
 - allergic disease
 - allergic contact dermatitis
 - allergic contact dermatitis of eyelid
 - drug allergy
 - extrinsic asthma
 - gastrointestinal allergy
 - latex allergy
 - metal allergy
 - respiratory allergy
 - animal model of disease
 - autoimmune disease
 - infectious disease
 - neoplasm
 - transplant-related disease and allo-reactivity


User Query:

How can the IEDB be used in research on COVID-19 immune responses?


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

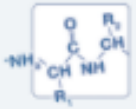
Coronavirus (ID:11118) 

Betacoronavirus (ID:694002)
 Alphacoronavirus (ID:693996)
 Human coronavirus 229E (Coronavirus 229E) (ID:11137, Coron...
 Gammacoronavirus (ID:694013)
 Middle East respiratory syndrome-related coronavirus (MERS c...
 Severe acute respiratory syndrome-related coronavirus (Human...
 Avian coronavirus (ID:694014)
 Betacoronavirus 1 (ID:694003)
 Coronavirus HKU15 (ID:1965089)


User Query:

How can the IEDB be used in research on COVID-19 immune responses?


START YOUR SEARCH HERE ?

Epitope ? 


Any Epitopes
 Linear Epitope
Exact *N* ▾ Ex: SIINFEKL
 Discontinuous Epitopes
 Non-peptidic Epitopes

Assay ? 


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

Antigen ? 


Organism
Coronavirus (ID:11118) **1**
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, diabet **Find**

Search

User Query: How can the IEDB be used in research on COVID-19 immune responses?

IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

Home Specialized Searches Analysis Resource Help More IEDB

Pending Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigens (45) Assays (12016) Receptors (84273) References (265)

Go To Records Starting At 1200 Export Results

3764 Records Found Page 1 of 151 25 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
71917	VVYRGTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11
33667	KTFPTEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
53307	RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
56289	RVFNYPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	18
2998	ALWEIQVW	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
3840	APTAGAFF	Nucleoprotein	Murine coronavirus	6	19
5209	ATVIGTSK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
5447	AVLQSGFRK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
14829	EVMPVSMK	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
17354	FPPTSFGPL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	15
17385	FPRGQVPI	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	10
18133	FVDGVPFVW	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	19
21347					

Epitope

Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

3D structure available
Amino Acid Modification

Antigen

Organism
Coronavirus (ID:11118) 1

Antigen Name
Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Match

Assay

Positive Assays Only

T Cell Assays
 B Cell Assays

Results Page: Pending Filters

Pending Filters

Reset Search

Epitope

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

3D structure available

Amino Acid Modification

Antigen

Organism

Coronavirus (ID:11118) 1

Antigen Name

Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Match

Assay

Positive Assays Only

T Cell Assays

B Cell Assays

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

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21347					

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
Coronavirus (ID:11118) 1

Antigen Name
Ex: core, capsid, myosin

Receptor ?



Has receptor sequence

Type Any Type

Chain Any Type

Sequence Exact Match

Assay ?



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

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigen (45) Assays (12016) Receptors (84273) References (265)

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Results Page: Epitope Tab

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Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

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Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

[Epitopes \(3764\)](#) | [Antigens \(45\)](#) | [Assays \(12016\)](#) | [Receptors \(84273\)](#) | [References \(265\)](#)

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Details	Epitope	Antigen	Organism	# References	# Assays
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
71917	VYRGTTTT	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11
33667	KTFPPTEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
53307	RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
56289	RVFNINYMPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	18
2998	ALWEIQQVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
3840	APTAGAFF	Nucleoprotein	Murine coronavirus	6	19
5209	ATVIGTSK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
5447	AVLQSGFRK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
14829	EVMPVSMK	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
17354	FPPTSFGPL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	15
17385	FPRGQGVPI	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	10
18133	FVDGVPFVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	19

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Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

[Epitopes \(3764\)](#) | [Antigens \(45\)](#) | [Assays \(12016\)](#) | [Receptors \(84273\)](#) | [References \(265\)](#)

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Details	Epitope	Antigen	Organism	# References	# Assays
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
71917	VVYRGTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11
33667	KTFPPTPEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
53307	RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
56289	RVFNINYMPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	18
2998	ALWEIQQVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
3840	APTAGAFF	Nucleoprotein	Murine coronavirus	6	19
5209	ATVIGTSK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
5447	AVLQSGFRK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
14829	EVMPVSMK	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
17354	FPPTSFGPL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	15
17385	FPRGQGVPI	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	10
18133	FVDGVPFVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	19

Results Page: Epitope Details

EPITOPE SUMMARY

FIAGLIAIV is a linear peptidic epitope (epitope ID 16156) studied as part of Spike glycoprotein from Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) and Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein from Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)). This epitope has been studied for immune reactivity in 11 publication(s), tested in 16 T cell assays and 11 MHC ligand assays

COMPILED DATA

MHC Ligand Assay(s) 11

MHC molecule	Positive / All
HLA-A*02:01	2/2
HLA-A*02:02	2/2
HLA-A*02:03	2/2
HLA-A*02:06	2/2
HLA-A*68:02	2/2
HLA-A2	1/1

T Cell Assay(s) 16

Assay Type	Positive / All
IFNg release	7/8
activation	4/4
qualitative binding	2/3
cytotoxicity	1/1

EXTERNAL RESOURCES

Resource	Link
IEDB-AR: MHC-I Processing	Predict MHC class I processing
IEDB-AR: MHC-I	Predict MHC class I binding affinity
IEDB-AR: B cell scales	Predict B cell epitopes

Results Page: Export

IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

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Pending Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigens (45) Assays (12016) Receptors (84273) References (265)

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Details	Epitope	Antigen	Organism	# References	# Assays
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
71917	VVYRGTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11
33667	KTFPTEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
53307	RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
56289	RVFNYPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	18
2998	ALWEIQVW	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
3840	APTAGAFF	Nucleoprotein	Murine coronavirus	6	19
5209	ATVIGTSK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
5447	AVLQSGFRK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
14829	EVMPVMAK	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
17354	FPPTSFGPL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	15
17385	FPRGQVPI	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	10
18133	FVDGVPFVW	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	19
21347					

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Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigens (45) Assays (12016) Receptors (84273) References (265)

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Epitope	Antigen	Organism		
CSLWNGPHL	Spike glycoprotein	Murine coronavirus		
FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)		
KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	9	16
WYRGTTTT	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	8	16
FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	7	14
IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	7	11
KTFPPTEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	7	14
RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
RVFNMYMPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	7	18
ALWEIQQVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus strain SARS)	6	17
APTGAFF	Nucleoprotein	Murine coronavirus	6	19
ATVIGTSK	Other Severe acute respiratory syndrome-related coronavirus	Severe acute respiratory syndrome-related coronavirus	6	13

- Export to CSV file. ?
- Export to CSV file with IRIs. ?
- Export to EpiFilter. ?

Results Page: Inline Filters




















































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Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

[Epitopes \(3764\)](#) | [Antigens \(45\)](#) | [Assays \(12016\)](#) | [Receptors \(84273\)](#) | [References \(265\)](#)

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Details	Epitope	Antigen	Organism	# References	# Assays
7032	CSLWNGPHL	 Spike glycoprotein	 Murine coronavirus	 16	38
16156	FIAGLIAIV	 Spike glycoprotein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 10	25
33572	KSYEHQTPF	 Replicase polyprotein 1ab	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 9	16
71917	VYRGTTTY	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 8	16
17382	FPREGVVF	 Spike glycoprotein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 7	14
28050	IPRRNVATL	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 7	11
33667	KTFPPTPEPK	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 7	14
53307	RCQIFANI	 Spike glycoprotein	 Murine coronavirus	 7	19
56289	RVFNINYMPY	 Replicase polyprotein 1ab	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 7	18
2998	ALWEIQQVV	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	17
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5209	ATVIGTSK	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	13
5447	AVLQSGFRK	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	13
14829	EVMPVSMK	 Spike glycoprotein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	17
17354	FPPTSGPL	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	15
17385	FPRGQGVPI	 Nucleoprotein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	10
18133	FVDGVPFVV	 Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	 Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	 6	19

Results Page: Antigen Tab – Immunome Browser

Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

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Antigen	Organism	# Epitopes	# Assays	# References
Spike glycoprotein		2147	104	
Nucleoprotein		589	48	
Spike glycoprotein		181	32	
Replicase polyprotein 1ab		5498	27	
Spike glycoprotein		251	25	
Membrane protein		482	18	
Spike glycoprotein		155	15	
Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein		817	12	
Protein 3a		354	12	
Nucleoprotein		66	11	
Non-structural protein 3b		131	9	
Protein 7a		163	9	
Spike glycoprotein		58	9	
Spike glycoprotein	Avian coronavirus	34	106	9
Non-structural protein 6	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	17	46	7
Nucleoprotein	Alphacoronavirus 1 (Alphacoronavirus-1)	17	44	7
Membrane protein	Murine coronavirus	12	24	7
Envelope small membrane protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	42	209	7
Nucleoprotein	Avian coronavirus	14	47	6
Nucleoprotein	Porcine epidemic diarrhea virus (porcine epidemic diarrhoea virus)	11	32	4
Protein 9b	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	15	46	4
Protein non-structural 7b	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	27	143	4

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.

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Results Page: Antigen Tab – Table Headers

Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

Epitopes (3764)
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Antigen	Organism	# Epitopes	# Assays	# References
Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	740	2147	104
Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	239	589	48
Spike glycoprotein	Murine coronavirus	52	181	32
Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1558	5498	27
Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	60	251	25
Membrane protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	112	482	18
Spike glycoprotein	Alphacoronavirus 1 (Alphacoronavirus-1)	88	155	15
Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	424	817	12
Protein 3a	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	79	354	12
Nucleoprotein	Murine coronavirus	39	66	11
Non-structural protein 3b	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	45	131	9
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Spike glycoprotein	Avian coronavirus	34	106	9
Non-structural protein 6	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	17	46	7
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Protein non-structural 7b	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	27	143	4

Results Page: Antigen Table – Immunome Browser

Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

Epitopes (3764)	Antigens (45)	Assays (12016)	Receptors (84273)	References (265)
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45 Records Found Page 1 of 2 Per Page

Antigen	Organism	# Epitopes	# Assays	# References
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Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	239	589	48
Spike glycoprotein	Murine coronavirus	52	181	32
Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1558	5498	27
Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	60	251	25
Membrane protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	112	482	18
Spike glycoprotein	Alphacoronavirus 1 (Alphacoronavirus-1)	88	155	15
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Spike glycoprotein	Avian coronavirus	34	106	9
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Results Page: Antigen Tab – Immunome Browser Response Frequency

Immunome Browser [?](#)

Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) - Spike glycoprotein

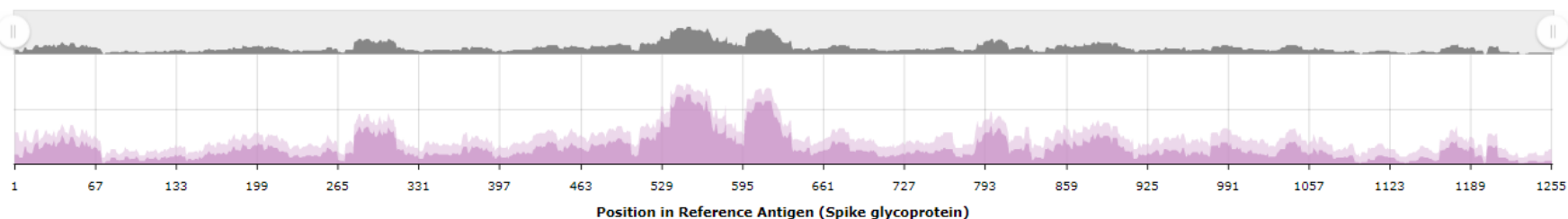
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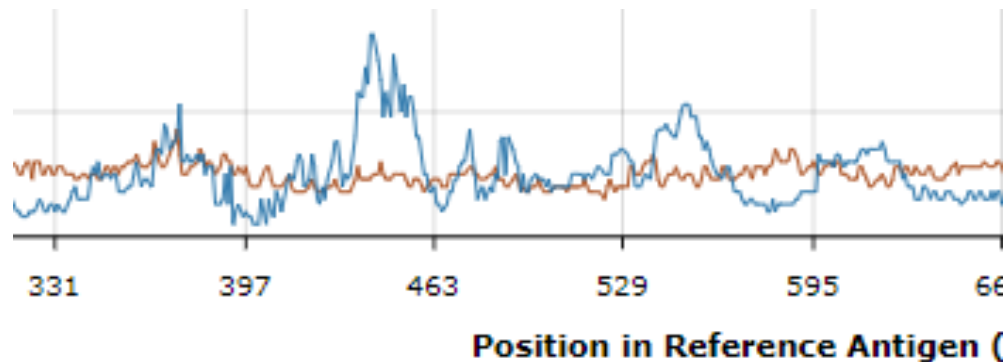
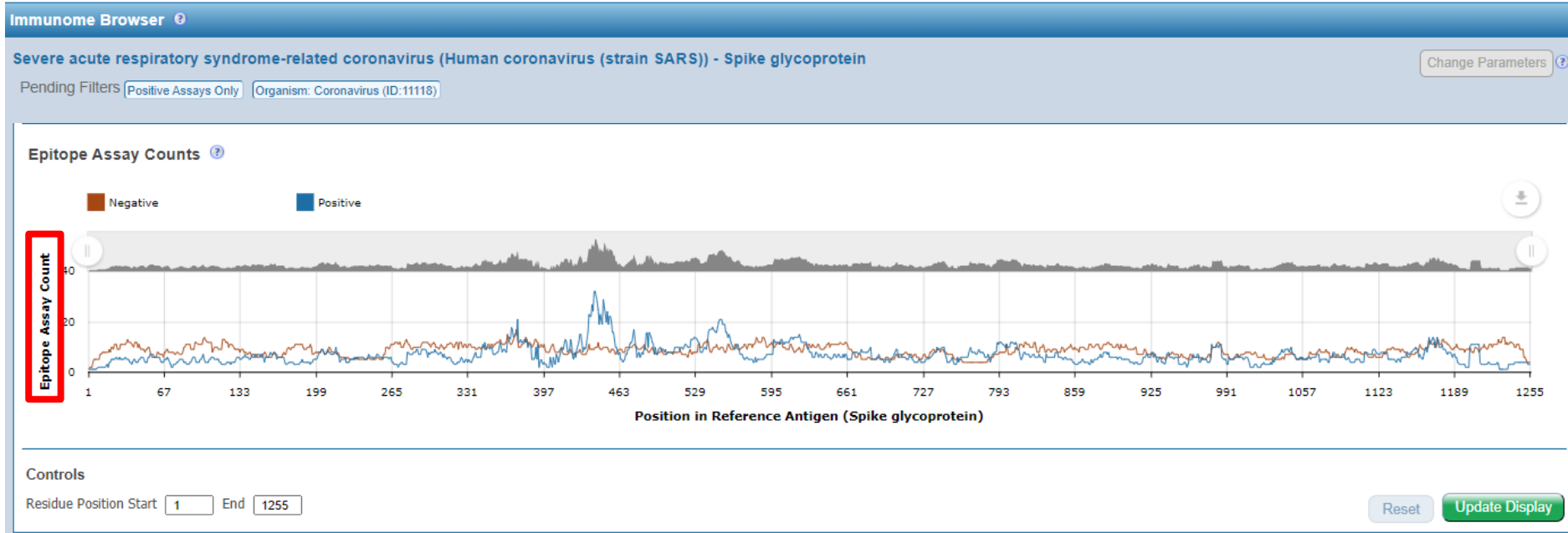
Response Frequency [?](#)

Lowerbound Upperbound

Response Frequency



Results Page: Antigen Tab – Immunome Browser Assay Count



Results Page: Antigen Tab – Immunome Browser Table

Results Returned: 1068 | Displaying: 1068 Display Graphed Residue Positions

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Epitope ID	Epitope Sequence	Mapped Position	Identity	Subjects Tested	Subjects Responded	Assays Positive	Assays Negative	Response Freq. (95% CI)
1087268	Y144, Y145, H146, K147, K150, W152, H245, R246, S247, Y248, L249	-99-99	0%	1	1	1	0	1.00 (0.04:1.00)
41503	MFIFLLFLTLTSGSD	1-15	100%	3	0	0	1	0.00 (0.00:0.61)
41504	MFIFLLFLTLTSGSDLD	1-17	100%	42	8	1	0	0.19 (0.10:0.31)
16194	FIFLLFLTL	2-10	100%	1	0	0	1	0.00 (0.00:0.94)
1087636	MFVFLVLLPLVSSQCVNL	5-22	5%	20	0	0	1	0.00 (0.00:0.13)
1071428	MFVFLVLLPLVSSQC	5-19	6%	1	0	0	1	0.00 (0.00:0.94)
532692	LFLTLTSGSDLDRCT	6-20	100%	3	0	0	1	0.00 (0.00:0.61)
65110	TLTSGSDLDRCTTFDDV	9-25	100%	42	17	1	0	0.40 (0.27:0.54)
66229	TSGSDLDRCTTFDDV	11-25	100%	48	0	0	2	0.00 (0.00:0.06)
1071273	LLPLVSSQCVNLTIR	11-25	6%	1	0	0	1	0.00 (0.00:0.94)
1087684	PLVSSQCVNLTIRTLQLPP	13-30	5%	20	0	0	1	0.00 (0.00:0.13)
532676	LDRCTTFDDVQAPNY	16-30	100%	3	0	0	1	0.00 (0.00:0.61)
9956	DRCTTFDDVQAPNYTQH	17-33	100%	42	27	1	0	0.64 (0.50:0.76)
7217	CTTFDDVQAPNYTQHTSSMRGVVYYPDEIFR	19-48	100%	42	12	1	0	0.29 (0.17:0.41)
7215	CTTFDDVQAPNYTQHTSS	19-36	100%	1	0	0	1	0.00 (0.00:0.94)
7216	CTTFDDVQAPNYTQHTSSMR	19-38	100%	1	1	1	0	1.00 (0.04:1.00)
63617	TFDDVQAPNYTQHTS	21-35	100%	48	0	0	2	0.00 (0.00:0.06)
1087661	NLTTRTQLPPAYTNSPTR	21-38	11%	20	0	0	1	0.00 (0.00:0.13)
1087385	NLTTRTQL	21-28	0%	36	1	1	0	0.03 (0.00:0.12)
10702	DVQAPNYTQHTSSMRG	24-39	100%	1	0	0	1	0.00 (0.00:0.94)
10703	DVQAPNYTQHTSSMRGVVYYP	24-43	100%	1	0	0	1	0.00 (0.00:0.94)
70527	VQAPNYTQHTSSMRGVY	25-41	100%	42	24	1	0	0.57 (0.43:0.70)
533321	QAPNYTQHTSSMRGV	26-40	100%	3	0	0	1	0.00 (0.00:0.61)
1074980	LPPAYTNSF	28-36	11%	36	1	1	0	0.03 (0.00:0.12)
1071788	PPAYTNSFTRGVVYYP	29-43	46%	1	0	0	1	0.00 (0.00:0.94)
1087685	PPAYTNSFTRGVVYYPDKV	29-46	44%	20	0	0	1	0.00 (0.00:0.13)
65869	TQHTSSMRGVVYYPDE	31-45	100%	48	0	0	2	0.00 (0.00:0.06)

Results Page: Assays Tab – Subtabs

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3784) Antigens (45) Assays (12016) Receptors (84273) References (265)

T Cell Assays (1644) B Cell Assays (2079) MHC Ligand Assays (8293)

Go To Records Starting At Export Results

1644 Records Found Page of 66 Per Page

ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
1510331	S Xue; Virology 1997	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM)) (Taxonomic Sibling)	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Epitope	H2-b class II	3H-thymidine proliferation Positive-High
1599758	M H Heemskerck; Immunology 1995	ACNIEEWLTARSVPS Spike glycoprotein precursor (328-342) Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Taxonomic Sibling) followed by Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Source Organism) followed by restimulation in vitro	Spike glycoprotein precursor Spike glycoprotein precursor Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Source Antigen	H2-b class II	3H-thymidine proliferation Positive-Low
6552593	Jincun Zhao; Immunity 2016	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Mus musculus HLA-DRB1*1501 Tg	Administration in vivo with LLEQNIDAYKTFP (Epitope)	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Epitope	HLA-DRB1*15:01	3H-thymidine proliferation Positive
1688493	A M Carrizosa; J Immunol 1998	KVIAKWLAVNVL nsp6 (186-197) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	HSLGKWLGHDPDKF Myelin proteolipid protein Mus musculus (mouse)	Structurally Related	H2-IAs	3H-thymidine proliferation Positive
1683976	Anne M Ercolini; J Neuroimmunol 2007	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with HSLGKWLGHDPDKF	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Epitope	H2-s class II	3H-thymidine proliferation Positive
1844765	J Ludovic Croxford; Eur J Immunol 2006	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830) Murine hepatitis virus (mouse	Epitope	H2-s class II	3H-thymidine proliferation Positive

Results Page: Assays Tab – Table Headers

Current Filters: <input checked="" type="checkbox"/> Positive Assays Only <input checked="" type="checkbox"/> Organism: Coronavirus (ID:11118)									
Epitopes (3764)		Antigens (45)		Assays (12016)		Receptors (84273)		References (265)	
T Cell Assays (1644)		B Cell Assays (2079)		MHC Ligand Assays (8293)					
Go To Records Starting At <input type="text" value="A,b"/> <input type="button" value="GO"/>									
1644 Records Found <input type="button" value="GO"/> Page <input type="text" value="1"/> of 66 <input type="button" value="GO"/> <input type="button" value="GO"/> <input type="text" value="25"/> Per Page <input type="button" value="GO"/>									
ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description	
1510331	S Xue; Virology 1997	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM)) (Taxonomic Sibling)	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Epitope	H2-b class II	3H-thymidine proliferation Positive-High	
1599758	M H Heemskerck; Immunology 1995	ACNIEEWLTARSVPS Spike glycoprotein precursor (328-342) Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Taxonomic Sibling) followed by Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Source Organism) followed by restimulation in vitro	Spike glycoprotein precursor Spike glycoprotein precursor Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Source Antigen	H2-b class II	3H-thymidine proliferation Positive-Low	
6552593	Jincun Zhao; Immunity 2016	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Mus musculus HLA-DRB1*1501 Tg	Administration in vivo with LLEQNIDAYKTFP (Epitope)	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Epitope	HLA-DRB1*15:01	3H-thymidine proliferation Positive	
1688493	A M Carrizosa; J Immunol 1998	KVIAKWLAVNVL nsp6 (186-197) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	HSLGKWLGHDPDKF Myelin proteolipid protein Mus musculus (mouse)	Structurally Related	H2-IAs	3H-thymidine proliferation Positive	
1683976	Anne M Ercolini; J Neuroimmunol 2007	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with HSLGKWLGHDPDKF	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Epitope	H2-s class II	3H-thymidine proliferation Positive	
1844765	J Ludovic Croxford; Eur J Immunol 2006	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830) Murine hepatitis virus (mouse	Epitope	H2-s class II	3H-thymidine proliferation Positive	

Results Page: Assays Tab – Inline Filters

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigens (45) Assays (12016) Receptors (84273) References (265)

T Cell Assays (1644) B Cell Assays (2079) MHC Ligand Assays (8293)

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

1644 Records Found Page of 66 Per Page

ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
1510331	S Xue; Virology 1997	<input checked="" type="checkbox"/> TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM)) (Taxonomic Sibling)	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Epitope	H2-b class II	3H-thymidine proliferation Positive-High
1599758	M H Heemskerck; Immunology 1995	<input checked="" type="checkbox"/> ACNIEEWLTARSVPS Spike glycoprotein precursor (328-342) Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Taxonomic Sibling) followed by Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Source Organism) followed by restimulation in vitro	Spike glycoprotein precursor Spike glycoprotein precursor Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Source Antigen	H2-b class II	3H-thymidine proliferation Positive-Low
6552593	Jincun Zhao; Immunity 2016	<input checked="" type="checkbox"/> LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Mus musculus HLA-DRB1*1501 Tg	Administration in vivo with LLEQNIDAYKTFP (Epitope)	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Epitope	HLA-DRB1*15:01	<input checked="" type="checkbox"/> 3H-thymidine proliferation Positive
1688493	A M Carrizosa; J Immunol 1998	<input checked="" type="checkbox"/> KVIAKWLAVNVL nsp6 (186-197) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	<input checked="" type="checkbox"/> Administration in vivo with KVIAKWLAVNVL (Epitope)	HSLGKWLGHDPDKF Myelin proteolipid protein Mus musculus (mouse)	Structurally Related	H2-IAs	3H-thymidine proliferation Positive
1683976	Anne M Ercolini; J Neuroimmunol 2007	<input checked="" type="checkbox"/> KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with HSLGKWLGHDPDKF	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Epitope	H2-s class II	3H-thymidine proliferation Positive
1844765	J Ludovic Croxford; Eur J Immunol 2006	<input checked="" type="checkbox"/> KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830) Murine hepatitis virus (mouse	Epitope	H2-s class II	3H-thymidine proliferation Positive

Results Page: Assays Tab – Assay Details

Current Filters: <input checked="" type="checkbox"/> Positive Assays Only <input checked="" type="checkbox"/> Organism: Coronavirus (ID:11118)									
Epitopes (3764)		Antigens (45)		Assays (12016)		Receptors (84273)		References (265)	
T Cell Assays (1644)		B Cell Assays (2079)		MHC Ligand Assays (8293)					
Go To Records Starting At <input type="text" value="A.b"/> <input type="button" value="GO"/>									
1644 Records Found <input type="button" value="GO"/> Page <input type="text" value="1"/> of 66 <input type="button" value="GO"/> <input type="button" value="GO"/> <input type="text" value="25"/> Per Page <input type="button" value="GO"/>									
ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description	
1510331	S Xue; Virology 1997	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM)) (Taxonomic Sibling)	TVYVRPIIEDYHTLT Membrane protein (M protein) (Membrane glycoprotein) (E1 glycoprotein) (Matrix glycoprotein) (133-147) Murine hepatitis virus strain JHM (Murine coronavirus mhv (STRAIN JHM))	Epitope	H2-b class II	3H-thymidine proliferation Positive-High	
1599758	M H Heemskerck; Immunology 1995	ACNIEEWLTARSVPS Spike glycoprotein precursor (328-342) Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Mus musculus C57BL/6	Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Taxonomic Sibling) followed by Administration in vivo with Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59)) (Source Organism) followed by restimulation in vitro	Spike glycoprotein precursor Spike glycoprotein precursor Murine hepatitis virus strain A59 (Murine coronavirus mhv (STRAIN A59))	Source Antigen	H2-b class II	3H-thymidine proliferation Positive-Low	
6552593	Jincun Zhao; Immunity 2016	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Mus musculus HLA-DRB1*1501 Tg	Administration in vivo with LLEQNIDAYKTFP (Epitope)	LLEQNIDAYKTFP N protein [Human betacoronavirus 2c EMC/2012] (350-362) Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	Epitope	HLA-DRB1*15:01	3H-thymidine proliferation Positive	
1688493	A M Carrizosa; J Immunol 1998	KVIAKWLAVNVL nsp6 (186-197) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	HSLGKWLGHDPDKF Myelin proteolipid protein Mus musculus (mouse)	Structurally Related	H2-IAs	3H-thymidine proliferation Positive	
1683976	Anne M Ercolini; J Neuroimmunol 2007	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Mus musculus SJL	Administration in vivo with HSLGKWLGHDPDKF	KVIAKWLAVNVL Replicase polyprotein 1ab (3767-3778) Murine hepatitis virus (mouse hepatitis virus)	Epitope	H2-s class II	3H-thymidine proliferation Positive	
1844765	J Ludovic Croxford; Eur J Immunol 2006	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830)	Mus musculus SJL	Administration in vivo with KVIAKWLAVNVL (Epitope)	KVIAKWLAVNVL Replicase polyprotein 1ab (3819-3830) Murine hepatitis virus (mouse	Epitope	H2-s class II	3H-thymidine proliferation Positive	

Results Page: Assays Tab – Assay Details Reference



Reference		
Reference Type	Literature	IEDB_Reference:1036475
Title	Airway Memory CD4(+) T Cells Mediate Protective Immunity against Emerging Respiratory Coronaviruses.	
Authors	Jincun Zhao; Jingxian Zhao; Ashutosh K Mangalam; Rudragouda Channappanavar; Craig Fett; David K Meyerholz; Sudhakar Agnihotram; Ralph S Baric; Chella S David; Stanley Perlman	
Affiliations	State Key Laboratory of Respiratory Diseases, Guangzhou Institute of Respiratory Disease, The First Affiliated Hospital of Guangzhou Medical University, Guangzhou 510120, China; Department of Microbiology, University of Iowa, Iowa City, IA 52242, USA. Electronic address: zhaojincun@gird.cn; Department of Pathology, University of Iowa, Iowa City, IA 52242, USA; Department of Microbiology and Immunology and Department of Epidemiology, University of North Carolina, Chapel Hill, NC 27599, USA; Department of Immunology, Mayo Clinic, Rochester, MI 55905, USA; Department of Microbiology, University of Iowa, Iowa City, IA 52242, USA. Electronic address: stanley-perlman@uiowa.edu.	
Journal	Immunity	PMID:27287409 📄
Year	2016	
Abstract	Two zoonotic coronaviruses (CoVs)-SARS-CoV and MERS-CoV-have crossed species to cause severe human respiratory disease. Here, we showed that induction of airway memory CD4(+) T cells specific for a conserved epitope shared by SARS-CoV and MERS-CoV is a potential strategy for developing pan-coronavirus vaccines. Airway memory CD4(+) T cells differed phenotypically and functionally from lung-derived cells and were crucial for protection against both CoVs in mice. Protection was dependent on interferon- and required early induction of robust innate and virus-specific CD8(+) T cell responses. The conserved epitope was also recognized in SARS-CoV- and MERS-CoV-infected human leukocyte antigen DR2 and DR3 transgenic mice, indicating potential relevance in human populations. Additionally, this epitope was cross-protective between human and bat CoVs, the progenitors for many human CoVs. Vaccine strategies that induce airway memory CD4(+) T cells targeting conserved epitopes might have broad applicability in the context of new CoVs and other respiratory virus outbreaks.	
Curation Last Updated	2020-09-11 03:30:29	

Results Page: Assays Tab – Assay Details

Epitope

Epitope		
Epitope ID	985586	IEDB_epitope:985586
Chemical Type	Linear peptide	
Linear Sequence	LLEQNIDAYKTFP	
Source Molecule Name	N protein [Human betacoronavirus 2c EMC/2012]	GenPept:AFS88943.1 🔗
Source Organism	Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	NCBITaxon:1235996 🔗
Starting Position	350	
Ending Position	362	

Epitope Reference Details		
Epitope Structure Defines	Exact Epitope	
Epitope Name	MERS N350 peptide	
Reference Starting Position	350	
Reference Ending Position	362	
Location of Data in Reference	Figure 6	

Results Page: Assays Tab – Assay Details

Immunization

Immunization		
Host Organism	Mus musculus HLA-DRB1*1501 Tg	ONTIE:0001194 

1st In Vivo Process		
In Vivo Process Type	Administration in vivo	

Administration Details		
Adjuvants	Freund's complete;	
Route	Subcutaneous (s.c.)	
Dose Schedule	1 dose of 100 µg	

1st Immunogen		
Epitope Relation	Epitope	
Chemical Type	Linear peptide	
Linear Sequence	LLEQNIDAYKTFP	
Source Molecule Name	N protein [Human betacoronavirus 2c EMC/2012]	GenPept:AFS88943.1 
Source Organism	Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	NCBITaxon:1235996 
Starting Position	350	
Ending Position	362	

Immunization Comments		
Immunization Comments	Mice transgenic for human HLA class II DR2 (DRB1*1501) on a C57BL/10 (H-2b) background were immunized with the epitope. Draining lymph nodes were harvested 10 days later.	

Results Page: Assays Tab – Assay Details

Effector Cells

T Cell Assay		
Qualitative Measurement	Positive	
Method/Technique	3H-thymidine	OBI:1110180
Measurement of	proliferation	

Effector Cells		
Effector Cell Tissue Type	Lymph Node	UBERON:0000029
Effector Cell Type	Lymph node cells	http://purl.obolibrary.org/obo/OBI_1110041
Effector Cell Culture Conditions	Direct Ex Vivo	

Antigen Presenting Cells		
Cell Tissue Type	Lymph Node	UBERON:0000029
Cell Type	Lymph node cells	http://purl.obolibrary.org/obo/OBI_1110041
Cell Culture Conditions	Direct Ex Vivo	

MHC Allele		
MHC Allele Name	HLA-DRB1*15:01	MRO:0001331
MHC Evidence Code	T cell assay -Single MHC type present	

Results Page: Assays Tab – Assay Details

Antigen

Antigen		
Epitope Relation	Epitope	
Chemical Type	Linear peptide	
Linear Sequence	LLEQNIDAYKTFP	
Source Molecule Name	N protein [Human betacoronavirus 2c EMC/2012]	GenPept:AFS88943.1
Source Organism	Human betacoronavirus 2c EMC/2012 (human betacoronavirus 2c EMC)	NCBITaxon:1235996
Starting Position	350	
Ending Position	362	

Assay Reference Details		
Assay Comments by IEDB Curator	Mice expressing human HLA-DR2, but not HLA-DR3, responded to the epitope.	
Location of Assay Data in Reference	Figure 6	

Results Page: Receptors Tab – Subtabs

Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

Epitopes (3764)
Antigens (45)
Assays (12016)
Receptors (84273)
References (265)

T Cell Receptors (84258)
B Cell Receptors (15)

Go To Records Starting At GO Export Results

84258 Records Found Page of 3371 ▶▶ 25 Per Page

Group ID	Species	Type	Chain 1 CDR3	Chain 2 CDR3
8670	Homo sapiens (human)	αβ	not available	ASSIRSSYEQY
8675	Homo sapiens (human)	αβ	not available	ASSSVNEQF
8678	Homo sapiens (human)	αβ	not available	ASSIGVYGYT
8681	Homo sapiens (human)	αβ	not available	ASSIRSAYEQY
8684	Homo sapiens (human)	αβ	not available	ASSRRSSYEQY
8685	Homo sapiens (human)	αβ	not available	ASSTRSAYEQY
8686	Homo sapiens (human)	αβ	not available	ASSVRSSYEQY
8687	Homo sapiens (human)	αβ	not available	ASSIGSYGYT
8786	Homo sapiens (human)	αβ	not available	ASSSDSSYEQY
9083	Homo sapiens (human)	αβ	not available	SVGNEQF
9095	Homo sapiens (human)	αβ	not available	SVGDGNTGELF
9314	Homo sapiens (human)	αβ	not available	ASSLAGGYEQY
9337	Homo sapiens (human)	αβ	not available	SVERDTEAF
9447	Homo sapiens (human)	αβ	not available	ASSLGGTEAF
9563	Homo sapiens (human)	αβ	not available	ATSRDPGSYEQY
9702	Homo sapiens (human)	αβ	not available	ATSAGNTGELF
9713	Homo sapiens (human)	αβ	not available	ATSRGQGYEQY
9778	Homo sapiens (human)	αβ	not available	ASSPYSNQPQH
9813	Homo sapiens (human)	αβ	not available	SASTENTGELF
10007	Homo sapiens (human)	αβ	not available	ASSGYNEQF
10011	Homo sapiens (human)	αβ	not available	ASSEGSYEQY
10071	Homo sapiens (human)	αβ	not available	ASSLGGGPSYEQY
10169	Homo sapiens (human)	αβ	not available	ASSLYNEQF
10317	Homo sapiens (human)	αβ	not available	ASSLGGGIYGYT
10371	Homo sapiens (human)	αβ	not available	ASSLLGAEAF

84258 Records Found Page of 3371 ▶▶ 25 Per Page

Results Page: Receptors Tab – Group ID

Current Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

Epitopes (3764)
Antigens (45)
Assays (12016)
Receptors (84273)
References (265)

T Cell Receptors (84258)
B Cell Receptors (15)

Go To Records Starting At

84258 Records Found Page 1 of 3371

Group ID	Species	Type	Chain 1 CDR3	Chain 2 CDR3
8670	Homo sapiens (human)	αβ	not available	ASSIRSSYEQY
8675	Homo sapiens (human)	αβ	not available	ASSSVNEQF
8678	Homo sapiens (human)	αβ	not available	ASSIGVYGYT
8681	Homo sapiens (human)	αβ	not available	ASSIRSAYEQY
8684	Homo sapiens (human)	αβ	not available	ASSRRSSYEQY
8685	Homo sapiens (human)	αβ	not available	ASSTRSAYEQY
8686	Homo sapiens (human)	αβ	not available	ASSVRSSYEQY
8687	Homo sapiens (human)	αβ	not available	ASSIGSYGYT
8786	Homo sapiens (human)	αβ	not available	ASSSDSSYEQY
9083	Homo sapiens (human)	αβ	not available	SVGNEQF
9095	Homo sapiens (human)	αβ	not available	SVGDGNTGELF
9314	Homo sapiens (human)	αβ	not available	ASSLAGGYEQY
9337	Homo sapiens (human)	αβ	not available	SVERDTEAF
9447	Homo sapiens (human)	αβ	not available	ASSLGGTEAF
9563	Homo sapiens (human)	αβ	not available	ATSRDPGSYEQY
9702	Homo sapiens (human)	αβ	not available	ATSAGNTGELF
9713	Homo sapiens (human)	αβ	not available	ATSRGQGYEQY
9778	Homo sapiens (human)	αβ	not available	ASSPYSNQPQH
9813	Homo sapiens (human)	αβ	not available	SASTENTGELF
10007	Homo sapiens (human)	αβ	not available	ASSGYNEQF
10011	Homo sapiens (human)	αβ	not available	ASSEGSYEQY
10071	Homo sapiens (human)	αβ	not available	ASSLGGGPSYEQY
10169	Homo sapiens (human)	αβ	not available	ASSLYNEQF
10317	Homo sapiens (human)	αβ	not available	ASSLGGGIYGYT
10371	Homo sapiens (human)	αβ	not available	ASSLLGAEAF

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Results Page: Receptors Tab – Receptor Group Details

T cell receptor (receptor group ID 9314)
Beta TCR with beta chain CDR3 of ASSLAGGYEQY was reported in Homo sapiens (human).

Gene usage	CDR sequences	Gene usage	beta CDR sequences	Epitopes (# assays)
V: D: J:	CDR1: CDR2: CDR3:	V:TRBV5-1 D: J:TRBJ2-7	CDR1: CDR2: CDR3:ASSLAGGYEQY	NLVPMTATV (1), GNYTVSCLPFTI (1), LSPRWYFYLY (2)
V Domain:		V Domain:		

Epitope summary
This TCR was studied for the following epitopes NLVPMTATV studied as part of 65 kDa phosphoprotein from Human herpesvirus 5 (Human cytomegalovirus) (epitope ID 44920, 1 publication, 1 assay), GNYTVSCLPFTI studied as part of Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein from Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) (epitope ID 1074912, 1 publication, 1 assay) and LSPRWYFYLY studied as part of Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein from Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) (epitope ID 1074988, 1 publication, 2 assays).

Results Page: References Tab – Table Headers

Current Filters: ✕ Positive Assays Only ✕ Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigens (45) Assays (12016) Receptors (84273) References (265)

Go To Records Starting At Export Results

265 Records Found Page of 11 Per Page

Ref ID	PMID	Author	Title	Abstract	Date
1036315	31945421	Junghyun Goo; Yují Jeong; Young-Shin Park; Eunji Yang; Dae-Im Jung; Semi Rho; Uni Park; Hyejeong Sung; Pil-Gu Park; Jung-Ah Choi; Sang Hwan Seo; Nam Hyuck Cho; Hyeja Lee; Jae Myun Lee; Jae-Ouk Kim; Manki Song	Characterization of novel monoclonal antibodies against MERS-coronavirus spike protein.	Middle East Respiratory Syndrome coronavirus (MERS-CoV) causes severe pulmonary infection, with ~35 % mortality. Spike glycoprotein (S) of MERS-CoV is a key target for vaccines and therapeutics because ...more...	2020
1036495	32218786	Chek Meng Poh; Jian Zheng; Rudragouda Channappanavar; Zi Wei Chang; Thi H O Nguyen; Laurent Rénia; Katherine Kedzierska; Stanley Perlman; Leo L M Poon	Multiplex Screening Assay for Identifying Cytotoxic CD8 ⁺ T Cell Epitopes.	The cytotoxicity of epitope-specific CD8 ⁺ T cells is usually measured indirectly through IFN production. Existing assays that directly measure this activity are limited mainly to measurement ...more...	2020
1036945		Adaptive Biotechnologies	ImmuneCODE-Release001.1	This dataset was generated by Adaptive Biotechnologies and was manually imported into the IEDB. De-identified blood samples from ImmuneRACE, including patients who were actively infected, recovered or ...more...	2020
1037393	3288797	Yanchun Peng; Alexander J Mentzer; Guihai Liu; Xuan Yao; Zixi Yin; Danning Dong; Wanwisa Dejnirattisai; Timothy Rostron; Piyada Supasa; Chang Liu; César López-Camacho; Jose Slon-Campos; Yuguang Zhao; David I Stuart; Guido C Paesen; Jonathan M Grimes; Alfred A Antson; Oliver W Bayfield; Dorothy E D P Hawkins; De-Sheng Ker; Beibei Wang; Lance Turtle; Krishanthi Subramaniam; Paul Thomson; Ping Zhang; Christina Dold; Jeremy Ratliff; Peter Simmonds; Thushan de Silva; Paul Sopp; Dannielle Wellington; Ushani Rajapaksa; Yi-Ling Chen; Mariolina Salio; Giorgio Napolitani; Wayne Paes; Persephone Borrow; Benedikt M Kessler; Jeremy W Fry; Nikolai F Schwabe; Malcolm G Sempile; J Kenneth Baillie; Shona C Moore; Peter J M Openshaw; M Azim Ansari; Susanna Dunachie; Eleanor Barnes; John Frater; Georgina Kerr; Philip Goulder; Teresa Lockett; Robert Levin; Yonghong Zhang; Ronghua Jing; Ling-Pei Ho; Oxford Immunology Network Covid-19 Response T cell Consortium; ISARIC4C Investigators; Richard J Cornall; Christopher P Conlon; Paul Klenerman; Gavin R Screaton; Juthathip	Broad and strong memory CD4 ⁺ and CD8 ⁺ T cells induced by SARS-CoV-2 in UK convalescent individuals following COVID-19.	The development of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccines and therapeutics will depend on understanding viral immunity. We studied T cell memory in 42 patients following ...more...	2020

Results Page: Pending Filters – New Search Options

Pending Filters

Reset Search

Epitope

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

3D structure available

Amino Acid Modification

Antigen

Organism
Coronavirus (ID:11118)

Antigen Name
Ex: core, capsid, myosin

Receptor

Has receptor sequence

Type: Any Type

Chain: Any Type

Sequence: Exact Match

Assay

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

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764) Antigens (45) Assays (12016) Receptors (84273) References (265)

Go To Records Starting At 1200 GO

Export Results

3764 Records Found Page 1 of 151 Per Page 25

Details	Epitope	Antigen	Organism	# References	# Assays
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
71917	VVYRGTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11
33667	KTFPTEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
53307	RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
56289	RVFNMYMPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	18
2998	ALWEIQQVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
3840	APTAGAFFF	Nucleoprotein	Murine coronavirus	6	19
5209	ATVIGTSK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
5447	AVLQSGFRK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
14829	EVMPVSMK	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
17354	FPPTSGPL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	15
17385	FPRGQVPI	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	10
18133	FVDGVPFV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	19
21347	GMSRIGMEV	Other Severe acute respiratory syndrome-related coronavirus	Severe acute respiratory syndrome-related coronavirus	6	16

Results Page: Epitope Filters – Non-peptidics

The screenshot displays the IEDB search interface with the following components:

- Pending Filters:** Search, Reset buttons.
- Current Filters:** Positive Assays Only, Organism: Coronavirus (ID:11118).
- Epitopes Panel:**
 - Radio buttons for Any Epitopes (selected), Linear Epitope, Discontinuous Epitopes, and Non-peptidic Epitopes.
 - Exact Matc dropdown menu with "Ex: SIINFEKL" input field.
 - Input field containing "Ex: penicillin" and a "Finder" button, both highlighted with a red box.
 - 3D structure available checkbox (unchecked).
 - Amino Acid Modification dropdown menu with "Select Multiple Options" text.
- Antigen Panel:** Organism: Coronavirus (ID:11118) (1), Antigen Name: Ex: core, capsid, myosin.
- Antigen Table:**

Accession	Antigen
17382	FPREGVVFV
28050	IPRRNVATL
33667	KTFPPTPEPK
- Assays Panel:** Assays (12016), Go To Records Starting At, Page 1 of 1.
- Antigen List:** Spike glycoprotein, Spike glycoprotein.
- Browse by Tree (Click to Select):**
 - chemical entity
 - inorganic molecular entity
 - organic molecular entity
 - acid anhydride
 - alcohol
 - carbohydrates and carbohydrate derivatives, carbohydrate and carbohydrate derivative
 - carbonyl molecular entity, carbonyl compound
 - ether, non-aromatic ether
 - lipid
 - nitrogen molecular entity, organonitrogen compound
 - nucleic acid and related molecular entity
 - organic aromatic compound, aromatic molecular entity
 - other organic molecular entity
 - sulfur molecular entity, organosulfur compound
 - chemical entity by role
 - application compound
 - biological role compound
 - chemical role compound

Results Page: Epitope Filters – 3D Structures

Pending Filters | **Current Filters:** ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118)

[Reset](#) [Search](#)

Epitopes (45) | **Antigens** (45) | **Assays** (12016)

Epitope ?

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes
- 3D structure available**

Exact Matc

Ex:

Amino Acid Modification

Antigen ?

Organism

Antigen Name

Go To Records Starting At of 1

Antigen
▼ Spike glycoprotein
▼ Spike glycoprotein
▼ Replicase polyprotein 1ab
▼ Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) prote
▼ Spike glycoprotein
▼ Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) prote
▼ Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) prote

17382	FPREGVVF
28050	IPIRRNVATL
33667	KTFPPTPEPK

Results Page: Epitope Filters – 3D Structures

IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

Home | Specialized Searches | Analysis Resource | Help

Pending Filters: ✖ Positive Assays Only ✖ Organism: Coronavirus (ID:11118) ✖ 3D structure available

Epitopes (3764) | Antigens (45) | Assays (12018) | Receptors (84273) | Reference (265)

Go To Records Starting At 1200

3764 Records Found | Page 1 of 151

Details	Epitope	Antigen	Organism	# References
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9
71917	VVYRGTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7

Epitope Filters:

- Any Epitopes
- Linear Epitope
- Discontinuous Epitopes
- Non-peptidic Epitopes
- 3D structure available
- Amino Acid Modification

Antigen Filters:

Organism: Coronavirus (ID:11118) (1)

Any Page: Browse by 3D Structures

The screenshot shows the IEDB search interface. At the top, there are navigation tabs: 'Home', 'Specialized Searches', and 'Analysis Resources'. The 'Specialized Searches' tab is highlighted with a red box. A dropdown menu is open from this tab, listing several search options: 'Epitope Details', 'T Cell Assay Details', 'B Cell Assay Details', 'MHC Assay Details', 'Identifier Search', and 'Browse by 3D Structure'. The 'Browse by 3D Structure' option is highlighted with a red box. Below the navigation, there are search filters for 'Epitope' (Any Epitopes, Linear Epitope, Discontinuous Epitopes, Non-peptidic Epitopes) and 'Antigen' (Organism). The 'MHC Restriction' section is also visible.

Branches of tree organized by organism that is source of antibody, T Cell, and MHC molecule, respectively.

The screenshot shows the 'BROWSE BY STRUCTURE' section. It displays a tree of folders representing different types of structures and assays. The folders are:

- B Cell Structure (3138 Assay(s)*)
- T Cell Structure (331 Assay(s)*)
- MHC molecule (321 Assay(s)*)
- mutant MHC molecule (9 Assay(s)*)
- MHC Ligand Structure (1239 Assay(s)*)
- MHC molecule (1189 Assay(s)*)
- class I (828 Assay(s)*)
- class II (171 Assay(s)*)
- non-classical (190 Assay(s)*)
- mutant MHC molecule (50 Assay(s)*)

Results Page: Epitope Filters – 3D Structures

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118) 3D structure available

Epitopes (49)	Antigens (8)	Assays (73)	Receptors (11)	References (36)
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Go To Records Starting At [Export Results](#)

49 Records Found Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
21041	GLMWLSYFV	Membrane protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
33667	KTFPPEPK	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
50779	QFKDNVILL	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
64710	TLACFVLAHV	Membrane protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
70629	VQQESSFVM	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
77442	R426, S432, T433, Y436, N437, K439, Y440, Y442, P4...	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
77444	T359, T363, K365, K390, G391, D392, R395, R426, Y4...	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
144838	T359, S362, G391, D392, N424, R426, N427, T486, T4...	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	1
174355	K540, R541, S542, G543, Y544, G545, Q546, I548, L5...	Spike glycoprotein	Alphacoronavirus 1 (Alphacoronavirus-1)	1	1
422251	CSLWNGPHL + GLUT(C1)	Spike glycoprotein	Murine coronavirus	1	1
434785	V527, S528, I529, V530, P531, S532, W535, E536, D5...	Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	1	1
451244	Y397, N398, K400, L495, K496, P525, V527, S528, I5...	Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	1	1
451538	G391, T392, P394, Y397, N398, F399, K400, L495, K4...	Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	1	2
461728	N501, K502, S504, F506, D510, E513, P531, W535,...	Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	1	1
616629	FYAPEPITSL	Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	1	1
620933	KYYSIIPHSI	Spike glycoprotein	Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	1	1

Results Page: Epitope Filters – 3D Structures

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118) 3D structure available

Epitopes (49) Antigens (8) Assays (73) Receptors (11) References (36)

T Cell Assays (0) B Cell Assays (62) MHC Ligand Assays (11)

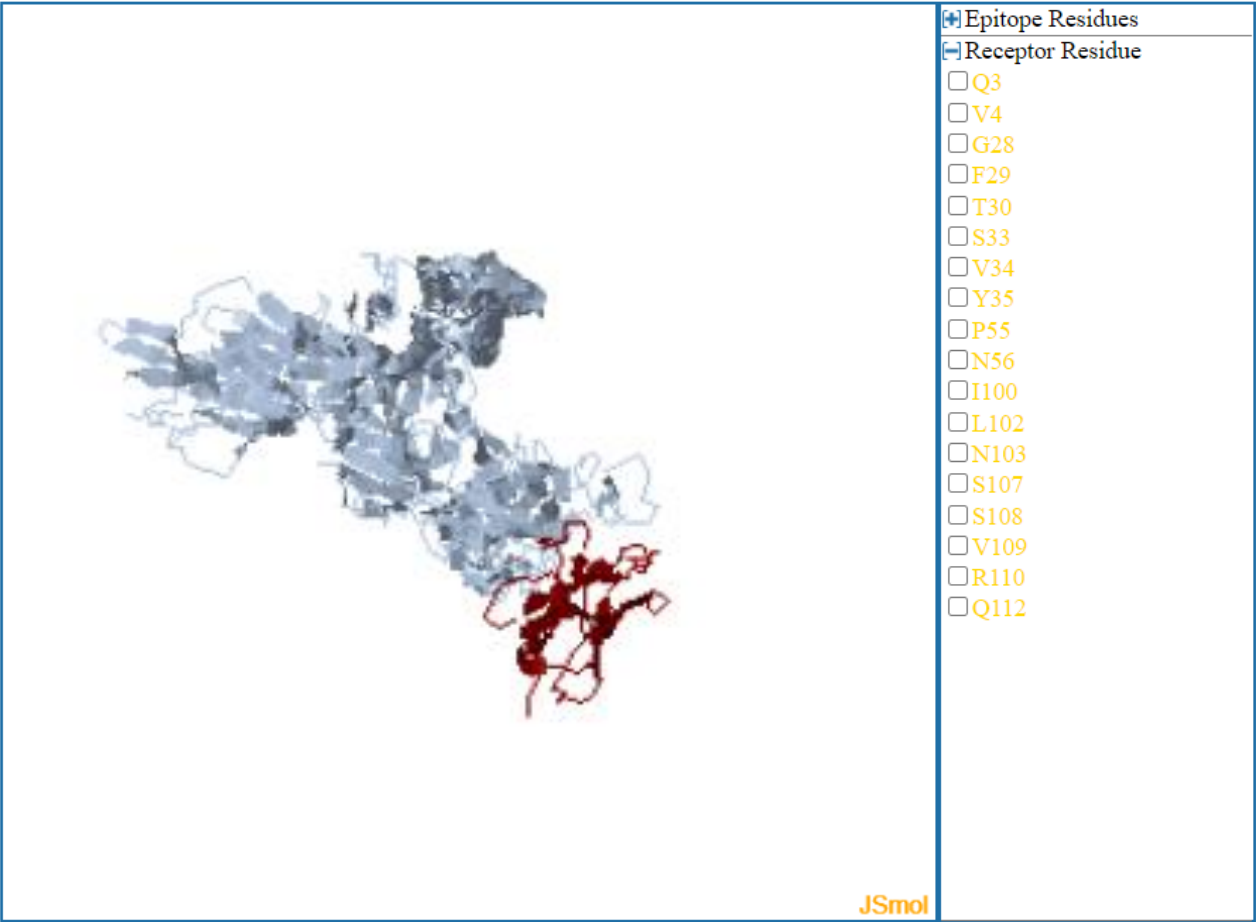
Go To Records Starting At Export Results

62 Records Found Page 1 of 3 25 Per Page

ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	Assay Description
5050182	Alexandra C Walls; Cell 2019	K493, L495, K496, I529, P531, S532, T533, W535, E5... S protein [Middle East respiratory syndrome-related coronavirus] Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	Homo sapiens (human)	Infectious disease via exposure to Middle East respiratory syndrome-related coronavirus (MERS coronavirus) (Source Organism)	S protein [Middle East respiratory syndrome-related coronavirus] Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	Source Antigen	electron microscopy 3D structure Positive
6250797	Nianshuang Wang; Cell Rep 2019	V26, K27, S28, A29, T96, P97, S157, S191, G192, N1... spike protein [Middle East respiratory syndrome-related coronavirus] Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	Mus musculus BALB/c	Administration in vivo with spike protein [Middle East respiratory syndrome-related coronavirus] (Source Antigen)	spike protein [Middle East respiratory syndrome-related coronavirus] Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	Source Antigen	electron microscopy 3D structure Positive
5050203	Alexandra C Walls; Cell 2019	K493, L495, K496, I529, P531, S532, T533, W535, E5... S protein [Middle East respiratory syndrome-related coronavirus] Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	Homo sapiens (human)	Infectious disease via exposure to Middle East respiratory syndrome-related coronavirus (MERS coronavirus) (Source Organism)	S protein [Middle East respiratory syndrome-related coronavirus] Middle East respiratory syndrome-related coronavirus (MERS coronavirus)	Source Antigen	electron microscopy 3D structure Positive
8271153	Daming Zhou; Nat Struct Mol Biol 2020	Y369, S375, F377, K378, C379, Y380, G381, V382, S3... surface glycoprotein [Severe acute respiratory syndrome coronavirus 2]	Homo sapiens (human)	Infectious disease via exposure to SARS-CoV2 (Source Organism)	surface glycoprotein [Severe acute respiratory syndrome coronavirus 2] surface glycoprotein [Severe acute respiratory syndrome coronavirus 2] SARS-CoV2	Source Antigen	electron microscopy 3D structure Positive

Results Page: Epitope Filters – 3D Structures

https://www.iedb.org/3dViewer.php?complex=1361183 - Google Chrome
iedb.org/3dViewer.php?complex=1361183



Epitope Residues
 Receptor Residue

- Q3
- V4
- G28
- F29
- T30
- S33
- V34
- Y35
- P55
- N56
- I100
- L102
- N103
- S107
- S108
- V109
- R110
- Q112

Chains: Chain 1 Epitope Chain
Calculated contacts: Epitope Residues Receptor Residue

<https://www.iedb.org/assay/12155864>

Results Page: Epitope Filters – Modifications

The screenshot displays the 'Epitope Filters' interface. At the top, there are sections for 'Pending Filters' and 'Current Filters: Positive Assays Only'. Below these are 'Reset' and 'Search' buttons. The main 'Epitope' section includes radio buttons for 'Any Epitopes' (selected), 'Linear Epitope', 'Discontinuous Epitopes', and 'Non-peptidic Epitopes'. There are input fields for 'Exact Matc' (with 'Ex: SIINFEKL') and 'Ex: penicillin', along with a 'Finder' button. A '3D structure available' checkbox is also present. The 'Amino Acid Modification' section features a 'Select Multiple Options' dropdown menu, which is highlighted with a red box. This menu contains a 'Select All' button, an 'Unselect All' button, and a list of modification options: '1,2-dimethylpropylamine', '2-aminoisabutaric acid', '4-azidobenzoic acid (ABA)', 'Acetylation|ACET', and 'Amidation|AMID'. A chemical structure diagram of an amino acid is visible in the upper right of the filter panel.

Epitope Filters

Reset Search

Current Filters: ✖ Positive Assays Only

Epitopes
(974547)

Epitope ?

Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

Exact Matc
Ex: penicillin

3D structure available

Amino Acid Modification





Select Multiple Options

- 1,2-dimethylpropylamine
- 2-aminoisabutaric acid
- 4-azidobenzoic acid (ABA)
- Acetylation|ACET
- Amidation|AMID

Antigen ?

Organism
Ex: influenza, peanut

Results Page: Antigen Filters – Finders

<input type="checkbox"/> 3D structure available Amino Acid Modification	16156	FIAGLIAIV
	33572	KSYEHQTPF
Antigen ? 		
Organism	<input type="text" value="Coronavirus (ID:11118)"/>  Finder	
Antigen Name	<input type="text" value="Ex: core, capsid, myosin"/>  Finder	
Receptor ? 	33667	KTFPPTEPK
	53307	RCQIFANI
	56289	RVFNNYMPY

Results Page: Antigen Filters – Finders

MOLECULE FINDER

Current Selection(s) Reset Apply

Search By

Name:

Molecule ID:

Source Organism:
 Finder

Search

Browse by Tree (Click to Select)

- Ig-like domain-containing protein (UniProt:A0A287B220)
- Ig-like domain-containing protein (UniProt:A0A287BBX0)
- Ig-like domain-containing protein (UniProt:F1S1N1)
- Insulin**
 - Insulin B chain (25-54)
 - Insulin A chain (88-108)
- Interleukin-6 receptor subunit alpha
- Lutropin-choriogonadotropic hormone receptor
- Myelin basic protein

Search Results (Click to Select)

113 Records Found Page 1 of 23 5 Per Page

Molecule Name	Synonyms	Database ID	Organism Name
Insulin	Chain B, Insulin, INS_PIG, insulin	UniProt [P01315]	Sus scrofa (pig)
Insulin	insulin, INS_CAVPO	UniProt [P01329]	Cavia porcellus (guinea pig)
Insulin (UniProt:A5PJB2)	INS protein, Chain B, Conformational Changes In Cubic Insulin Crystals In The Ph Range 7-11, insulin, A5PJB2_BOVIN	UniProt [A5PJB2]	Bos taurus (bovine)
Insulin (UniProt:A6XGL2)	insulin [Homo sapiens], insulin, A6XGL2_HUMAN	UniProt [A6XGL2]	Homo sapiens (human)
Insulin (UniProt:P01308)	insulin, partial [Homo sapiens], Chain B, Insulin, Monoclinic Crystal Form, INS_HUMAN, insulin, Chain B, INSULIN B CHAIN, Insulin precursor, Chain A, Insulin, Monoclinic Crystal Form, proinsulin precu...more...	UniProt [P01308]	Homo sapiens (human)

Results Page: Receptor Filters – Receptor Type

Receptor ?

Has receptor sequence

Type

Chain Region

Sequence

53307 RCQIFANI

Receptor ?

Has receptor sequence

Type

Chain Region

Sequence

53307 RCQIFANI

56289 RVFNINYMPY

2008

Assay ?

Positive Assay

- Any Type
- Any Type
- BCR heavy-light
- BCR heavy-heavy
- BCR heavy
- BCR scFv
- BCR construct
- BCR light-light
- BCR light
- TCR $\alpha\beta$
- TCR TscFv

Results Page: Receptor Filters – Chain & Region

Receptor ?

Has receptor sequence

Type

Chain Region

Sequence Ex: CARNTGNQFYF

heavy
light
 α
 β

53307 RCQIFANI
56289 RVFNNYMPY

Assay ?

Receptor ?

Has receptor sequence

Type

Chain **Region**

Sequence Ex: C/

CDR3
Full length
CDR1
CDR2

RCQIFANI

Assay ?

Results Page: Receptor Filters – Sequence

Receptor ?

Has receptor sequence

Type

Chain Region

Sequence

Assay ?


Positive Ass


53307	RCQIFANI
56289	RVFNNYMPY
2998	ALWEIQQVV




- Exact Matches
- Exact Matches
- Substring
- Identity - 90%
- Identity - 80%
- Identity - 70%
- Identity - 60%

Ex: CARNTGNQFYF


Results Page: Assay Filters – Finders


Assay 

Positive Assays Only 

<input checked="" type="checkbox"/> T Cell Assays	Ex: IL-2 release	 Finder
<input checked="" type="checkbox"/> B Cell Assays	Ex: ELISA	 Finder
<input checked="" type="checkbox"/> MHC Ligand Assays	Ex: purified MHC binding	 Finder

Results Page: Reference Filters

Reference 

Any Reference Type 


Journal Article


Submission

Author

Title

Date (Year) to

Reference 

Any Reference Type 

Journal Article

PubMed ID

Submission

Author

Title

Date (Year) to

User Query: How can the IEDB be used in research on COVID-19 immune responses?

Current Filters: Positive Assays Only Organism: Coronavirus (ID:11118)

Epitopes (3764)	Antigens (45)	Assays (12016)	Receptors (84273)	References (265)		
Go To Records Starting At <input type="text" value="1200"/> <input type="button" value="GO"/>						
3764 Records Found						
Page <input type="text" value="1"/> of 151				Export Results		
25 Per Page						
Details	Epitope	Antigen	Organism	# References	# Assays	
	7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
	16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
	33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
	71917	VYRGTTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
	17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
	28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11
	33667	KTFPTEPK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
	53307	RCQIFANI	Spike glycoprotein	Murine coronavirus	7	19
	56289	RVFNYPY	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	18
	2998	ALWEIQQVV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
	3840	APTAGAFF	Nucleoprotein	Murine coronavirus	6	19
	5209	ATVVGTSK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
	5447	AVLQSGFRK	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	13
	14829	EVMPVSMK	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	17
	17354	FPPTSFGPL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	15
	17385	FPRGQVPI	Nucleoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	10
	18133	FVDGVFV	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	6	19

Results Page: Antigen Filters


The image illustrates the process of refining an antigen search in the IEDB database through three sequential screenshots of the 'Antigen' filter interface. Red boxes and arrows highlight the changes made in each step.

Top Screenshot: The 'Organism' field contains 'Coronavirus (ID:11118)' and the 'Antigen Name' field contains 'Ex: core, capsid, myosin'. A green circle with the number '1' is next to the organism field.

Middle Screenshot: The 'Organism' field is cleared and replaced with a red 'X' and the text 'Coronavirus (ID:11118)'. The 'Antigen Name' field now contains 'Ex: influenza, peanut', with a green circle with the number '1' next to it.

Bottom Screenshot: The 'Organism' field contains 'covid-19'. Below it, a dropdown menu is open, showing 'SARS-CoV2 (ID:2697049, COVID-19)' as the selected option. The 'Antigen Name' field still contains 'Ex: core, capsid, myosin'.

User Query: How can the IEDB be used in research on COVID-19 immune responses?



IMMUNE EPITOPE DATABASE
AND ANALYSIS RESOURCE

Help | More IEDB

Home | Specialized Searches | Analysis Resource

Pending Filters ✘ Positive Assays Only ✘ Organism: SARS-CoV2 (ID:2697049, COVID-19)

Pending Filters

Reset Search

Epitope ?

Any Epitopes

Linear Epitope

Discontinuous Epitopes

Non-peptidic Epitopes

3D structure available

Amino Acid Modification

Antigen ?

Organism

SARS-CoV2 (ID:2697049, 1)

Antigen Name

Ex: core, capsid, myosin

Receptor ?

Has receptor sequence

Type Any Type

Go To Records Starting At GO Export Results

3764 Records Found 25 Per Page

Page 1 of 151

Details	Epitopes (3764)	Antigens (45)	Assays (12016)	Receptors (84273)	References (265)
7032	CSLWNGPHL	Spike glycoprotein	Murine coronavirus	16	38
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	10	25
33572	KSYEHQTPF	Replicase polyprotein 1ab	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	9	16
71917	VVYRGTTY	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	8	16
17382	FPREGVVF	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	14
28050	IPRRNVATL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	7	11

User Query: How can the IEDB be used in research on COVID-19 immune responses?

Current Filters: ✖ Positive Assays Only ✖ Organism: SARS-CoV2 (ID:2697049, COVID-19)

Epitopes (519)	Antigens (2)	Assays (1109)	Receptors (84262)	References (25)
-------------------	-----------------	------------------	----------------------	--------------------

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

519 Records Found ⏪ ⏩ Page of 21 ⏪ ⏩ Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
16156	FIAGLIAIV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	2	5
16737	FLLNKEMYL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	2	7
1071808	PSKPSKRSEFIEDLLFNKV	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	2	3
1073281	TESNKKFLPFQQFGRDIA	Spike glycoprotein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	2	3
1073956	VVLSFELLHAPATVC	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	2	2
1125059	FLFLTWICL	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS)) protein	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	2	2
956	AEGSRGGSQA	Other Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	Severe acute respiratory syndrome-related coronavirus (Human coronavirus (strain SARS))	1	3

User Query: How can the IEDB be used in research on COVID-19 immune responses?

Current Filters: Positive Assays Only Organism: SARS-CoV2 (ID:2897049, COVID-19)

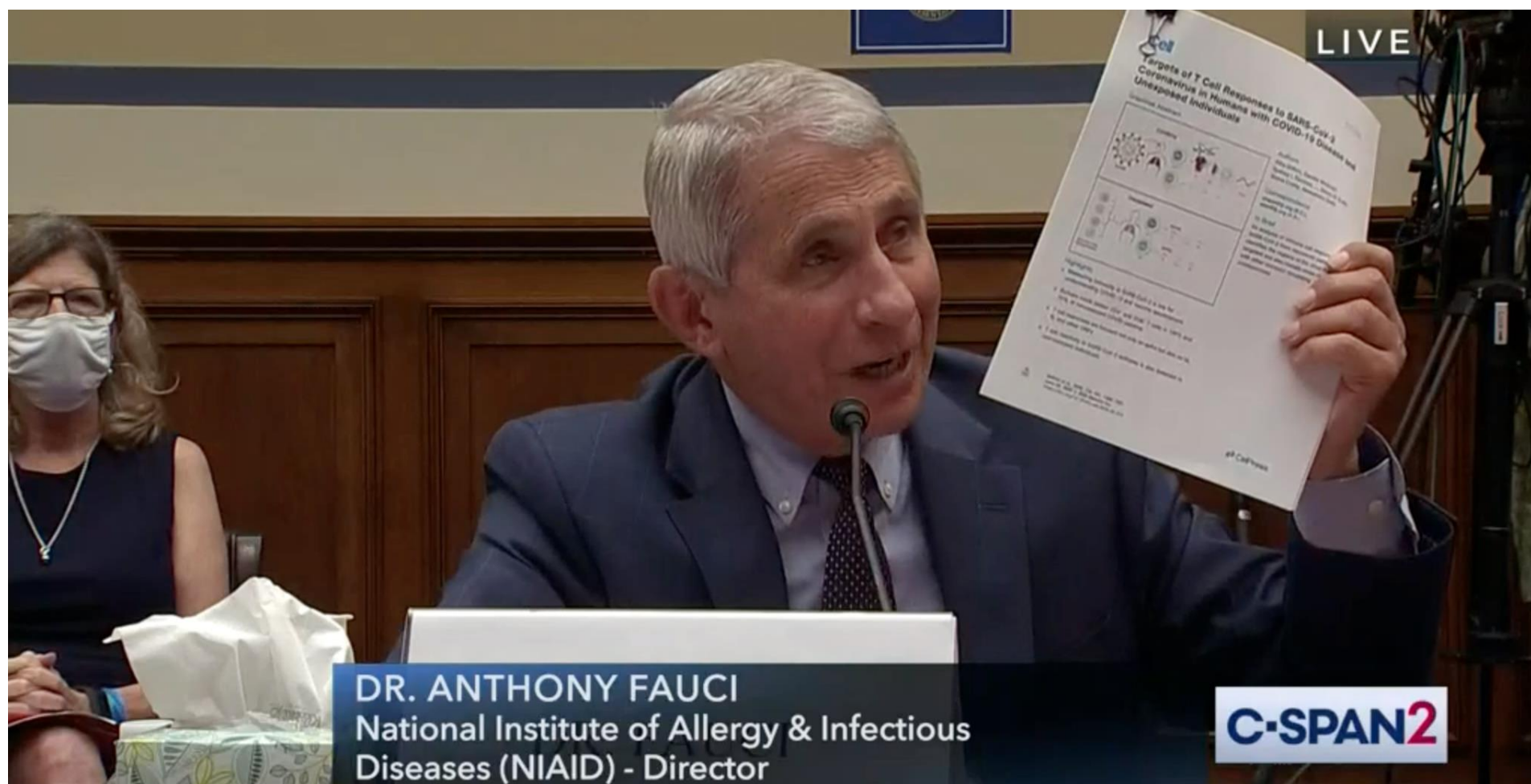
Epitopes (510) Antigens (2) Assays (1100) Receptors (84282) **References (25)**

Go To Records Starting At Export Results

25 Records Found Page of 1 Per Page

Ref ID	PMID	Author	Title	Abstract	Date
1036945		Adaptive Biotechnologies	ImmuneCODE-Release001.1	This dataset was generated by Adaptive Biotechnologies and was manually imported into the IEDB. De-identified blood samples from ImmuneRACE, including patients who were actively infected, recovered or ...more...	2020
1037393	32887977	Yanhun Peng; Alexander J Mentzer; Guihai Liu; Xuan Yao; Zixi Yin; Danning Dong; Wanwiss Dejirattisai; Timothy Rostron; Pyada Supasa; Chang Liu; César López-Camacho; Jose Slon-Campos; Yuguang Zhao; David I Stuart; Guido C Paesen; Jonathan M Grimes; Alfred A Antson; Oliver W Bayfield; Dorothy E D P Hawkins; De-Sheng Ker; Beibei Wang; Lance Turtle; Krishanthi Subramaniam; Paul Thomson; Ping Zhang; Christina Dold; Jeremy Ratcliff; Peter Simmons; Thushan de Silva; Paul Sopp; Danielle Wellington; Ushani Rajapaksa; Yi-Ling Chen; Mariolina Salio; Giorgio Napolitani; Wayne Paes; Persephone Borrow; Benedikt M Kessler; Jeremy W Fry; Nikolai F Schwabe; Malcolm G Sample; J Kenneth Bailly; Shona C Moore; Peter J M Openshaw; M Azim Ansari; Susanna Dunachie; Eleanor Barnes; John Frater; Georgina Kerr; Philip Goulder; Teresa Lockett; Robert Levin; Yonghong Zhang; Ronghua Jing; Ling-Pei Ho; Oxford Immunology Network Covid-19 Response T cell Consortium; ISARIC4C investigators; Richard J Cornall; Christopher P Conlon; Paul Klenerman; Gavin R Screaton; Juthathip Mongkolsapaya; Andrew McMichael; Julian C Knight; Graham Ogg; Tao Dong	Broad and strong memory CD4 ⁺ and CD8 ⁺ T cells induced by SARS-CoV-2 in UK convalescent individuals following COVID-19.	The development of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccines and therapeutics will depend on understanding viral immunity. We studied T cell memory in 42 patients following ...more...	2020
1037363	32913053	Jennifer R Habel; Thi H O Nguyen; Carolien E van de Sandt; Jennifer A Juno; Priyanka Chaurasia; Kathleen Wragg; Marios Koutsakos; Luca Hensen; Xiaoxiao Jia; Brendon Chua; Wuji Zhang; Hyon-Khi Tan; Katie L Flanagan; Denise L Doolan; Joseph Torresi; Weisan Chen; Linda M Wakim; Allen C Cheng; Peter C Doherty; Jan Petersen; Jamie Rossjohn; Adam K Wheatley; Stephen J Kent; Louise C Rowntree; Katherine Kedzierska	Suboptimal SARS-CoV-2-specific CD8 ⁺ T cell response associated with the prominent HLA-A*02:01 phenotype.	An improved understanding of human T cell-mediated immunity in COVID-19 is important for optimizing therapeutic and vaccine strategies. Experience with influenza shows that infection primes CD8 ⁺ ...more...	2020
1037251	32791978	Asaf Poran; Dewi Harjanto; Matthew Malloy; Christina M Arieta; Daniel A Rothenberg; Divya Lenkala; Marit M van Buuren; Terri A Addona; Michael S Rooney; Lakshmi Srinivasan; Richard B Gaynor	Sequence-based prediction of SARS-CoV-2 vaccine targets using a mass spectrometry-based bioinformatics predictor identifies immunogenic T cell epitopes.	BACKGROUND: The ongoing COVID-19 pandemic has created an urgency to identify novel vaccine targets for protective immunity against SARS-CoV-2. Early reports identify protective roles for both humoral ...more...	2020
1036587	32245784	Meng Yuan; Nicholas C Wu; Xueyong Zhu; Chang-Chun D Lee; Ray T Y So; Huilin Lv; Chris K P Mok; Ian A Wilson	A highly conserved cryptic epitope in the receptor-binding domains of SARS-CoV-2 and SARS-CoV.	The outbreak of COVID-19 caused by SARS-CoV-2 virus has now become a pandemic, but there is currently very little understanding of the antigenicity of the virus. We therefore determined the crystal st ...more...	2020
1036855	32433465	Trevor R F Smith; Ami Patel; Stephanie Ramos; Dustin Elwood; Xizhou Zhu; Jian Yan; Ebony N Gary; Susanne N Walker; Katherine Schultheis; Mansi Punwar; Ziyang Xu; Jewell Walters; Pratik Bhojnagarwala; Maria Yang; Neethu Chokkalingam; Patrick Pezzoli; Elizabeth Parzych; Emma L Reuschel; Arthur Doan; Nicholas Tursi; Miguel Vasquez; Jinse Choi; Edgar Telic-Rutz; Igor Maric; Mamadou A Bah; Yuanhan Wu; Dinah Amante; Daniel H Park; Yaya Dia; Ali Raza Ali; Faraz I Zaidi; Alison Generotti; Kevin Y Kim; Timothy A Herring; Sophia Reeder; Viviane M Andrade; Karen Buttigieg; Gan Zhao; Jun-Ming Wu; Dan Li; Linlin Bao; Jiangning Liu; Wei Deng; Chuan Qin; Ami Shah Brown; Makan Khoshnejad; Nianshuang Wang; Jacqueline Chu; Daniel Wrapp; Jason S McLellan; Kar Muthumani; Bin Wang; Miles W Carroll; J Joseph Kim; Jean Boyer; Daniel W Kulp; Laurent M	Immunogenicity of a DNA vaccine candidate for COVID-19.	The coronavirus family member, SARS-CoV-2 has been identified as the causal agent for the pandemic viral pneumonia disease, COVID-19. At this time, no vaccine is available to control further dissemina ...more...	2020

User Query: How can we best use the IEDB database so that the data can be publishable in high impact factor journals?



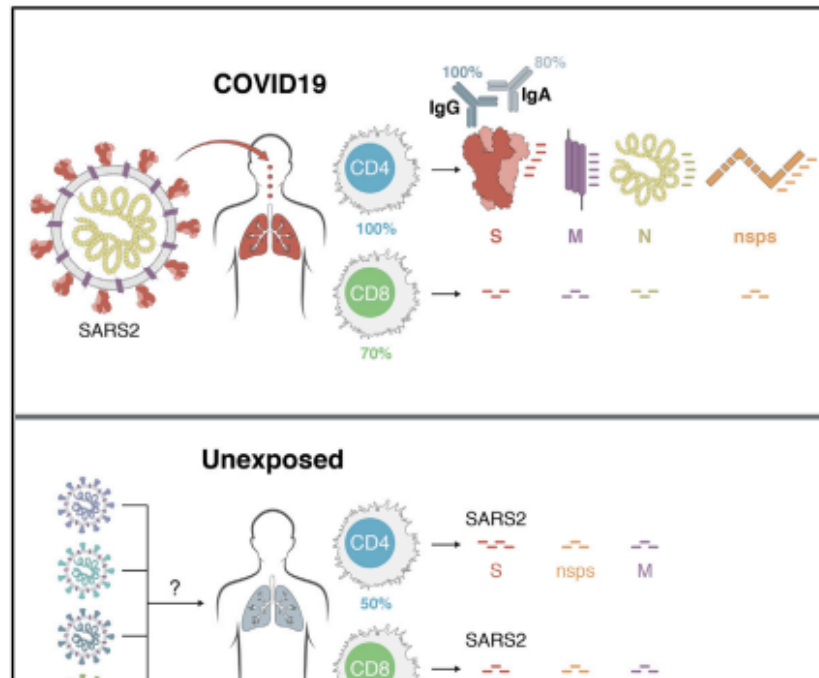
User Query: How can the IEDB be used in research on COVID-19 immune responses?

Cell

Article

Targets of T Cell Responses to SARS-CoV-2 Coronavirus in Humans with COVID-19 Disease and Unexposed Individuals

Graphical Abstract



Authors

Alba Grifoni, Daniela Weiskopf, Sydney I. Ramirez, ..., Davey M. Smith, Shane Crotty, Alessandro Sette

Correspondence

shane@lji.org (S.C.), alex@lji.org (A.S.)

In Brief

An analysis of immune cell responses to SARS-CoV-2 from recovered patients identifies the regions of the virus that is targeted and also reveals cross-reactivity with other common circulating coronaviruses

PMID: 32473127

User Query: How can the IEDB be used in research on COVID-19 immune responses?

PMID: 32473127

Abstract

Understanding adaptive immunity to SARS-CoV-2 is important for vaccine development, interpreting coronavirus disease 2019 (COVID-19) pathogenesis, and calibration of pandemic control measures. Using HLA class I and II predicted peptide "megapools," circulating SARS-CoV-2-specific CD8⁺ and CD4⁺ T cells were identified in ~70% and 100% of COVID-19 convalescent patients, respectively. CD4⁺ T cell responses to spike, the main target of most vaccine efforts, were robust and correlated with the magnitude of the anti-SARS-CoV-2 IgG and IgA titers. The M, spike, and N proteins each accounted for 11%-27% of the total CD4⁺ response, with additional responses commonly targeting nsp3, nsp4, ORF3a, and ORF8, among others. For CD8⁺ T cells, spike and M were recognized, with at least eight SARS-CoV-2 ORFs targeted. Importantly, we detected SARS-CoV-2-reactive CD4⁺ T cells in ~40%-60% of unexposed individuals, suggesting cross-reactive T cell recognition between circulating "common cold" coronaviruses and SARS-CoV-2.

Keywords: CD4; CD8; COVID-19; SARS-CoV-2; T cells; coronavirus; cross-reactivity; epitopes.


Identification of coronavirus epitopes and associated literature references

To identify coronavirus epitopes and associated references, the IEDB was searched (on April 16, 2020) utilizing the following queries. A first query was run to identify references associated with class I restricted CD8 epitopes, which utilized the criteria settings "Antigen": Organism = Coronavirus (taxonomy ID 11118); "Assay": Positive assays only; "Assay": T cell assay; "MHC restriction" = MHC Class II; no parameters were defined for "Host" or "Disease." This query identified 57 references, which are listed and displayed under the "References" tab on the results page.

A second query was run to identify references associated with class II restricted CD4 epitopes which utilized the criteria settings "Antigen": Organism = Coronavirus (taxonomy ID 11118); "Assay": Positive assays only; "Assay": T cell assay; "MHC restriction" = MHC Class II; no parameters were defined for "Host" or "Disease." This query identified 27 references, which are listed and displayed under the "References" tab on the results page.

A third query was run to specifically capture epitopes and map them back to the antigen of origin using the setting; "Antigen": Organism = Coronavirus (taxonomy ID 11118); "Assay": Positive assays only; "Assay": T cell assay; no parameters were defined for "MHC restriction," "Host" or "Disease." Results were exported as csv files, and then examined in Excel to tabulate the number of CD4 and CD8 epitopes recognized in humans, mice, transgenic mice and other hosts associated with each respective antigen.

User Query: How can we best use the IEDB database so that the data can be publishable in high impact factor journals?



**IMMUNE EPITOPE DATABASE
AND ANALYSIS RESOURCE**

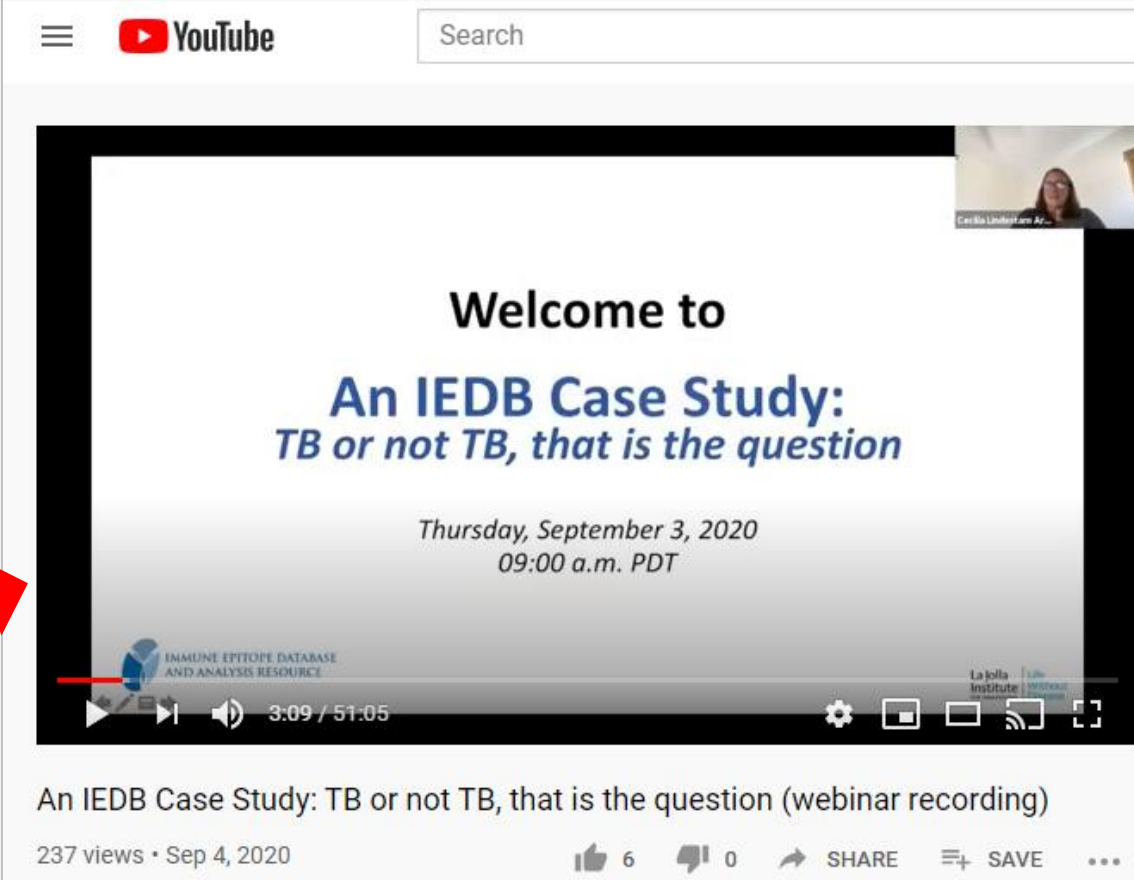
Welcome

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

An IEDB Case Study: TB	Sept 3
* webinar recording here	
FOCiS Virtual Booth	Oct 28-31
User Workshop	Nov 5-6
* register for workshop here	



YouTube Search

Welcome to

An IEDB Case Study: *TB or not TB, that is the question*

Thursday, September 3, 2020
09:00 a.m. PDT

IMMUNE EPITOPE DATABASE
AND ANALYSIS RESOURCE

La Jolla Institute for Immunology

An IEDB Case Study: TB or not TB, that is the question (webinar recording)

237 views • Sep 4, 2020

6 likes 0 comments

SHARE SAVE

The IEDB has been cited more than 2,500 times (excluding self-citations)

User Query: Prediction and filtering of epitopes applied to RNA virus

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

Antigen Name

Host ?

Any Host
 Humans
 Mice
 Non-human Primates

MHC Restriction ?

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

Disease ?

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

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

RNA virus (ID:10002040)
Picornavirus (ID:12058)
Alternaria alternata (ID:5599, Torula alternata)
Plant virus (RNA) (ID:10002044)
Bacteriophage (RNA) (ID:10002042)
Borna disease virus (Borna disease virus BDV) (ID:12455, Born...
Bacillus [genus] (ID:1386, Bacillus rRNA group 1)
Mammalian 2 orthobornavirus (Mammalian 2 bornavirus) (ID:18...
Pseudomonas (ID:286, RNA similarity group I)
Variegated squirrel bornavirus 1 (ID:1885248)

User Query: Prediction and filtering of epitopes applied to RNA virus

Current Filters: ✖ Positive Assays Only ✖ Organism: RNA virus (ID:10002040)

Epitopes (5354)
Antigens (54)
Assays (20689)
Receptors (15368)
References (1566)

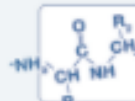
Go To Records Starting At Export Results

54 Records Found Page 1 of 3 25 Per Page

Antigen	Organism	# Epitopes	# Assays	# References
Hemagglutinin	Influenza A virus	1944	7389	682
Nucleoprotein	Influenza A virus	658	3161	516
Matrix protein 1	Influenza A virus	350	1758	378
Polymerase acidic protein	Influenza A virus	237	958	146
RNA-directed RNA polymerase catalytic subunit	Influenza A virus	392	1404	129
Matrix protein 2	Influenza A virus	129	782	116
Neuraminidase	Influenza A virus	303	1081	100
Polymerase basic protein 2	Influenza A virus	287	760	90
Non-structural protein 1	Influenza A virus	115	395	79
Nuclear export protein	Influenza A virus	46	205	45
Two components:Hemagglutinin & Hemagglutinin	Influenza A virus	40	927	36
Hemagglutinin	Influenza B virus (Influenza virus type B)	280	402	26
Protein PB1-F2	Influenza A virus	10	66	25
Nucleoprotein	Influenza B virus (Influenza virus type B)	71	97	11
Other Influenza A virus protein	Influenza A virus	32	50	6
Genome polyprotein	Plum pox virus (Plum pox polyvirus)	8	14	5
Neuraminidase	Influenza B virus (Influenza virus type B)	35	153	4
Matrix protein 1	Influenza B virus (Influenza virus type B)	62	68	4
RNA-directed RNA polymerase catalytic subunit	Influenza C virus (Influenza C viruses)	4	45	3
Hemagglutinin-esterase-fusion glycoprotein	Influenza C virus (Influenza C viruses)	16	99	3
PB2-S1	Influenza A virus	5	11	3
RNA2 polyprotein	Bean pod mottle virus (Bean-pod mottle virus)	11	22	3
Genome polyprotein	Potato virus Y (potato virus Y PVY)	10	89	3
Two components:Neuraminidase & Neuraminidase	Influenza A virus	2	13	3
3b protein	Cucumber mosaic virus (cucumber mosaic cucumovirus)	2	5	2

User Query: MHC Binding Data


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

Antigen Name

MHC Restriction ? 

Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical

Ex: HLA-A*02:01


Assay ? 

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

Ex: neutralization



User Query: MHC Binding Data

Assay ? 


Positive Assays Only

T Cell Assays

B Cell Assays

MHC Ligand Assays

Ex: neutralization



Search By

Name:

Method/Technique:


Measurement Of:

Units:

Browse by Tree (Click to Select)


- immune epitope assay
 - T cell assay
 - B cell assay
 - MHC ligand assay
 - MHC binding assay**
 - MHC ligand elution assay

User Query: MHC Binding Data

Assay ? 

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

Ex: neutralization

MHC Restriction ? 


Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical

Ex: HLA-A*02:01


**MHC Ligand Assays:
2,927,353**




User Query: MHC Binding Data


Assay ? 


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

MHC binding assay 


MHC Restriction ? 

Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical

HLA-B*27:02 prote 

Disease ? 

Any Disease
 Infectious Disease
 Allergic Disease
 Autoimmune Disease

Ex: asthma, diabet 



User Query: MHC Binding Data – Exports

Current Filters: ✖ Positive Assays Only ✖ No T cell assays ✖ No B cell assays ✖ MHC Ligand Assays: MHC binding assay

✖ MHC Restriction Type: HLA-B*27:02 protein complex (ID:MRO_0001083, HLA-B27.2)

Epitopes (68) Antigens (41) Assays (72) Receptors (0) References (-)

Go To Records Starting At Export Results

68 Records Found Page of 3 Per Page

Details	Epitope	Antigen	Organism		
33140	KRGILTLKY	Actin, aortic smooth muscle	Homo sapiens (human)		
33260	KRYKSIVKY	Farnesyl diphosphate synthase (Farnesyl pyrophosphate synthetase, dimethylallyltransferase, geranyltransferase), isoform CRA_a	Homo sapiens (human)		
55565	RRFVNVVPTF	40S ribosomal protein S30 (Fragment)	Homo sapiens (human)	2	2
138773	GRLTKHTKF	60S ribosomal protein L36 (UniProt:Q9Y3U8)	Homo sapiens (human)	2	2
4156	ARHTPVNSW	Genome polyprotein	Hepatitis C virus	1	1
4197	ARMILMTHF	Genome polyprotein	Hepatitis C virus	1	1
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	1	1
17661	FRYNGLIHR	60S ribosomal protein L28 (UniProt:P46779)	Homo sapiens (human)	1	1
21982	GRAAICGKY	Genome polyprotein	Hepatitis C virus	1	1
22072	GRIDKPILK	60S ribosomal protein L8 (UniProt:P62917)	Homo sapiens (human)	1	1
24701	HRQSIWITW	Protein K1	Human gammaherpesvirus 8 (Human herpesvirus 8)	1	1
24702	HRQSIWITWH	Protein K1	Human gammaherpesvirus 8 (Human herpesvirus 8)	1	1
33170	KRKKAYADF	Cytochrome c oxidase subunit 1	Homo sapiens (human)	1	1
33250	KRWIILGLNK	Gag polyprotein	Human immunodeficiency virus 1 (human immunodeficiency virus 1 HIV-1)	1	1
55529	RRARSLSAERY	Epstein-Barr nuclear antigen 4	Human herpesvirus 4 (Epstein Barr virus)	1	1
55556	RRFFPYVYVY	Proteasome subunit beta type-1	Homo sapiens (human)	1	1
55620	RRIIDLIEL	Epstein-Barr nuclear antigen 6	Human herpesvirus 4 (Epstein Barr virus)	1	1

- Export to CSV file. [?](#)
- Export to CSV file with IRIs. [?](#)
- Export to EpiFilter. [?](#)

User Query: MHC Binding Data – Exports



Current Filters: [Positive Assays Only](#) [No T cell assays](#) [No B cell assays](#) [MHC Ligand Assays: MHC binding assay](#) [MHC Restriction Type: HLA-B*27:02 protein complex \(ID:MRO_0001083, HLA-B27.2\)](#)

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](#)



User Query: MHC Binding Data – Epitope Exports

Top Header Row = Field Group

2nd Header Row = Field

Stable URL for every epitope



Amino acid modifications

Position in protein

Non-peptidic epitopes

Epitope IRI	Epitope Object Type	Epitope Description	Epitope Modified Residue(s)	Epitope Epitope Modification (s)	Epitope Starting Position	Epitope Ending Position	Epitope Non-peptidic epitope IRI	Epitope Epitope Synonyms
http://www.iedb.org/epitope/4156	Linear peptide	ARHTPVNSW			2820	2828		
http://www.iedb.org/epitope/4197	Linear peptide	ARMILMTHF			2841	2849		
http://www.iedb.org/epitope/13263	Linear peptide	ELRSRYWAI			380	388		
http://www.iedb.org/epitope/17661	Linear peptide	FRYNGLIHR			38	46		
http://www.iedb.org/epitope/21982	Linear peptide	GRAAICGKY			2936	2944		
http://www.iedb.org/epitope/22072	Linear peptide	GRIDKPILK			173	181		
http://www.iedb.org/epitope/24701	Linear peptide	HRQSIWITW			82	90		
http://www.iedb.org/epitope/24702	Linear peptide	HRQSIWITWH			82	91		
http://www.iedb.org/epitope/33140	Linear peptide	KRGILTLY			63	71		
http://www.iedb.org/epitope/33170	Linear peptide	KRKKAYADF						
http://www.iedb.org/epitope/33250	Linear peptide	KRWIILGLNK			262	271		
http://www.iedb.org/epitope/33260	Linear peptide	KRYKSIVKY			86	94		
http://www.iedb.org/epitope/55529	Linear peptide	RRARSLAERY			243	253		
http://www.iedb.org/epitope/55556	Linear peptide	RRFFPYVY			127	135		
http://www.iedb.org/epitope/55565	Linear peptide	RRFVNVVPTF			114	123		
http://www.iedb.org/epitope/55620	Linear peptide	RRIYDLIEL			258	266		
http://www.iedb.org/epitope/55763	Linear peptide	RRVKEVVKK			175	183		
http://www.iedb.org/epitope/55779	Linear peptide	RRYPDAVYL			438	446		
http://www.iedb.org/epitope/55785	Linear peptide	RRYQKSTEL			53	61		
http://www.iedb.org/epitope/60777	Linear peptide	SRQRQAIPY			2145	2153		

User Query: MHC Binding Data – Epitope Exports

Source protein isoform of epitope,
author specified, 100% identical

Reference proteome source protein of
epitope, groups all same proteins, not
100% identical

Epitope Antigen Name	Epitope Antigen IRI	Epitope Parent Protein	Epitope Parent Protein IRI
polyprotein	http://www.ncbi.nlm.nih.gov/protein/ABR25251.1	sp P27958 POLG_HCVH Genome polyprotein OS=Hepatitis C virus genotype 1a (isolate H)	http://www.uniprot.org/uniprot/P27958
polyprotein	http://www.ncbi.nlm.nih.gov/protein/ABR25251.1	sp P27958 POLG_HCVH Genome polyprotein OS=Hepatitis C virus genotype 1a (isolate H)	http://www.uniprot.org/uniprot/P27958
NP	http://www.ncbi.nlm.nih.gov/protein/Q91UL1	sp P03466 NCAP_I34A1 Nucleoprotein OS=Influenza A virus (strain A/Puerto Rico/8/1934 H1N1)	http://www.uniprot.org/uniprot/P03466
60S ribosomal protein L28 isoform 2	http://www.ncbi.nlm.nih.gov/protein/NP_000982.2	sp P46779 RL28_HUMAN 60S ribosomal protein L28 OS=Homo sapiens OX=9606 GN=RPL28 PE=1 SV=3	http://www.uniprot.org/uniprot/P46779
polyprotein	http://www.ncbi.nlm.nih.gov/protein/ABY67667.1	sp P27958 POLG_HCVH Genome polyprotein OS=Hepatitis C virus genotype 1a (isolate H)	http://www.uniprot.org/uniprot/P27958
60S ribosomal protein L8	http://www.ncbi.nlm.nih.gov/protein/NP_000964.1	sp P62917 RL8_HUMAN 60S ribosomal protein L8 OS=Homo sapiens OX=9606 GN=RPL8 PE=1 SV=2	http://www.uniprot.org/uniprot/P62917
K1 glycoprotein	http://www.ncbi.nlm.nih.gov/protein/AAT44989.1	sp Q2HRD5 K1_HHV8P Protein K1 OS=Human herpesvirus 8 type P (isolate GK18) OX=868565	http://www.uniprot.org/uniprot/Q2HRD5
K1 glycoprotein [Human herpesvirus 8]	http://www.ncbi.nlm.nih.gov/protein/AAT44977.1	sp Q2HRD5 K1_HHV8P Protein K1 OS=Human herpesvirus 8 type P (isolate GK18) OX=868565	http://www.uniprot.org/uniprot/Q2HRD5
alpha-actin	http://www.ncbi.nlm.nih.gov/protein/AAA51577.1	sp P62736 ACTA_HUMAN Actin, aortic smooth muscle OS=Homo sapiens OX=9606 GN=ACTA2 PE=1	http://www.uniprot.org/uniprot/P62736
cytochrome c oxidase I	https://ontology.iedb.org/ontology/ONTIE_0002983	sp P00395 COX1_HUMAN Cytochrome c oxidase subunit 1 OS=Homo sapiens OX=9606 GN=MT-CO1	http://www.uniprot.org/uniprot/P00395
gag protein	http://www.ncbi.nlm.nih.gov/protein/AAX81417.1	sp P03349 GAG_HV1A2 Gag polyprotein OS=Human immunodeficiency virus type 1 group M subtype B (isolate ARV2/SF2) OX=11685 GN=gag PE=1 SV=3	http://www.uniprot.org/uniprot/P03349

User Query: MHC Binding Data – Epitope Exports

**Source organism of epitope,
author specified**

**Reference proteome species of epitope,
groups all same**

Epitope Organism Name	Epitope Organism IRI	Epitope Parent Organism	Epitope Parent Organism IRI
Hepacivirus C	http://purl.obolibrary.org/obo/NCBITaxon_11103	Hepacivirus C	http://purl.obolibrary.org/obo/NCBITaxon_11103
Hepacivirus C	http://purl.obolibrary.org/obo/NCBITaxon_11103	Hepacivirus C	http://purl.obolibrary.org/obo/NCBITaxon_11103
Influenza A virus (A/X-31(H3N2))	http://purl.obolibrary.org/obo/NCBITaxon_132504	Influenza A virus	http://purl.obolibrary.org/obo/NCBITaxon_11320
Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606
Hepacivirus C	http://purl.obolibrary.org/obo/NCBITaxon_11103	Hepacivirus C	http://purl.obolibrary.org/obo/NCBITaxon_11103
Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606
Human gammaherpesvirus 8	http://purl.obolibrary.org/obo/NCBITaxon_37296	Human gammaherpesvirus 8	http://purl.obolibrary.org/obo/NCBITaxon_37296
Human gammaherpesvirus 8	http://purl.obolibrary.org/obo/NCBITaxon_37296	Human gammaherpesvirus 8	http://purl.obolibrary.org/obo/NCBITaxon_37296
Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606
Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606
Human immunodeficiency virus 1	http://purl.obolibrary.org/obo/NCBITaxon_11676	Human immunodeficiency virus 1	http://purl.obolibrary.org/obo/NCBITaxon_11676

User Query: MHC Binding Data – Assay Exports

Top Header row = Field Group (Reference, Epitope, etc.)

2nd Header Row = Field (terms may repeat)

Stable URL for every assay and reference



Same epitope information as in epitope export

Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Epitope	Epitope	Epitope	Epitope
Assay IRI	Reference IRI	Type	PubMed	Authors	Journal	Date	Title	Submission IRI	Epitope IRI	Object Type	Description	Starting
http://www.iec	http://www.iec	Literature	7542549	L G Tussey; S Ro	Immunity	1995	Different MHC class I alleles con	http://www.iec	Linear peptide	ELRSRYWAI	380	
http://www.iec	http://www.iec	Literature	12634388	Justin Stebbing; J	Virol	2003	Kaposi's sarcoma-associated he	http://www.iec	Linear peptide	HRQSIWITWH	82	
http://www.iec	http://www.iec	Literature	12634388	Justin Stebbing; J	Virol	2003	Kaposi's sarcoma-associated he	http://www.iec	Linear peptide	HRQSIWITW	82	
http://www.iec	http://www.iec	Literature	9820497	J M Brooks; R A	J Immunol	1998	HLA-B27 subtype polymorphism	http://www.iec	Linear peptide	RRARSLAERY	243	
http://www.iec	http://www.iec	Literature	9820497	J M Brooks; R A	J Immunol	1998	HLA-B27 subtype polymorphism	http://www.iec	Linear peptide	RRIYDLIEL	258	
http://www.iec	http://www.iec	Submission		Mikkel Harndahl; Kasper Lambe		2009	Large scale anal	1000422	http://www.iec	Linear peptide	SRQRQAIPY	2145
http://www.iec	http://www.iec	Literature	12122005	Manuel Ramos; J	Biol Chem	2002	Molecular mimicry of an HLA-B2	http://www.iec	Linear peptide	RRKSSGGKGGSY	333	
http://www.iec	http://www.iec	Literature	12122005	Manuel Ramos; J	Biol Chem	2002	Molecular mimicry of an HLA-B2	http://www.iec	Linear peptide	RRFKEGGRGGKY	211	
http://www.iec	http://www.iec	Literature	9820524	A Paradel; M G J	Immunol	1998	The same natural ligand is invol	http://www.iec	Linear peptide	RRFFPYVY	127	
http://www.iec	http://www.iec	Literature	9820524	A Paradel; M G J	Immunol	1998	The same natural ligand is invol	http://www.iec	Linear peptide	RRFFPYVY	127	
http://www.iec	http://www.iec	Literature	23978718	Katja Nitschke; J	Hepato	2014	HLA-B*27 subtype specificity de	http://www.iec	Linear peptide	ARHTPVNSW	2820	
http://www.iec	http://www.iec	Literature	23978718	Katja Nitschke; J	Hepato	2014	HLA-B*27 subtype specificity de	http://www.iec	Linear peptide	ARMILMTHF	2841	
http://www.iec	http://www.iec	Literature	23978718	Katja Nitschke; J	Hepato	2014	HLA-B*27 subtype specificity de	http://www.iec	Linear peptide	GRAAICGKY	2936	
http://www.iec	http://www.iec	Literature	23978718	Katja Nitschke; J	Hepato	2014	HLA-B*27 subtype specificity de	http://www.iec	Linear peptide	SRYWAIRTR	383	
http://www.iec	http://www.iec	Literature	23978718	Katja Nitschke; J	Hepato	2014	HLA-B*27 subtype specificity de	http://www.iec	Linear peptide	KRWIILGLNK	262	
http://www.iec	http://www.iec	Literature	25268942	Alejandro Barrig	PLoS One	2014	A common minimal motif for th	http://www.iec	Linear peptide	VRNKDLNLT	169	
http://www.iec	http://www.iec	Literature	25268942	Alejandro Barrig	PLoS One	2014	A common minimal motif for th	http://www.iec	Linear peptide	KRLPADVLKK	150	
http://www.iec	http://www.iec	Literature	25268942	Alejandro Barrig	PLoS One	2014	A common minimal motif for th	http://www.iec	Linear peptide	HRQDINGKEM	100	

User Query: MHC Binding Data – Assay Exports

Top Header row = Field Group (Reference, Epitope, etc.)

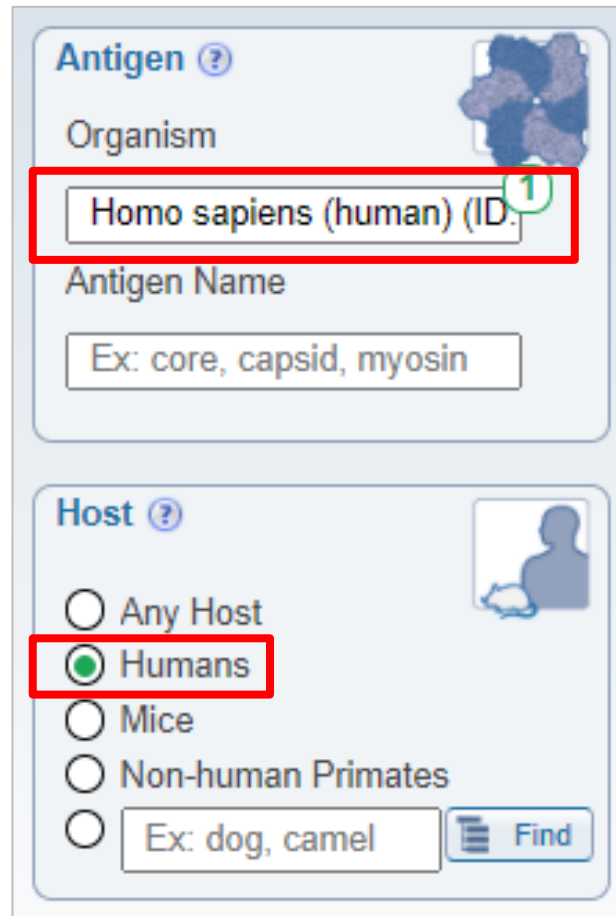
2nd Header Row = Field (terms may repeat)

Separate method and assay group columns allow sorting

IRI is linked to ontology term for assay (OBI ontology)

Assay	Assay	Assay	Assay	Assay	Assay	Assay	Assay	Assay
Location of assay data in the manuscript	Method/Technique	Assay Group	Units	Assay Type IRI	Qualitative Measure	Measurement Inequality	Quantitative measurement	
Fig. 4A	lysate MHC/direct/radioactivity	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001556	Positive			
Figure 4	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive			
Figure 4	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive			
Figures 2 and 5, table III	cellular MHC/direct/fluorescence	half life	min	http://purl.obolibrary.org/obo/OBI_0001559	Positive		2520	
Figures 2 and 5, table III	cellular MHC/direct/fluorescence	half life	min	http://purl.obolibrary.org/obo/OBI_0001559	Positive		2220	
	purified MHC/direct/fluorescence	dissociation constant KD (~EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001543	Positive-Low	>	5000	
Figure 4 and table II	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive		5000	
Figure 4 and table II	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive		7000	
Figure 4	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-High	=	4000	
Figure 4	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-High	=	3000	
Figures 2 and 4	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive-High			
Figure 2	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive-High			
Figure 2	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive-High			
Figure 2	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive-Low			
Figure 2	cellular MHC/direct/fluorescence	qualitative binding		http://purl.obolibrary.org/obo/OBI_0001606	Positive-High			
Figure 7 and Tables 1, 2, ar	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-Low	=	94000	
Figure 7 and Tables 1, 2, ar	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-Low	=	136000	
Figure 7 and Tables 1, 2, ar	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-Low	=	132000	
Figure 7 and Tables 1, 2, 3,	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-Interm	=	43000	
Figure 7 and Tables 1, 2, 3,	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-High	=	9000	
Figure 7 and Tables 1, 2, ar	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-Low	=	77000	
Table 2	cellular MHC/direct/fluorescence	half maximal effective concentration (EC50)	nM	http://purl.obolibrary.org/obo/OBI_0001561	Positive-High	=	16000	

User Query: Is there a way to derive autoantigens using the IEDB database?




Antigen ? 

Organism

¹

Antigen Name

Host ? 

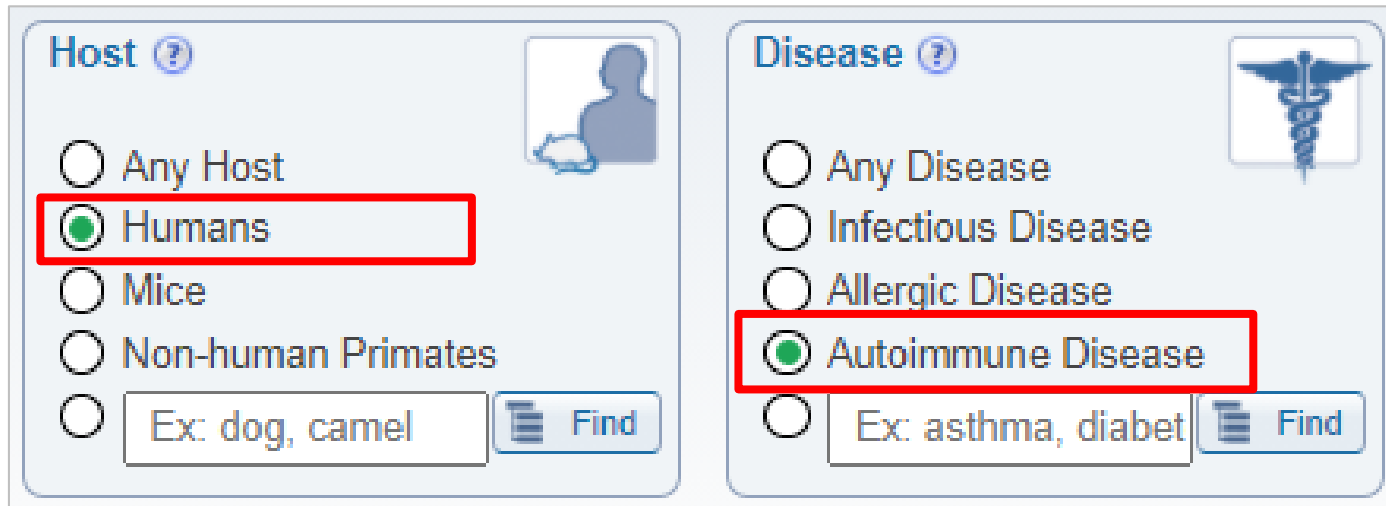
Any Host

Humans

Mice

Non-human Primates

User Query: Is there a way to derive autoantigens using the IEDB database?



The image shows a screenshot of the IEDB database search interface. It features two main panels: 'Host' and 'Disease'. The 'Host' panel includes radio buttons for 'Any Host', 'Humans', 'Mice', and 'Non-human Primates', along with a text input field containing 'Ex: dog, camel' and a 'Find' button. The 'Disease' panel includes radio buttons for 'Any Disease', 'Infectious Disease', 'Allergic Disease', and 'Autoimmune Disease', along with a text input field containing 'Ex: asthma, diabet' and a 'Find' button. Red boxes highlight the 'Humans' radio button in the Host panel and the 'Autoimmune Disease' radio button in the Disease panel.

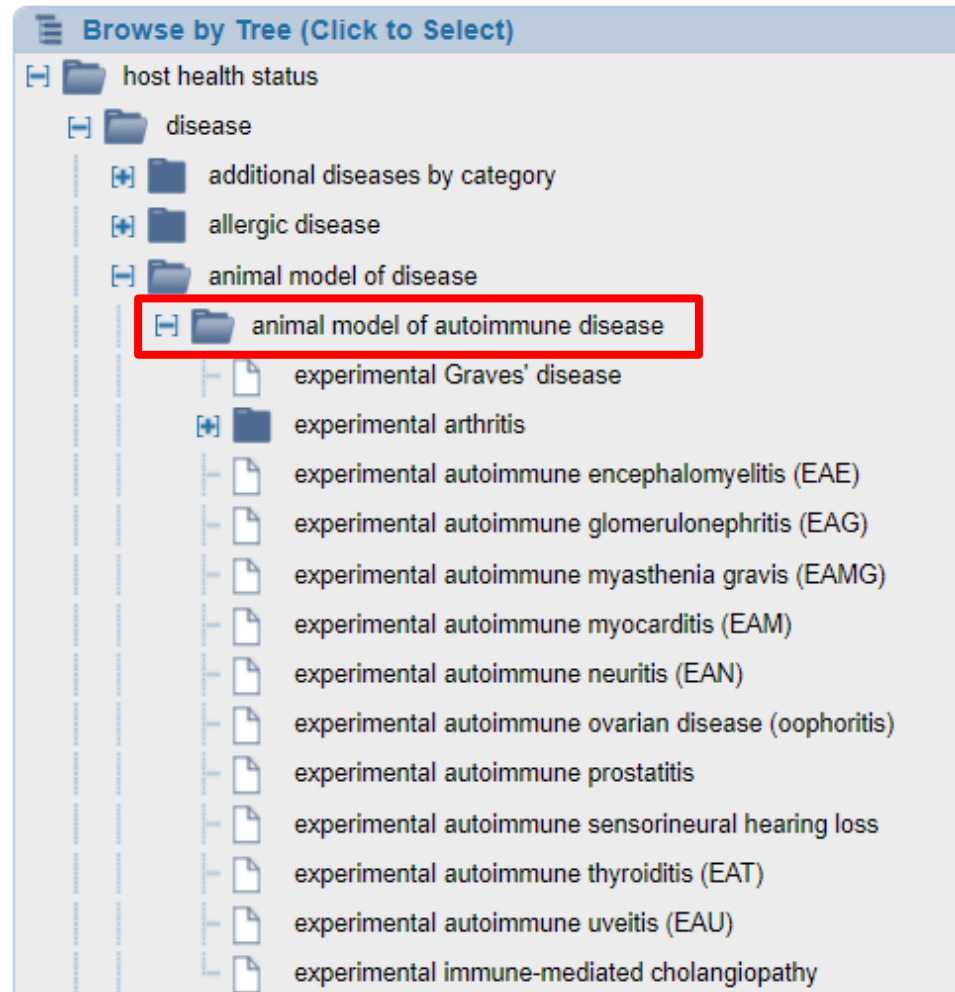
Host ⓘ

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


Disease ⓘ

- Any Disease
- Infectious Disease
- Allergic Disease
- Autoimmune Disease
- Ex: asthma, diabet

User Query: Is there a way to derive autoantigens using the IEDB database?



User Query: How can we search or analyze the **allergen** peptides binding to MHC class I or **class II** molecules?


Antigen ? 

Organism

Phleum pratense (timothy grass) (ID:15957, **timothy)**

Aurantimonas manganoxydans SI85-9A1 (Aurantimonas mangano...)

Aurantimonas manganoxydans (ID:651183)

MHC Restriction ? 

Any MHC Restriction

MHC Class I

MHC Class II

MHC Nonclassical

Ex: HLA-A*02:01

User Query: How can we search or analyze the **allergen** peptides binding to MHC class I or **class II** molecules?

Current Filters: Positive Assays Only Organism: Phleum pratense (timothy grass) (ID:15957, timothy) MHC Restriction Type: Class II

Epitopes (1158) Antigens (10) Assays (13196) Receptors (0)


T Cell Assays (1353) B Cell Assays (0) MHC Ligand Assays (11843)

Go To Records Starting At


1353 Records Found Page 1 of 55


ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation
1460417	W D Müller; Clin Exp Allergy 1998	AAGKATTEEQKLIED INVGFKAAVAAAASV PAA Pollen allergen Phl p 5b precursor (35-67) Phleum pratense (timothy grass)	Homo sapiens (human)	Allergy to Pollen from Phleum pratense (timothy grass) (Derivative of Source Organism) followed by restimulation in vitro	Pollen allergen Phl p 5b precursor Pollen allergen Phl p 5b precursor Phleum pratense (timothy grass)	Source Antigen
4991208	W D Müller; Clin Exp Allergy 1998	AAGKATTEEQKLIED INVGFKAAVAAAASV PAA Pollen allergen Phl p 5b precursor (35-67) Phleum pratense (timothy grass)	Homo sapiens (human)	Allergy to Pollen from Phleum pratense (timothy grass) (Derivative of Source Organism) followed by restimulation in vitro	Pollen from Phleum pratense (timothy grass) Phleum pratense (timothy grass)	Derivative of Source Organism
1459860	P A Würtzen; Clin Exp Allergy 1999	AALTSKLDAAAYKLAY KTAEGATPEAKYDAY VATL Pollen allergen Phl p 5a (97-130) Phleum pratense (timothy grass)	Homo sapiens (human)	Allergy to Pollen from Phleum pratense (timothy grass) (Derivative of Source Organism) followed by restimulation in vitro	AALTSKLDAAAYKLAY KTAEGATPEAKYDAY VATL Pollen allergen Phl p 5a (97-130) Phleum pratense (timothy grass)	Epitope
1459888	P A Würtzen; Clin Exp Allergy 1999	AALTSKLDAAAYKLAY KTAEGATPEAKYDAY VATL	Homo sapiens (human)	Allergy to Pollen from Phleum pratense (timothy grass) (Derivative of Source Organism) followed by restimulation in vitro	Major pollen allergen Lol p 5a precursor Major pollen allergen Lol p 5a precursor	Taxonomic Sibling


User Query: How can we search or analyze the allergen peptides **binding** to MHC class I or class II molecules?

Assay ? 


Positive Assays Only

T Cell Assays Ex: IL-2 release  Finder

B Cell Assays Ex: ELISA  Finder

MHC Ligand Assays Ex: purified MHC binding  Finder

ASSAY FINDER ?

Current Selection(s)  MHC binding assay

Search By




Name:

Method/Technique:

Measurement Of:

Units:

Browse by Tree (Click to Select)

-  MHC ligand assay
 -  MHC binding assay
 -  MHC ligand elution assay

User Query: How can we search or analyze the allergen peptides **binding** to MHC class I or class II molecules?

Current Filters: Positive Assays Only Organism: Phleum pratense (timothy grass) (ID:15957, timothy) MHC Ligand Assays: MHC binding assay MHC Restriction Type: Class II

Epitopes (662) Antigens (10) Assays (11843) Receptors (0) References (7)

T Cell Assays (0) B Cell Assays (0) MHC Ligand Assays (11843)

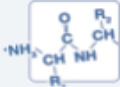
Go To Records Starting At Export Results

11843 Records Found Page 1 of 474 25 Per Page

ID	Reference	Epitope	Antigen Processing	MHC Restriction	Assay Description	Quantitative Measure
2643032	Daniel Altmann Prof 2016	VAAAPQVKYAVFEAA LTKAI Pollen allergen Phl p 5b precursor (221-240) Phleum pratense (timothy grass)		HLA-DRB1*15:02	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	1 nM
2643024	Daniel Altmann Prof 2016	VAAAPQVKYAVFEAA LTKAI Pollen allergen Phl p 5b precursor (221-240) Phleum pratense (timothy grass)		HLA-DRB1*01:01	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	1 nM
2643014	Daniel Altmann Prof 2016	GGAYDTYKCIPSLEA AVKQA Pollen allergen Phl p 5b precursor (197-216) Phleum pratense (timothy grass)		HLA-DRB1*04:01	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	.4 nM
2643029	Daniel Altmann Prof 2016	VAAAPQVKYAVFEAA LTKAI Pollen allergen Phl p 5b precursor (221-240) Phleum pratense (timothy grass)		HLA-DRB1*11:01	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	14 nM
2643027	Daniel Altmann Prof 2016	VAAAPQVKYAVFEAA LTKAI Pollen allergen Phl p 5b precursor (221-240) Phleum pratense (timothy grass)		HLA-DRB1*07:01	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	1 nM
2643028	Daniel Altmann Prof 2016	VAAAPQVKYAVFEAA LTKAI Pollen allergen Phl p 5b precursor (221-240) Phleum pratense (timothy grass)		HLA-DRB1*09:01	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	.3 nM
2643013	Daniel Altmann Prof 2016	GGAYDTYKCIPSLEA AVKQA Pollen allergen Phl p 5b precursor (197-216) Phleum pratense (timothy grass)		HLA-DRB1*01:01	purified MHC/competitive/fluorescence half maximal inhibitory concentration (IC50) Positive-High	1 nM


User Query: How can we search or analyze the **allergen peptides** binding to **MHC class I** or class II molecules?

START YOUR SEARCH HERE ?

Epitope ? 


Any Epitopes
 Linear Epitope
 Discontinuous Epitopes
 Non-peptidic Epitopes

Exact M

Assay ? 


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

Ex: neutralization

Antigen ? 


Organism

Antigen Name

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

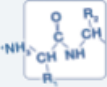
User Query: How can we search or analyze the **allergen peptides** binding to **MHC class I** or **class II** molecules?

Current Filters: Positive Assays Only MHC Restriction Type: Class I Disease Data: Allergic Disease


Epitopes (46)	Antigens (18)	Assays (115)	Receptors (0)	References (32)	
Go To Records Starting At <input type="text" value="1200"/> <input type="button" value="GO"/> Export Results					
46 Records Found <input type="button" value="Previous"/> <input type="button" value="Next"/> Page <input type="text" value="1"/> of 2 <input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="text" value="25"/> Per Page					
Details	Epitope	Antigen	Organism	# References	# Assays
	nickel atom			6	14
	sulfamethoxazole			5	8
	abacavir			3	5
	carbamazepine			3	12
	2,4-dinitrophenyl group			2	7
	benzylpenicillin			2	2
	piperacillin			2	7
	LELQFRRVKCKY	Phl p 1	Phleum pratense (timothy grass)	1	2
	MMIEEYPYV	Der p 1	Dermatophagoides pteronyssinus (European house dust mite)	1	3
	SLDLAEQEL	Der p 1	Dermatophagoides pteronyssinus (European house dust mite)	1	3
	SQFGGSQY	Eukaryotic translation initiation factor 3 subunit D	Homo sapiens (human)	1	1
	YLAYRNQSL	Der p 1	Dermatophagoides pteronyssinus (European house dust mite)	1	3
	YMIDPSGVSY	Proteasome endopeptidase complex (UniProt:G3V4X5)	Homo sapiens (human)	1	1
	1,4-phenylenediamine			1	8
	nitrososulfamethoxazole			1	2
	phenoxymethylpenicillin			1	1
	parthenolide			1	2

User Query: How can we search or analyze the **allergen peptides** binding to MHC class I or **class II** molecules?


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


Antigen Name

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, diabet

User Query: How can we search or analyze the **allergen peptides** binding to MHC class I or **class II** molecules?

Current Filters: Positive Assays Only MHC Restriction Type: Class II Disease Data: Allergic Disease

Epitopes (4549) Antigens (242) Assays (8011) Receptors (51) References (345)

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

4549 Records Found Page of 182 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
113234	nickel atom			26	89
114078	beryllium atom			13	33
114080	1,4-phenylenediamine			12	41
112741	2,4-dinitrophenyl group			11	18
114070	benzylpenicillin			9	28
114999	sulfamethoxazole			9	82
30059	KCIEWEKAQHGA	Art v 1	Artemisia vulgaris (mugwort)	8	25
64937	TLLRAVESYLLA	Bet v 1	Betula pendula (white birch)	8	36
14464	ETLLRAVESYLLAHS	Bet v 1	Betula pendula (white birch)	6	40
16485	FKYNYSVIEGGP	Bet v 1	Betula pendula (white birch)	6	11
53231	RAVESYLLAHS	Bet v 1	Betula pendula (white birch)	6	8
58605	SILKISNKYHTK	Bet v 1	Betula pendula (white birch)	6	10
115020	benzylpenicilloyl group			6	11
12409	EICPAVKRDVDLFLTGT	Fel d 1	Felis catus (cat)	5	8
14643	EVDHTNFKYNYS	Bet v 1	Betula pendula (white birch)	5	5
19597	GFPFKYVKDRVD	Bet v 1	Betula pendula (white birch)	5	10
27784	IPAARLFKAFIL	Bet v 1	Betula pendula (white birch)	5	6
38854	LQIIDKIDAAFVAA	Phl p 5	Phleum pratense (timothy grass)	5	14

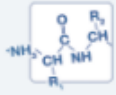
User Query: Navigating the IEDB resource efficiently for vaccine development

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
Influenza A virus (ID:11320) ¹


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**

User Query: Navigating the IEDB resource efficiently for vaccine development

Current Filters: ✖ Positive Assays Only ✖ Organism: Influenza A virus (ID:11320, influenza A) ✖ No T cell assays ✖ No MHC ligand assays

Epitopes (1183)
Antigens (15)
Assays (6439)
Receptors (101)
References (450)

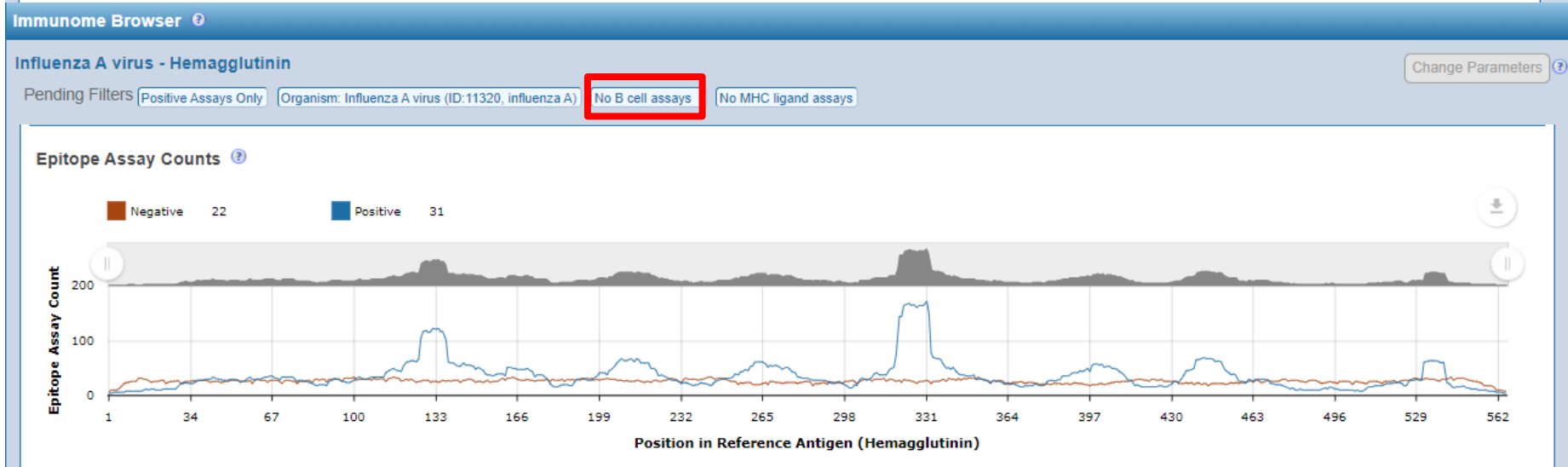
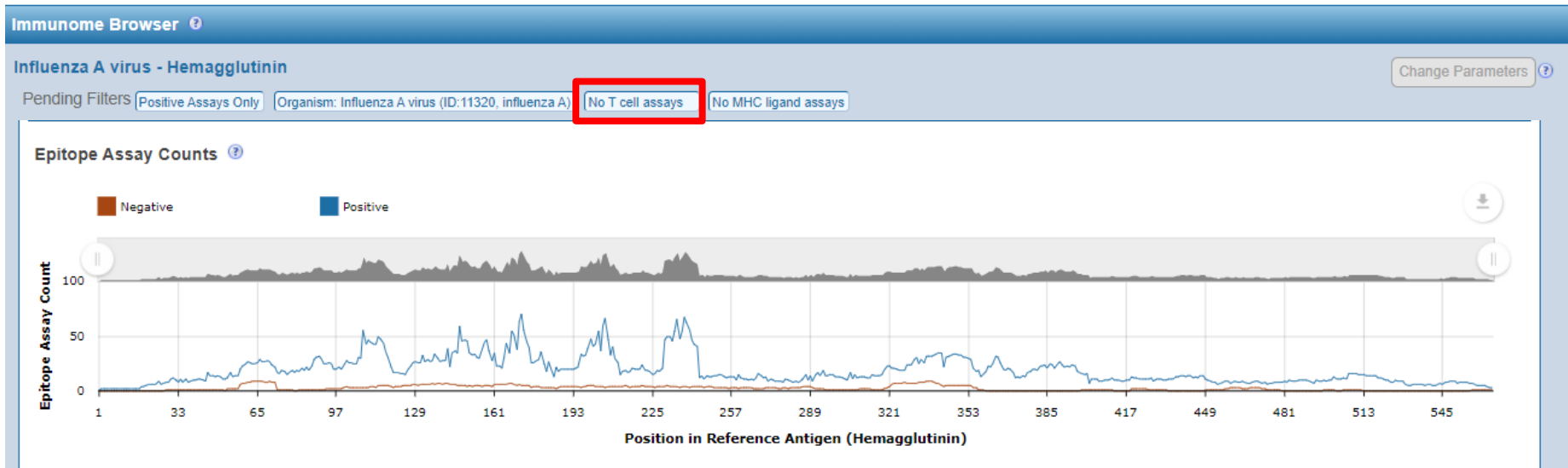
Go To Records Starting At GO Export Results

15 Records Found Page 1 of 1 25 Per Page

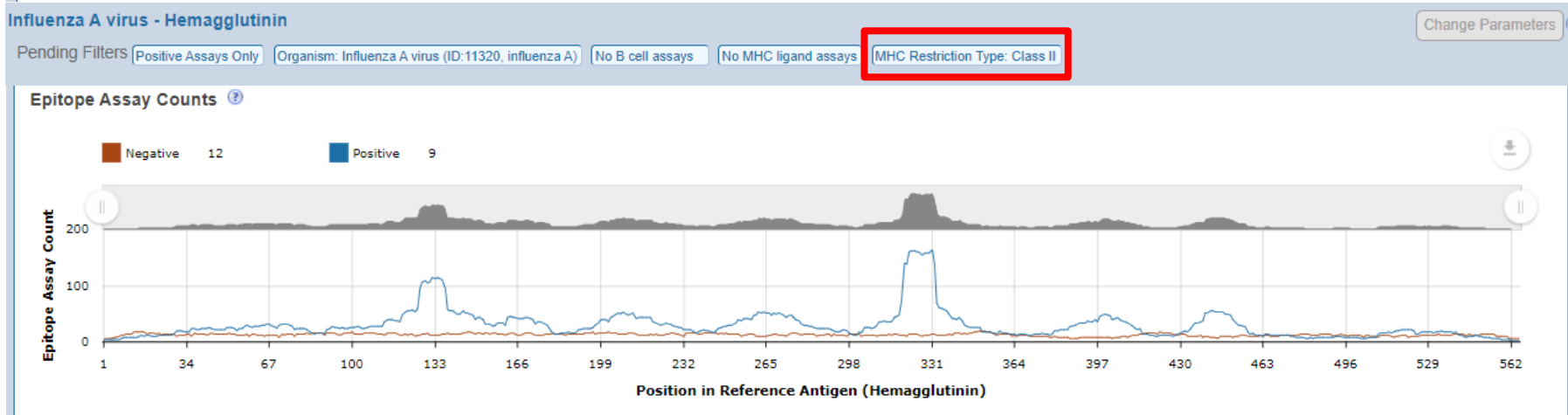
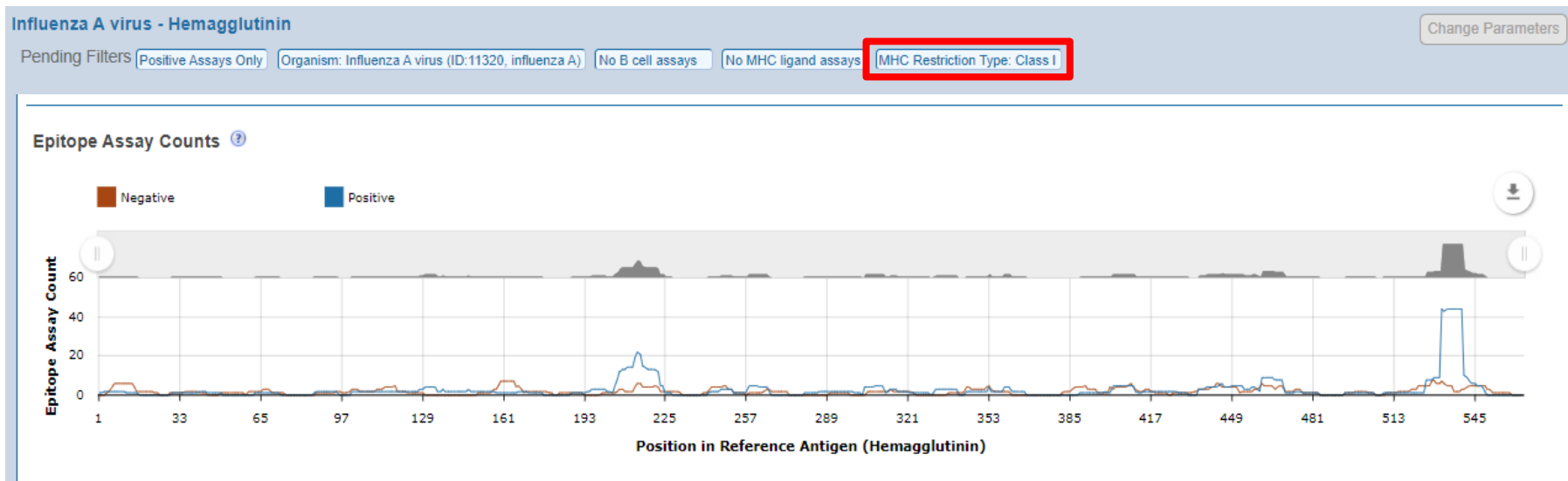
Antigen	Organism	# Epitopes	# Assays	# References
Hemagglutinin	Influenza A virus	883	4170	284
Matrix protein 2	Influenza A virus	90	640	86
Two components:Hemagglutinin & Hemagglutinin	Influenza A virus	40	927	36
Neuraminidase	Influenza A virus	82	438	33
Nucleoprotein	Influenza A virus	27	100	16
Matrix protein 1	Influenza A virus	17	47	11
Non-structural protein 1	Influenza A virus	14	59	7
Polymerase acidic protein	Influenza A virus	8	10	4
Polymerase basic protein 2	Influenza A virus	5	5	3
Nuclear export protein	Influenza A virus	5	6	3
Two components:Neuraminidase & Neuraminidase	Influenza A virus	2	13	3
Other Influenza A virus protein	Influenza A virus	3	10	2
RNA-directed RNA polymerase catalytic subunit	Influenza A virus	3	7	2
Protein PB1-F2	Influenza A virus	3	3	1
Two components:Polymerase acidic protein & Polymerase basic protein 2	Influenza A virus	1	4	1

15 Records Found Page 1 of 1 25 Per Page

User Query: Navigating the IEDB resource efficiently for vaccine development



User Query: Navigating the IEDB resource efficiently for vaccine development



User Query: Cross reactivity arising from similar epitopes – Zika and Dengue

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

Antigen Name

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

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

Antigen Name

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
 dengue disease (ID:1000000000)

User Query: Cross reactivity arising from similar epitopes – Zika and Dengue

Current Filters: ✖ Positive Assays Only ✖ Organism: Zika virus (ID:64320) ✖ Disease Data: dengue disease (ID:DOID:12205, Dengue Fever)

Epitopes (66) Antigens (2) Assays (102) Receptors (3) References (10)

Go To Records Starting At Export

66 Records Found Page of 3

Details	Epitope	Antigen	Organism	# References	# A
547255	M358, S360, Q367, D373, R389, G394, R542, Q543, T6...	Genome polyprotein	Zika virus	1	5
547256	S360, D361, S362, R363, R389, G392, G394, V443, K5...	Genome polyprotein	Zika virus	1	5
569843	A: R2, H27, V46, T47, M140, S149, G150, M151, I152...	Two components:Genome polyprotein & Genome polyprotein	Zika virus	1	1
591797	YGTCHHKKGEARRSR	Genome polyprotein	Zika virus	1	1
740832	A: R2, H27, V46, T47, M140, S149, G150, M151, I152...	Two components:Genome polyprotein & Genome polyprotein	Zika virus	1	2
857759	AGITYDRRWCFDGT	Genome polyprotein	Zika virus	1	2
857760	AIFMTATPPGTRDAF	Genome polyprotein	Zika virus	1	4
857780	KRGDLPVWL	Genome polyprotein	Zika virus	1	4
857781	KRGDLPVWLAYQVAS	Genome polyprotein	Zika virus	1	6
857785	LRTVILAPTRVAAE	Genome polyprotein	Zika virus	1	1
857788	MVLAILAFLRFTAIK	Genome polyprotein	Zika virus	1	1
857792	PNYNLYIMDEAHFTD	Genome polyprotein	Zika virus	1	1
857811	YIMDEAHFTDPSSIA	Genome polyprotein	Zika virus	1	4
857862	DVGCSDVDFSKKETRCGTG	Genome polyprotein	Zika virus	1	1
886475	TLVDRGWNGCGLFGKGS	Genome polyprotein	Zika virus	1	4
919519	AGPLSHHNTREGYRTQMK	Genome polyprotein	Zika virus	1	1

User Query: Cross reactivity arising from similar epitopes – Zika and Dengue

Current Filters: Positive Assays Only Organism: Zika virus (ID:64320) Disease Data: dengue disease (ID:DOID:12205, Dengue Fever)

Epitopes (66) Antigens (2) Assays (102) Receptors (3) References (10)

T Cell Assays (23) B Cell Assays (79) MHC Ligand Assays (0)

Go To Records Starting At Export Re

23 Records Found Page 1 of 1 25

ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
4624653	Mei Qiu Lim; Front Immunol 2018	MVLAILAFLRFTAIK polyprotein (46-60) Zika virus	Homo sapiens (human)	Infectious disease via exposure to Dengue virus (Taxonomic Sibling) followed by restimulation in vitro	MVLAILAFLRFTAIK polyprotein (46-60) Zika virus	Epitope		ICS IFNγ release Positive-Low
4624665	Mei Qiu Lim; Front Immunol 2018	AIFMTATPPGTRDAF nonstructural protein NS3 (312-326) Zika virus	Homo sapiens (human)	Infectious disease via exposure to Dengue virus (Taxonomic Sibling) followed by restimulation in vitro	AIFMTATPPGTRDAF nonstructural protein NS3 (312-326) Zika virus	Epitope		ICS IFNγ release Positive
4624709	Mei Qiu Lim; Front Immunol 2018	KRGDLPVWL nonstructural protein NS3 (537-545) Zika virus	Homo sapiens (human)	Infectious disease via exposure to Dengue virus (Taxonomic Sibling) followed by restimulation in vitro	KRGDLPVWL nonstructural protein NS3 (537-545) Zika virus	Epitope		ICS IFNγ release Positive
4624666	Mei Qiu Lim; Front Immunol 2018	KRGDLPVWLAYQVA S nonstructural protein NS3 (537-551) Zika virus	Homo sapiens (human)	Infectious disease via exposure to Dengue virus (Taxonomic Sibling) followed by restimulation in vitro	KRGDLPVWLAYQVA S nonstructural protein NS3 (537-551) Zika virus	Epitope		ICS IFNγ release Positive
4624669	Mei Qiu Lim; Front Immunol 2018	KRGDLPVWLAYQVA S nonstructural protein NS3 (537-551) Zika virus	Homo sapiens (human)	Infectious disease via exposure to Dengue virus (Taxonomic Sibling) followed by restimulation in vitro	KRGDLPVWLAYQVA S nonstructural protein NS3 (537-551) Zika virus	Epitope		ICS IFNγ release Positive

User Query: Cross reactivity arising from similar epitopes – Self and Virus

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

Antigen Name

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

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

Antigen Name

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
 viral infectious disease

User Query: Cross reactivity arising from similar epitopes – Self and Virus

Current Filters: ✖ Positive Assays Only ✖ Organism: Homo sapiens (human) (ID:9606, human) ✖ Disease Data: viral infectious disease (ID:DOID:934, Viral disease)

Epitopes (154) Antigens (85) Assays (335) Receptors (3) References (48)

Go To Records Starting At Export Results

154 Records Found Page of 7 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
36357	LGYGFVNYI	ELAV-like protein 4	Homo sapiens (human)	3	7
122748	EHRMTWDPAPPR	Cytochrome P450 2D6	Homo sapiens (human)	3	3
36358	LGYGFVNYV	ELAV-like protein 1 (UniProt:Q15717)	Homo sapiens (human)	2	3
122486	MILHPDVQRRVQEIDDVI	Cytochrome P450 2D6	Homo sapiens (human)	2	3
122607	TEAFLAEMEK	Cytochrome P450 2D6	Homo sapiens (human)	2	2
130673	alpha-Neu5Ac-(2->8)-alpha-Neu5Ac-(2->3)-beta-Gal-D-(1->3)-beta-D-GalNAc-(1->4)-[alpha-Neu5Ac-(2->8)-alpha-Neu5Ac-(2->3)]-beta-D-Gal-(1->4)-beta-D-Glc-(1<->1')-Cer			2	3
2677	ALKTELEDTLSTATQQELR	Myosin-11 (UniProt:P35749)	Homo sapiens (human)	1	1
6015	CAPESIEFPVSEARVLED	Integrin beta-3	Homo sapiens (human)	1	1
12994	ELDQENEAALENGKNEENT	Matrin-3 (UniProt:P43243)	Homo sapiens (human)	1	1
13735	EPQVYTLPPSR	Immunoglobulin heavy constant gamma 1 (Fragment) (UniProt:A0A0A0MS08)	Homo sapiens (human)	1	1
16000	FGKLNLSKSI	Toll-like receptor 5 (UniProt:O60602)	Homo sapiens (human)	1	1
16172	FIDLN SSRNL	Solute carrier family 23 member 2	Homo sapiens (human)	1	1
16688	FLKGNIKKEL	Heme oxygenase 2	Homo sapiens (human)	1	1
16692	FLKKNRKKKL	ATP-dependent RNA helicase DDX18	Homo sapiens (human)	1	1
17048	FMKHNTSRQN	Unconventional myosin-Va (UniProt:Q9Y4I1)	Homo sapiens (human)	1	1
18135	FVDLNNGKFY	DNA repair protein RAD52 homolog (UniProt:P43351)	Homo sapiens (human)	1	1
18216	FVKRNRGGKY	Neural cell adhesion molecule L1-like protein (UniProt:O00533)	Homo sapiens (human)	1	1
18379	FYDNNTGKLI	Striatin	Homo sapiens (human)	1	1

User Query: Cross reactivity arising from similar epitopes – Self and Virus

Current Filters: ✖ Positive Assays Only ✖ Organism: Homo sapiens (human) (ID:9606, human) ✖ Disease Data: viral infectious disease (ID:DOID:934, Viral disease)

Epitopes (-) Antigens (-) Assays (331) Receptors (3) References (-)

T Cell Assays (238) B Cell Assays (93) MHC Ligand Assays (-)

Go To Records Starting At Export Results

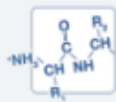
93 Records Found Page 1 of 4 25 Per Page

ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	Assay Description
1953462	K Kaida; J Neuroimmunol 2001	beta-D-GalNAc-(1->4)-[alpha-Neu5Ac-(2->3)]-beta-D-Gal-(1->3)-beta-D-GalNAc-(1->4)-[alpha-Neu5Ac-(2->3)]-beta-D-Gal-(1->4)-beta-D-Glc-(1-<1)-Cer Homo sapiens (human)	Homo sapiens (human)	Infectious disease via exposure to Human herpesvirus 5 (Human cytomegalovirus) followed by Occurrence of autoimmune disease (Guillain-Barre syndrome)	beta-D-GalNAc-(1->4)-[alpha-Neu5Ac-(2->3)]-beta-D-Gal-(1->4)-beta-D-Glc-(1-<1)-Cer Homo sapiens (human)	Structurally Related	antigen inhibition qualitative binding Positive-High
1816261	C W Ang; Neurology 2000	ganglioside GM2 (18:0) Homo sapiens (human)	Homo sapiens (human)	Infectious disease via exposure to Herpesvirus (Structurally Related) followed by Occurrence of autoimmune disease (Guillain-Barre syndrome)	ganglioside GM2 (18:0) ganglioside GM2 (18:0) Homo sapiens (human)	Epitope	antigen inhibition qualitative binding Positive
1936454	Aristotelis Tsiakalos; J Infect Dis 2011	NFLRGKCLKLYTGEA C RTGDR Erythropoietin (174-193) Homo sapiens (human)	Homo sapiens (human)	Infectious disease via exposure to Human immunodeficiency virus 1 (human immunodeficiency virus 1 HIV-1)	NFLRGKCLKLYTGEA C RTGDR Erythropoietin (174-193) Homo sapiens (human)	Epitope	antigen inhibition qualitative binding Positive
1936452	Aristotelis Tsiakalos; J Infect Dis 2011	RMEVGQQAVEVWQ GL ALLSE Erythropoietin (80-99) Homo sapiens (human)	Homo sapiens (human)	Infectious disease via exposure to Human immunodeficiency virus 1 (human immunodeficiency virus 1 HIV-1)	RMEVGQQAVEVWQ GL ALLSE Erythropoietin (80-99) Homo sapiens (human)	Epitope	antigen inhibition qualitative binding Positive
1816264	C W Ang; Neurology 2000	alpha-N-acetylneuraminosyl-(2->3)-[beta-D-galactosyl-(1->3)-N-acetyl-beta-D-	Homo sapiens (human)	Infectious disease via exposure to Herpesvirus (Structurally Related) followed by Occurrence of	alpha-N-acetylneuraminosyl-(2->3)-[beta-D-galactosyl-(1->3)-N-acetyl-beta-D-	Epitope	antigen inhibition qualitative binding Positive


User Query:
Protective epitopes
from *Sarcocystis*
neurona No *S.*
neuroa in IEDB

Showing protective
epitopes from **foot-**
and-mouth disease
virus in cattle


START YOUR SEARCH HERE ?

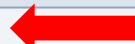
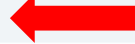
Epitope ? 


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 


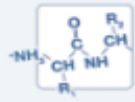
MHC Restriction ? 


Any MHC Restriction
 MHC Class I


A Dactylis glomerata (cocksfoot) (ID:4509, cocks**foot**)
 Chenopodium album (lamb's-quarters) (ID:3559, white goose**foot**)
Amaranthaceae (amaranth family) (ID:3563, goose**foot** family)
H **Foot-and-mouth disease virus (ID:12110, Foot and mouth di...**
 Foot-and-mouth disease virus - type C (Aphthovirus C) (ID:1211...
 Foot-and-mouth disease virus - type A (Aphthovirus A) (ID:1211...
 Foot-and-mouth disease virus - type O (Aphthovirus O) (ID:1211...
 Foot-and-mouth disease virus (strain A5) (Foot and mouth disea...
 Foot-and-mouth disease virus C1 (Foot-and-mouth disease viru...
 Foot-and-mouth disease virus C3 (ID:46290)


Example Query:
Finding protective epitopes from foot-and-mouth disease virus in cattle


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
 1
Antigen Name
Ex: core, capsid, myosin

Host ? 
 Any Host
 Humans
 Mice
 Non-human Primates

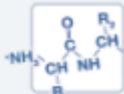
MHC Restriction ? 
 Any MHC Restriction
 MHC Class I
 MHC Class II
 MHC Nonclassical
Ex: HLA-A*02:01

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


Bos taurus (bovine) (ID:9913, **cattle**)
Bos indicus (zebu) (ID:9915, zebu **cattle**)
Bos (oxen, cattle) (ID:9903, oxen, cattle)

Example Query:
Finding **protective**
epitopes from
foot-and-mouth
disease virus in
cattle


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
 ¹
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
 Bos (oxen, cattle) ¹

Disease ? 

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

Example Query: Finding **protective** epitopes

ASSAY FINDER ⓘ

Current Selection(s)

Search By

Name:

Method/Technique:

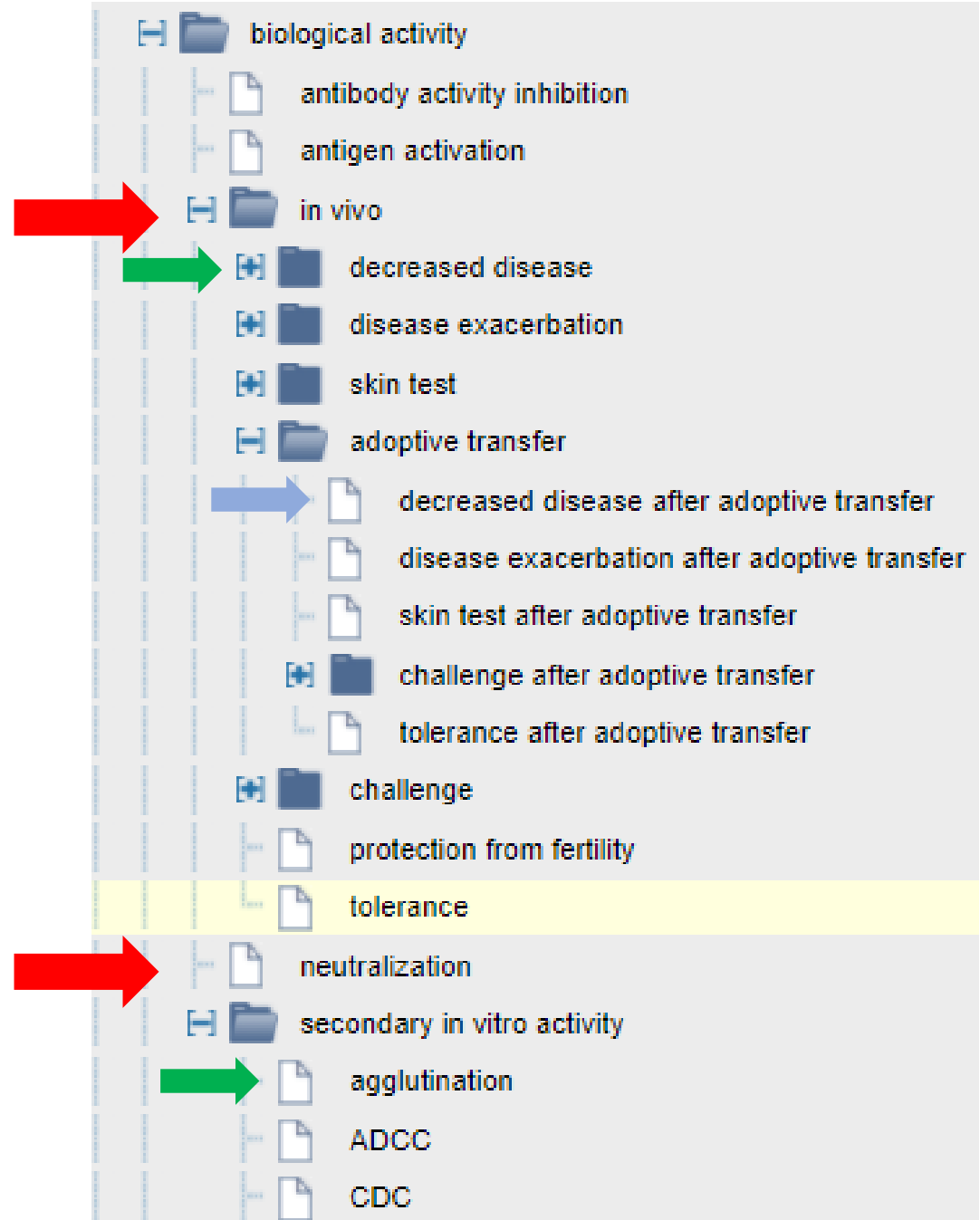
Measurement Of:

Units:

Browse by Tree (Click to Select)

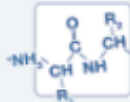
- immune epitope assay
 - T cell assay
 - B cell assay
 - 3D structure
 - binding constant
 - biological activity
 - qualitative binding
 - MHC ligand assay
- 3D structure
- binding constant
- biological activity
 - antibody activity inhibition
 - antigen activation
 - in vivo
 - decreased disease
 - disease exacerbation
 - skin test
 - adoptive transfer
 - challenge
 - protection from fertility
 - tolerance
 - neutralization**
 - secondary in vitro activity

Example Query: Finding **protective** epitopes



Example Query: Finding **protective** epitopes from foot -and-mouth disease virus in cattle


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

decreased disease, cr ³


Antigen ? 

Organism

Foot-and-mouth disease vir ¹


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

Bos (oxen, cattle) ¹

Disease ? 

Any Disease
 Infectious Disease
 Allergic Disease
 Autoimmune Disease

Ex: asthma, diabet

Example Query: Finding **protective** epitopes from foot-and-mouth disease virus in cattle

Current Filters: Positive Assays Only Organism: Foot-and-mouth disease virus (ID:12110, Foot and mouth disease virus) B Cell Assays: decreased disease, challenge, neutralization

Host: Bos (oxen, cattle) (ID:9903, Bos)


Epitopes (26) Antigens (1) Assays (48) Receptors (0) References (18)

Go To Records Starting At 1200 Export Results


26 Records Found Page 1 of 2 25 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
1453	AGARRGDLAHLAAAHARHLP	Genome polyprotein	Foot-and-mouth disease virus	3	5
54058	RHKQKIVAPVKQTL	Genome polyprotein	Foot-and-mouth disease virus	2	3
56657	RYSRNAVPNV	Genome polyprotein	Foot-and-mouth disease virus	2	3
56658	RYSRNAVPNVRGDLQVLAQKVARTLP	Genome polyprotein	Foot-and-mouth disease virus	2	2
70390	VPNLRGDLQVLAQKVART	Genome polyprotein	Foot-and-mouth disease virus	2	3
78268	SASGSGVVRGDFGSLAPRVARQLPASFNYYGAIK	Genome polyprotein	Foot-and-mouth disease virus	2	5
1722	AGVRRGDLAHLAAAHARHLP	Genome polyprotein	Foot-and-mouth disease virus	1	2
34592	KYSAGGMGRRRDLEPLAARVAACL	Genome polyprotein	Foot-and-mouth disease virus	1	2
56565	RYKQKIAPAKQLL	Genome polyprotein	Foot-and-mouth disease virus	1	1
56603	RYNRNAVPNLRGDLQVLAQKVARTLP	Genome polyprotein	Foot-and-mouth disease virus	1	1
60783	SRRGDLGSLATRVATQ	Genome polyprotein	Foot-and-mouth disease virus	1	1
77239	L147	Genome polyprotein	Foot-and-mouth disease virus	1	2
77427	E553, C364	Genome polyprotein	Foot-and-mouth disease virus	1	1
77428	N770	Genome polyprotein	Foot-and-mouth disease virus	1	1
77429	T464	Genome polyprotein	Foot-and-mouth disease virus	1	1
164149	D359	Genome polyprotein	Foot-and-mouth disease virus	1	3
164150	E562	Genome polyprotein	Foot-and-mouth disease virus	1	1
164151	L872	Genome polyprotein	Foot-and-mouth disease virus	1	1
164152	Q873	Genome polyprotein	Foot-and-mouth disease virus	1	1
181767	PVTNVRGDLQVLAQKAART	Genome polyprotein	Foot-and-mouth disease virus	1	3
189190	K41, K45, I48, L51	Genome polyprotein	Foot-and-mouth disease virus	1	1
189191	S72, K134	Genome polyprotein	Foot-and-mouth disease virus	1	1
189192	K85, E95, N133, N164	Genome polyprotein	Foot-and-mouth disease virus	1	1
189193	S8, D71, A75, E131, T174, N179, R219	Genome polyprotein	Foot-and-mouth disease virus	1	1
189194	T140, N143, V144, R201, K204, V209	Genome polyprotein	Foot-and-mouth disease virus	1	1

User Query: Full analysis of Ebola virus

Antigen ? 

Organism

MHC Restriction ? 

Any MHC Restriction

MHC Class I

- Ebola virus (Ebola) (ID:1570291, **EBOV**)
- Reston ebolavirus (Ebola virus Reston) (ID:186539, **REBOV**)
- Sudan ebolavirus (Sudan Ebola virus) (ID:186540, **SEBOV**)
- Zaire ebolavirus (Zaire Ebola virus) (ID:186538, **ZEBOV**)
- Tai Forest ebolavirus (Cote d'Ivoire ebolavirus) (ID:186541, **CIEB...**)
- Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayin...)
- Amoebozoan (ID:554915, Amoe**bo**zoa)
- Ebolavirus (Ebola-like viruses) (ID:186536, **Ebolavirus**)
- Ebola virus sp. (Ebola virus EBO) (ID:205488, Ebola virus **EBO**)
- Zaire ebolavirus Makona (Ebola virus Makona) (ID:1891187, **Ebol...**)

User Query: Full analysis of Ebola virus

Current Filters: ✖ Positive Assays Only ✖ Organism: Ebola virus (Ebola) (ID:1570291, Ebola)

Epitopes (231)	Antigens (8)	Assays (418)	Receptors (13)	References (24)
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Go To Records Starting At [Export Results](#)

231 Records Found Page 1 of 10 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
16337	FIYFGKKQY	RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	2	3
18186	FVHSGFIYF	RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	2	2
23396	GYLEGTRTL	RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	2	2
26670	IISDLSIFI	RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	2	2
29799	KAFPSNMMV	RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	2	2
37081	LLADGLAKA	RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	2	2
442032	T270, K272	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	2	6
1091	AENCYNLEI	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
2155	AKATGRYNL	Membrane-associated protein VP24	Zaire ebolavirus (Zaire Ebola virus)	1	1
4933	ATEDPSSGY	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
7754	DDDIPF	Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	2
8748	DIPFP	Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	4
8777	DISEATQVEQHRRTDND	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
8885	DKIDQIHFVVKTL	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
9996	DRLASTVIY	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
10496	DTTIP	Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	3
14569	ETTQALQLF	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
14919	EWAENCYNL	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
15520	FEEMYRHILRSQGPFDVLYYHMMKD	Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
16117	FHKRVEPL	Hexameric zinc-finger protein VP30	Zaire ebolavirus (Zaire Ebola virus)	1	1
16888	FLSFASLFL	Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	3
16985	FLYDRLAST	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
17527	FQQTNAMVT	Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1
17945	FTFDLTALK	Matrix protein VP40	Zaire ebolavirus (Zaire Ebola virus)	1	1
20619	GKLIWKVNPEIDTTI	Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	1	1

User Query: Full analysis of Ebola virus

Current Filters: ✕ Positive Assays Only ✕ Organism: Ebola virus (Ebola) (ID:1570291, Ebola)

[Epitopes \(231\)](#)
[Antigens \(8\)](#)
[Assays \(418\)](#)
[Receptors \(13\)](#)
[References \(24\)](#)

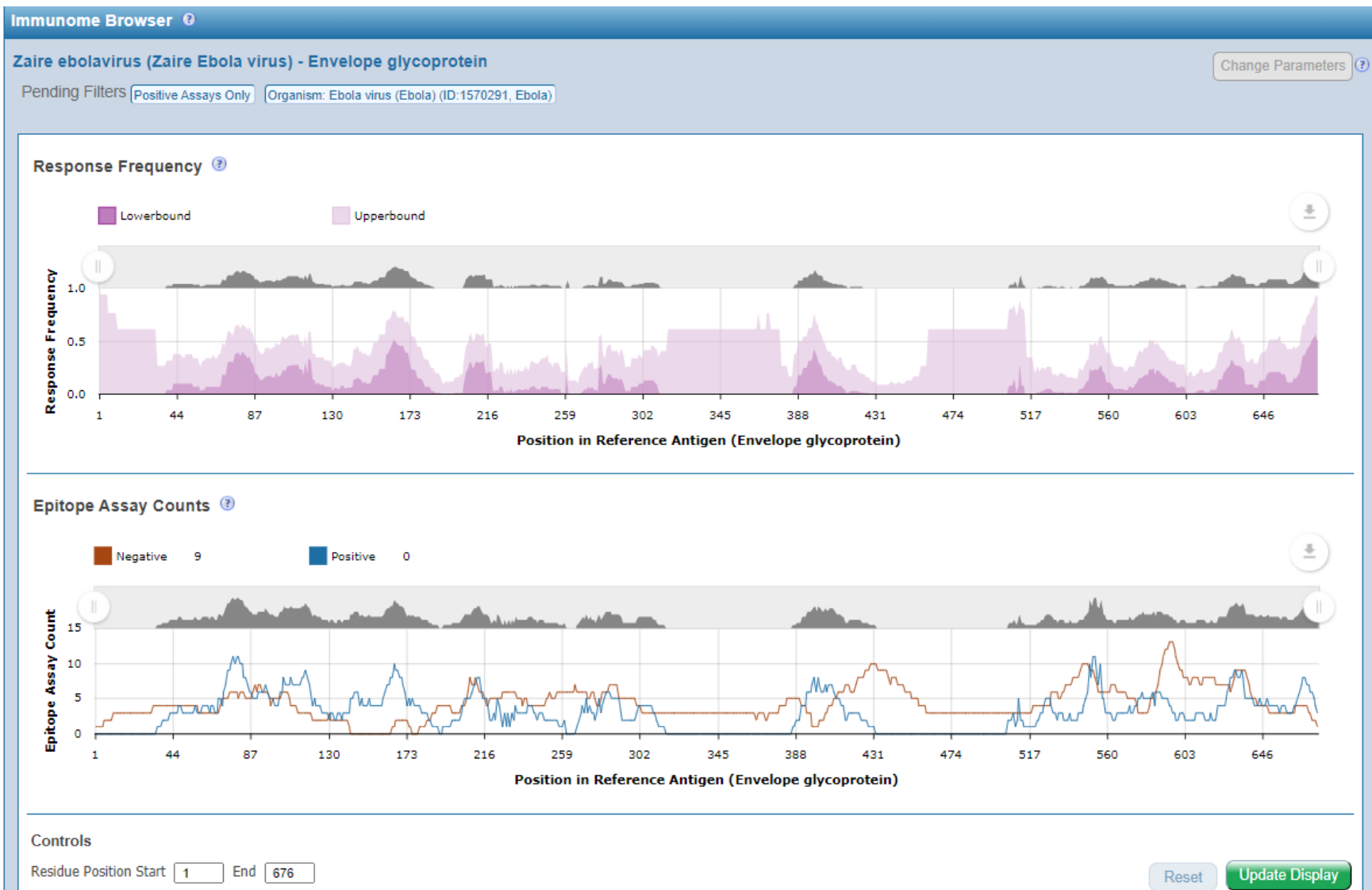
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Antigen	Organism	# Epitopes	# Assays	# References
Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	175	288	14
Nucleoprotein	Zaire ebolavirus (Zaire Ebola virus)	21	61	6
Two components:Envelope glycoprotein & Envelope glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	6	32	5
RNA-directed RNA polymerase L	Zaire ebolavirus (Zaire Ebola virus)	7	14	2
Matrix protein VP40	Zaire ebolavirus (Zaire Ebola virus)	7	8	1
Membrane-associated protein VP24	Zaire ebolavirus (Zaire Ebola virus)	11	11	1
Hexameric zinc-finger protein VP30	Zaire ebolavirus (Zaire Ebola virus)	1	1	1
Pre-small/secreted glycoprotein	Zaire ebolavirus (Zaire Ebola virus)	3	3	1

8 Records Found Page 1 of 1 25 Per Page

User Query: Full analysis of Ebola virus



User Query: Full analysis of Ebola virus

Current Filters: Positive Assays Only Organism: Ebola virus (Ebola) (ID:1570291, Ebola)

Epitopes (231) Antigens (8) Assays (418) Receptors (13) References (24)

T Cell Assays (161) B Cell Assays (206) MHC Ligand Assays (51)

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ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
1361496	Krishnan Sundar, Virology 2007	KLTEAITAA Nucleoprotein (404-412) Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayinga))	Mus musculus HLA-A2.1 Tg	Administration in vivo with KLTEAITAA (Epitope)	KLTEAITAA Nucleoprotein (404-412) Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayinga))	Epitope	HLA-A*02:01	ELISPOT IFNγ release Positive
1361495	Krishnan Sundar, Virology 2007	RLMRTNFLI Nucleoprotein (202-210) Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayinga))	Mus musculus HLA-A2.1 Tg	Administration in vivo with RLMRTNFLI (Epitope)	RLMRTNFLI Nucleoprotein (202-210) Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayinga))	Epitope	HLA-A*02:01	ELISPOT IFNγ release Positive
1361493	Krishnan Sundar, Virology 2007	FLSFASLFL Nucleoprotein (150-158) Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayinga))	Mus musculus HLA-A2.1 Tg	Administration in vivo with FLSFASLFL (Epitope)	FLSFASLFL Nucleoprotein (150-158) Ebola virus - Mayinga, Zaire, 1976 (Ebola virus (strain Zaire Mayinga))	Epitope	HLA-A*02:01	ELISPOT IFNγ release Positive
6362580	Jonathan Powison, Cell Rep 2019	DKIDQIHFVVDK TL Envelope glycoprotein precursor (621-635) Ebola virus (Ebola)	Homo sapiens (human)	Administration in vivo with GP (Taxonomic Child)	DKIDQIHFVVDK TL Envelope glycoprotein precursor (621-635) Ebola virus (Ebola)	Epitope		ELISPOT IFNγ release Positive
6362616	Jonathan Powison, Cell Rep 2019	DRLASTVIY Envelope glycoprotein precursor (163-171) Ebola virus	Homo sapiens (human)	Administration in vivo with GP (Taxonomic Child)	DRLASTVIY Envelope glycoprotein precursor (163-171) Ebola virus (Ebola)	Epitope		ELISPOT IFNγ release Positive

User Query: Full analysis of Ebola virus

Host Name	Host ID	Host Geoloc	Host MHC Ty	1st in vivo Process	1st in vivo Disease	1st in vivo Disease	1st in vivo Immun	1st in vivo Immun	1st in vivo Immun
Mus musculus BALB/c	10000000			Administration in vivo			Source An	Protein	Nucleoproc
Mus musculus BALB/c	10000000			Administration in vivo	healthy		Source An	Protein	Nucleoproc
Mus musculus BALB/c	10000000			Administration in vivo	healthy		Source An	Protein	Nucleoproc
Mus musculus BALB/c	10000000			Administration in vivo	healthy		Source An	Protein	Nucleoproc
Mus musculus BALB/c	10000000			Administration in vivo			Source An	Protein	Envelope
Mus musculus BALB/c	10000000			Administration in vivo			Source An	Protein	Envelope
Mus musculus BALB/c	10000000			Administration in vivo			Source An	Protein	Envelope
Mus musculus BALB/c	10000000			Administration in vivo			Source An	Protein	Envelope
Mus musculus BALB/c	10000000			Administration in vivo			Source Or	Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Mus muscu				Administration in viv				Organism	Ebola viru
Homo sapie				ic Occurrence of infect				Organism	Ebola viru
Homo sapie				ic Occurrence of infect				Organism	Ebola viru
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Macaca fasc				Administration in viv				Protein	envelope
Homo sapie				ic Occurrence of infect				Organism	Ebola viru

Sort A to Z
Sort Z to A
Sort by Color
Clear Filter From "Name"
Filter by Color
Text Filters

Search

- (Select All)
- Homo sapiens (human)
- Macaca fascicularis (crab eating maca)
- Mus musculus (mouse)
- Mus musculus BALB/c
- Oryctolagus cuniculus (rabbit)

OK Cancel

Sort A to Z
Sort Z to A
Sort by Color
Clear Filter From "Process Type"
Filter by Color
Text Filters

Search

- (Select All)
- Administration in vivo
- Occurrence of infectious disease

OK Cancel

User Query: Full analysis of Ebola virus

Method/Technique	Assay Group	Units
x-ray crystallography	3D structure	angstroms
electron microscopy	3D structure	
biological activity	antibody-dependent cellular cytotoxicity	
in vivo assay	decreased disease after adoptive transfer	
antigen inhibition (~ IC50)	dissociation constant KD	nM
bio-layer interferometry assay	dissociation constant KD	nM
surface plasmon resonance (SPR)	dissociation constant KD	nM
binding assay	dissociation constant KD	nM
ELISA	dissociation constant KD	nM
biological activity	neutralization	
bio-layer interferometry assay	off rate	1/s
surface plasmon resonance (SPR)	off rate	1/s
binding assay	off rate	1/s
bio-layer interferometry assay	on rate	M ⁻¹ s ⁻¹
surface plasmon resonance (SPR)	on rate	M ⁻¹ s ⁻¹
binding assay	on rate	M ⁻¹ s ⁻¹
western blot	qualitative binding	
ELISA	qualitative binding	
bio-layer interferometry assay	qualitative binding	
electron microscopy	qualitative binding	
flow cytometry	qualitative binding	
immuno staining	qualitative binding	
immunoprecipitation	qualitative binding	
chromatography	qualitative binding	
biological activity	secondary in vitro activity	
in vivo assay	survival from challenge after adoptive transfer	

User Query: Full analysis of Ebola virus

Current Filters: ✖ Positive Assays Only ✖ Organism: Ebola virus (Ebola) (ID:1570291, Ebola)

[Epitopes \(231\)](#)
[Antigens \(8\)](#)
[Assays \(418\)](#)
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[T Cell Receptors \(0\)](#)
[B Cell Receptors \(13\)](#)

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

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Group ID	Species	Type	Chain 1 CDR3	Chain 2 CDR3
105	Homo sapiens (human)	HL	VREGPRATGYSXADVFDI	QQYYSAPLT
804	Homo sapiens (human)	HL	VREGPRATGYSMADVFDI	QQYYSAPLT
812	Homo sapiens (human)	HL	VRASRSYYWGSYRPTAFDS	QTW DSTV
813	Homo sapiens (human)	HL	VRSDRGVAGLFDS	QNYNSAPLT
928	Homo sapiens (human)	HL	TRGNNGNYRAMDY	QHFVWGTPT
948	Homo sapiens (human)	HL	ARRDPFGYDNAMGY	QQYSSYPLT
1000	Mus musculus (mouse)	HL	SRHIYYGSSHYAMDY	GVDTIKEQFVYV
1030	Homo sapiens (human)	HL	ARSAYYGSTFAY	QHFGTPT
1109	Homo sapiens (human)	HL	ARGDLETTIFFYNAVDV	QQGFSSPFS
26845	Macaca fascicularis (crab eating macaque)	HL	CVRRWSWFDVW	CATSYGSGANWQYIF
26846	Homo sapiens (human)	HL	VRSDRGVAGLFDS	QNYNSAPLT
57188	Homo sapiens (human)	HL	AKSVRLSRPSPFDL	QQRASWPLT
57193	Homo sapiens (human)	HL	LRLSHYGGGA	QQTYNTPRT

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

User Query: Full analysis of Ebola virus

Current Filters: ✖ Positive Assays Only ✖ Organism: Ebola virus (Ebola) (ID:1570291, Ebola)

Epitopes (231)	Antigens (8)	Assays (418)	Receptors (13)	References (24)	
Go To Records Starting At <input type="text" value="1982"/> <input type="button" value="GO"/>					
Export Results <input type="button" value=""/>					
24 Records Found					
Page <input type="text" value="1"/> of 1					
25 Per Page					
Ref ID	PMID	Author	Title	Abstract	Date
1036412	32059794	Hadas Cohen-Dvashi; Matthias Zehner; Stefanie Ehrhardt; Michael Katz; Nadav Elad; Florian Klein; Ron Diskin	Structural Basis for a Convergent Immune Response against Ebola Virus.	Ebola virus disease is a severe health problem in Africa. Vaccines that display the Zaire ebolavirus glycoprotein spike complex are a prime component for the effort to combat it. The V ₁ 3-15 ...more...	2020
1034606	30833785	Brandyn R West; Anna Z Wec; Crystal L Moyer; Marnie L Fusco; Philipp A Illykh; Kai Huang; Ariel S Wirchnianski; Rebekah M James; Andrew S Herbert; Sean Hui; Eileen Goodwin; Katie A Howell; Shweta Kailasan; M Javad Aman; Laura M Walker; John M Dye; Alexander Bukreyev; Kartik Chandran; Erica Ollmann Saphire	Structural basis of broad ebolavirus neutralization by a human survivor antibody.	The structural features that govern broad-spectrum activity of broadly neutralizing anti-ebolavirus antibodies (Abs) outside of the internal fusion loop epitope are currently unknown. Here we describe ...more...	2019
1035773	31591605	Stefanie A Ehrhardt; Matthias Zehner; Verena Krähling; Hadas Cohen-Dvashi; Christoph Kreer; Nadav Elad; Henning Gruell; Meryem S Ercanoglu; Philipp Schommers; Lutz Gieselmann; Ralf Eggeling; Christine Dahlke; Timo Wolf; Nico Pfeifer; Marylyn M Addo; Ron Diskin; Stephan Becker; Florian Klein	Polyclonal and convergent antibody response to Ebola virus vaccine rVSV-ZEBOV.	Recombinant vesicular stomatitis virus-Zaire Ebola virus (rVSV-ZEBOV) is the most advanced Ebola virus vaccine candidate and is currently being used to combat the outbreak of Ebola virus disease (EVD) ...more...	2019
1035662	31498797	Dan Lu; Kefang Liu; Di Zhang; Can Yue; Qiong Lu; Hao Cheng; Liang Wang; Yan Chai; Jianxun Qi; Lin-Fa Wang; George F Gao; William J Liu	Peptide presentation by bat MHC class I provides new insight into the antiviral immunity of bats.	Bats harbor many zoonotic viruses, including highly pathogenic viruses of humans and other mammals, but they are typically asymptomatic in bats. To further understand the antiviral immunity of bats, w ...more...	2019
1036129	31775024	Jonathan Powlson; Daniel Wright; Antra Zellina; Mark Giza; Morten Nielsen; Tommy Rampling; Navin Venkatrakaman; Thomas A Bowden; Adrian V S Hill; Katie J Ewer	Characterization of Antigenic MHC-Class-I-Restricted T Cell Epitopes in the Glycoprotein of Ebolavirus.	Ebolavirus causes highly lethal hemorrhagic fever in humans. The envelope-displayed viral glycoprotein (GP) is the primary target of humoral immunity induced by natural exposure and vaccination. No T ...more...	2019
1034822	30728263	Lauren E Williamson; Andrew I Flyak; Nurgun Kose; Robin Bombardi; Andre Branchizio; Srikanth Reddy; Edgar Davidson; Benjamin J Doranz; Marnie L Fusco; Erica O Saphire; Peter J Halfmann	Early Human B Cell Response to Ebola Virus in Four U.S. Survivors of Infection.	The human B cell response to natural filovirus infections early after recovery is poorly understood. Previous serologic studies suggest that some Ebola virus survivors exhibit delayed antibody respons	2019



Bonus Questions

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Note:

- Cancer is not within the primary scope of the IEDB
- Most cancer data in the IEDB is from MHC Ligand Elution assays or neoepitope papers (pilot project)
- Two methods of searching by sequence are presented

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Substring Search

RecName: Full=Serine/threonine-protein kinase Kist; AltName: Full=Kinase interacting with stathmin; AltName: Full=PAM COOH-terminal interactor protein 2; Short=P-CIP2; AltName: Full=U2AF homology motif kinase 1

UniProtKB/Swiss-Prot: Q8TAS1.2

[GenPept](#) [Identical Proteins](#) [Graphics](#)

```
>sp|Q8TAS1.2|UHMK1_HUMAN RecName: Full=Serine/threonine-protein kinase Kist; AltName: Full=Kinase interacting with stathmin; AltName: Full=PAM COOH-terminal interactor protein 2; Short=P-CIP2; AltName: Full=U2AF homology motif kinase 1
```

```
MAGSGCANGAEPFRFLAEGRLWQVQSRLGSGSSASVYRVRCCGNPGSPPGALKQFLPPGTTGAAASAAE  
YGFRKERAALQLQGHRNIVTLYGVFTIHFSPNVPSRCLLLELLDVSVSSELLLYSSHQGCMMMIQHCAR  
DVLEALAFLLHHEGYVHADLKPRNILWSAENECFKLIDFGLSFKEGNQDVKYIQTDGYRAPEAELQNCLAQ  
AGLQSDTECTSAVDLWLSLGIILLMFSGMKLKHTVRSQEWKANSSAIDHIFASKAVVNAaipayHLRDL  
IKSMLHDDPSRRIPAEMALCSPFFSIPFAPHIEDLVMLPTPVLRLNLVLDLDDYLENEEYEDVVEDVKEE  
CQKYGPVWSLLVPKENPGRGQVFEYANAGDSKAAQKLLTGRMFDGKFVVATFYPLSAYKRGYLYQTL
```

START YOUR SEARCH HERE ?

Epitope ?

Any Epitopes

Linear Epitope

Substrir ▼ MAGSGCAWGAEP

Exact Matches

Substring

Blast - 90%

Blast - 80%

Blast - 70%

us Epitopes

c Epitopes

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Substring Search

Current Filters: Positive Assays Only Epitope Structure: Linear Sequence

Linear Sequence: MAGSGCAWGAEPFRLEAFGRLLWQVQSRLLGSGSSASVYRVRCCGNPGSPPGALKQFLPPGTTGAAASAAE YGFRKERAALQGHNRNIVTLYGVFTIHFSPNVPSRCLLLELLDVSSELLLYSSHQGCMSWMIQHCAR DVLEALAFLLHHEGYVHADLKPRNILLWSAENECFKLIDFGLSFKEGNQDVKYIQTDGYRAPEAELQNCIAQ AGLQSDTECTSAVDLWSLGILLEMFSGMKIKHTVRSQEWKANSAAIIDHIFASKAVVNAIPAHLRDL IKSMHLDDPSRRIPAEMALCSPFFSIPFAPHIEDLVMPLTPVLRLLNVLDLDDYLENEEEYEDVVEDVKEE CQKYGPVVSLLPKENPGRGQVFEYANAGDSKAAQKLLGRMFDGKVVATFYPLSAYKRGYLYQTLL

Blast Option: Substring

Epitopes (38) Antigens (5) Assays (294) Receptors (0) References (52)

Go To Records Starting At 1200 Export Results

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Details	Epitope	Antigen	Organism	# References	# Assays
161922	AIIDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	31	93
194303	RMFDGKFFV	Serine/threonine-protein kinase Kist	Homo sapiens (human)	20	36
194304	RMFDGKFFVA	Serine/threonine-protein kinase Kist	Homo sapiens (human)	18	39
491787	GRLWQVQSR	Serine/threonine-protein kinase Kist	Rattus norvegicus (brown rat)	10	11
467543	KYGPVVSL	Other Mus musculus (mouse) protein	Mus musculus (mouse)	7	7
444474	GRGQVFEY	Uncharacterized protein (UniProt.A0A0G2JWE6)	Rattus norvegicus (brown rat)	6	6
632386	IDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	6	6
444721	HHEGYVHADL	Serine/threonine-protein kinase Kist	Homo sapiens (human)	5	8
572925	GRLWQVQSR	Serine/threonine-protein kinase Kist	Rattus norvegicus (brown rat)	5	6
645767	KLIDFGLSF	Serine/threonine-protein kinase Kist	Homo sapiens (human)	5	24
706476	FSIPFAPHI	Serine/threonine-protein kinase Kist	Homo sapiens (human)	4	7
542824	IIDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	3	3
618325	HTVRSQEW	Serine/threonine-protein kinase Kist	Homo sapiens (human)	3	3
968233	VKYIQTDGY	Serine/threonine-protein kinase Kist	Homo sapiens (human)	3	3
427769	TFYPLSAYKRGYLY	Serine/threonine-protein kinase Kist	Homo sapiens (human)	2	2
437921	HEGYVHADL	Serine/threonine-protein kinase Kist	Homo sapiens (human)	2	2
577947	SPNVPSRCL	Serine/threonine-protein kinase Kist	Homo sapiens (human)	2	3
722527	RLWQVQSR	Serine/threonine-protein kinase Kist	Homo sapiens (human)	2	2
834346

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Substring Search

Current Filters: Positive Assays Only Epitope Structure: Linear Sequence

Linear Sequence: MAGSGCAWGAEPFRFLAFGRLLWQVQSRLLGSSGSASVYVRCCGPNPGSPGALKQFLPPGTTGAAASAAE YGFRKERAALQLQGHNRNIVLYGVFTIHFSPNVPSCRLLLELDDVSVSELLYSHQGCSMMWMIQHCAR DVLEALAFHHEGYVHADLKPRNLWSAENECFKLIDFGLSFKEGNQDVKYIQTDGYRAPEALONCLAQ AGLQSDTECTSAVDLVSLGIILLEMFSGMKPKHTVRSQEWKANSSAIDHIFASKAVVNAIPAYHLRDL IKSMLEHDPSSRRIPAEALCSPFFSIPFAPHIEDLVMLPTPVLRLNLVLDLDDYLENEEYEDVVEDVKEE CQKYGPVSVLLVPKENPGRGQVFVEYANAGDSKAAQKLLTGRMDFGKFFVATFYPLSAYKRGRYLTQLL

Blast Option: Substring

Epitopes (38)		Antigens (5)		Assays (294)		Receptors (0)		References (52)	
T Cell Assays (0)		B Cell Assays (1)		MHC Ligand Assays (293)					
Go To Records Starting At <input type="text" value="A.b"/> <input type="button" value="GO"/> <input type="button" value="Export Results"/>									
293 Records Found <input type="button" value="Page 1 of 12"/> <input type="button" value="25 Per Page"/>									
ID	Reference	Epitope	Antigen Processing	MHC Restriction	Assay Description	Quantitative Measure			
11484386	Ana Marcu 2020	NAGDSKAAQKLLTGRMFD Serine/threonine-protein kinase Kist (378-395) Homo sapiens (human)	Host:Homo sapiens (human). No immunization was performed	HLA class II	cellular MHC/mass spectrometry ligand presentation Positive				
3185545	Jennifer G Abelin; Immunity 2017	EAFGRLLWQV serine/threonine-protein kinase Kist isoform 1 (17-25) Homo sapiens (human)	Host:Homo sapiens (human). No immunization was performed	HLA-A*68:02	cellular MHC/mass spectrometry ligand presentation Positive				
3299155	Danilo Ritz; Proteomics 2016	NSSAIDHI Serine/threonine-protein kinase Kist (253-261) Homo sapiens (human)	Host:Homo sapiens (human). No immunization was performed	HLA class I	cellular MHC/mass spectrometry ligand presentation Positive				
5335398	Pouya Faridi; Sci Immunol 2018	SSAIDHIF UHMK1 protein (149-157) Homo sapiens (human)	Host:Homo sapiens (human). No immunization was performed	HLA-B*57:01	cellular MHC/mass spectrometry ligand presentation Positive				
2490373	Ingrid M M Schellens; PLoS One 2015	AIIDHIFASK UHMK1 protein (151-160) Homo sapiens (human)	Host:Homo sapiens (human). No immunization was performed	HLA-A*03:01	cellular MHC/mass spectrometry ligand presentation Positive				
2907574	Andreas Gloger; Cancer Immunol Immunother 2016	AIIDHIFASK UHMK1 protein (151-160) Homo sapiens (human)	Host:Homo sapiens (human). Occurrence of cancer (skin melanoma)	HLA class I	cellular MHC/mass spectrometry ligand presentation Positive				
3568862	Michal Bassani-	AIIDHIFASK UHMK1 protein (151-160) Homo sapiens (human)	Host:Homo sapiens (human). No immunization was performed	HLA class I	cellular MHC/mass spectrometry ligand presentation Positive				

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Disease ?

- Any Disease
- Infectious Disease
- Allergic Disease
- Autoimmune Disease
- Transplant Disease
- No Disease (Healthy)
- Specific Disease

Reference ?

- Any Reference Type
- Journal Article
- Submission

Author
Title
Date (Year)

lymphom

- lymphoma (ID:DOID:0060058)**
- B-cell **lymphoma** (ID:DOID:707)
- Burkitt **lymphoma** (ID:DOID:8584)
- Hodgkin's lymphoma (ID:DOID:8567, Hodgkin **lymphoma**)
- non-Hodgkin **lymphoma** (ID:DOID:0060060)
- lymphoplasmacytic **lymphoma** (ID:DOID:0050747)
- adult T-cell leukemia (ID:DOID:0050523, Adult T-cell leukemia/**lym...**)
- T-cell lymphoblastic leukemia/**lymphoma** (ID:DOID:715)

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use **lymphoma** as an example.

Current Filters: Positive Assays Only Epitope Structure: Linear Sequence

Linear Sequence: MAGSGCAWGAEPFRFLAEGRLWQVQSRGSGSSASVYRVRCCGNPGSPPGALKQFLPPGTTGAAAASAAE
 YGFRKERAALQQLGHRNIVTLYGVFTIHFSPNVPSRCLLLELDVSVSELLLYSSHQGCMSMMIQCAR
 DVLEALAFHHEGYVHADLKPRNILWSAENECKLIDFGLSFKEGNQDVKYIQTGDYRAPEAELQNCIAQ
 AGLQSDTECTSAVDLWSLGIILLEMFGMKLKHVRSQEWKANSSAIIDHIFASKAVVNAIPAYHLRDL
 IKSMHLDDPSRRIPAEMALCSPFFSIPFAPHIEDLVMLPTPVLRLNLVLDLDDYLENEEEYEDVVEDVKEE
 CQKYGPVVSLLVPKENPGRGQVFVEYANAGDSKAAQKLLTGRMFDGKFFVATFYPLSAYKRGYLYQTL

Blast Option: Substring Disease Data: lymphoma (ID:DOID:0060058)

Epitopes (6)	Antigens (2)	Assays (8)	Receptors (0)	References (4)
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Go To Records Starting At [Export Results](#)

6 Records Found Page of 1 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
161922	AIIDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	3	3
194303	RMFDGKFVV	Serine/threonine-protein kinase Kist	Homo sapiens (human)	1	1
194304	RMFDGKFVVA	Serine/threonine-protein kinase Kist	Homo sapiens (human)	1	1
834346	RGYLYQTL	Serine/threonine-protein kinase Kist	Mus musculus (mouse)	1	1
1043766	RMFDGKFVV + OX(M2)	Serine/threonine-protein kinase Kist	Homo sapiens (human)	1	1
1043767	RMFDGKFVVA + OX(M2)	Serine/threonine-protein kinase Kist	Homo sapiens (human)	1	1

6 Records Found Page of 1 Per Page

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

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use **lymphoma** as an example.

Current Filters: Positive Assays Only Epitope Structure: Linear Sequence

Linear Sequence: MAGSGCAWGAEPRLFLEAFGRWLQVQSRLLGSGSSASVYRVRCCGNPGSPPGALKQFLPPGTTGAAASAAE YGFRKERAALQQLQHRNIVTLYGVFTIHFSPNVPSRCLLLELLDVSSELLLLYSSHQGCSMMWMIQHCAR DVLEALAFLLHHEGYVHADLKPRNILWSAENECFKLIDFGLSFKEGNQDVKYIQTGDYRAPEALQNCIAQ AGLQSDTECTSAVDLWSLGIILLEMFSGMKHKHTVRSQEWWKANSSAIIIDHIFASKAVVNAIIPAYHLRDL IKSMHLHDDPSRRIPAEMALCSPFFSIPFAPHIEDLVMLPTPVLRLNVLDDDYLENEEEYEDVVEDVKEE CQKYGPVSVLLVPKENPGRGQVFVEYANAGDSKAAQKLLTGRMFDGKFWVATFYPLSAYKRGYLYQTLL

Blast Option: Substring Disease Data: lymphoma (ID:DOID:0060058)

Epitopes (6) Antigens (2) Assays (8) Receptors (0) References (4)

T Cell Assays (0) B Cell Assays (0) MHC Ligand Assays (8)

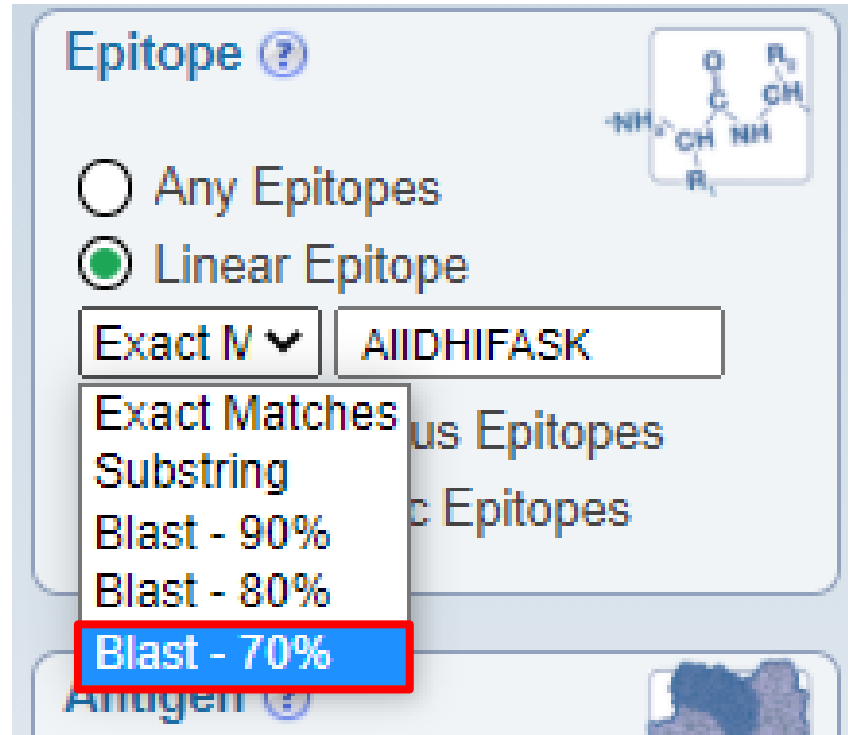
Go To Records Starting At [Export Results](#)

8 Records Found Page of 1 Per Page

ID	Reference	Epitope	Antigen Processing	MHC Restriction	Assay Description	Quantitative Measure
3956225	Joël Lanoix; Proteomics 2018	AIIDHIFASK UHMK1 protein (151-160) Homo sapiens (human)	Host:Homo sapiens (human). Occurrence of cancer (chronic lymphocytic leukemia)	HLA class I	cellular MHC/mass spectrometry ligand presentation Positive	
2711614	Dmitry Bourdetsky; Proc Natl Acad Sci U S A 2014	AIIDHIFASK Serine/threonine-protein kinase Kist (256-265) Homo sapiens (human)	Host:Homo sapiens (human). Occurrence of cancer (lymphoplasmacytic lymphoma)	HLA class I	cellular MHC/mass spectrometry ligand presentation Positive	
5628407	J Patrick Murphy; Anal Chem 2019	RGYLYQTL U2AF homology motif (UHM) kinase 1, partial [Mus musculus] (224-231) Mus musculus (mouse)	Host:Mus musculus C57BL/6. Occurrence of cancer (lymphoplasmacytic lymphoma)	H2-Kb	cellular MHC/mass spectrometry ligand presentation Positive	

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Search by Blast to known epitope



Epitope ?

Any Epitopes

Linear Epitope

Exact N ▾ AIIDHIFASK

Exact Matches

Substring

Blast - 90%

Blast - 80%

Blast - 70%


Antigen ?

User Query: Is it possible to apply B cell and T cell analysis to a cancer sequence? Use lymphoma as an example.

Search by Blast to known epitope

Current Filters: Positive Assays Only Epitope Structure: Linear Sequence Linear Sequence: AIIDHIFASK Blast Option: 70%

Epitopes (6) Antigens (1) Assays (107) Receptors (0) References (31)

Go To Records Starting At 1200 Export Results 

6 Records Found Page 1 of 1 25 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
161922	AIIDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	31	93
632386	IDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	6	6
542824	IIDHIFASK	Serine/threonine-protein kinase Kist	Homo sapiens (human)	3	3
999730	AIIDHIFAS	Serine/threonine-protein kinase Kist	Homo sapiens (human)	2	3
622328	NSSAIIDHI	Serine/threonine-protein kinase Kist	Homo sapiens (human)	1	1
905341	SSAIIDHIF	Serine/threonine-protein kinase Kist	Homo sapiens (human)	1	1

6 Records Found Page 1 of 1 25 Per Page

User Query: Neoantigens

Note that we are making this query possible from the 'Results' page soon

The screenshot shows the IEDB search interface. At the top, there are navigation tabs: 'Home', 'Specialized Searches', and 'Analysis Resources'. A red arrow points from the 'Home' tab to the 'Specialized Searches' dropdown menu, which is highlighted with a red box. The dropdown menu contains the following options: 'Epitope Details', 'T Cell Assay Details', 'B Cell Assay Details', 'MHC Assay Details', 'Identifier Search', and 'Browse by 3D Structure'. Below the dropdown, the search interface is divided into several sections: 'Epitope', 'Antigen', 'Host', 'MHC Restriction', and 'Disease'. Each section has radio buttons for selection and a 'Find' button. The 'Epitope' section has a chemical structure icon. The 'Antigen' section has an icon of a protein complex. The 'Host' section has an icon of a person. The 'MHC Restriction' section has an icon of a protein. The 'Disease' section has an icon of a caduceus. At the bottom, there are 'Reset' and 'Search' buttons.

Home Specialized Searches Analysis Resources

START YOUR SEARCH HERE ?

Epitope ?

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

Exact M

B Cell Assays

MHC Ligand Assays

Antigen ?

Organism

Antigen Name

Host ?

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

MHC Restriction ?

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

Disease ?

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

User Query: Neoantigens

Epitope Details Search – Related Object

Epitope ?

Epitope ID


Structure Type - Any Epitopes

Organism

Antigen Name

Epitope Reference Details

Epitope Related Object



Epitope ?

Epitope ID

Structure Type - Any Epitopes

Organism

Antigen Name

Epitope Reference Details

Epitope Related Object

Related Object

Type - Any Type

Organism

Antigen Name

The epitope is a neo-epitope of:

The epitope is an analog of:

The epitope is a mimotope of:

The epitope is a neo-epitope of:

