



Immune Epitope Database Overview

www.iedb.org

Presented by: Alessandro Sette, IEDB Principal Investigator

Our goals for this user workshop

We want your input to make the IEDB better:

- Learn about real-life applications for the IEDB
- Identify and prioritize problems with the user interface, documentation, functionality etc.

We want to enable you to get the most out of the IEDB:

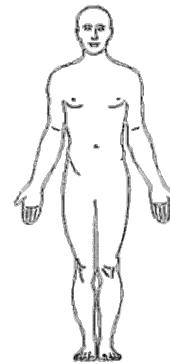
- The primary IEDB success metric is usage
- Best compliment for our program is if IEDB data & tools help in your research (citations)

Immune Epitope Database

www.iedb.org

Database | Resource of experimentally-derived epitope information

- Allergens
 - Infectious diseases
 - Autoimmune diseases
 - Transplantation / Alloantigens
- ... and more



Containing data on over **2.2 million unique structures** analyzed in over **6.6 million assays** from more than **24,000 curated references.**

Minimal Criteria for Epitope Inclusion

- Linear peptide <50 amino acids in length
- Tested as an immunogen or an antigen
- Discontinuous residues shown to be important in recognition
- Non-peptidic epitopes <5,000 Daltons
- Minimal information required (sequence, outcome, host, etc.)

Consistent data entry requires well defined data structure

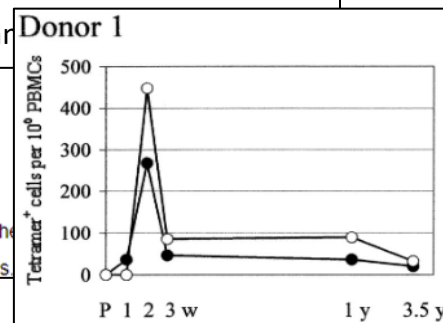
Quantitation of CD8+ T Cell Responses to Newly Identified HLA-A*0201–restricted T Cell Epitopes Conserved Among Vaccinia and Variola (Smallpox) Viruses

Masanori Terajima, John Cruz, Gregory Raines, Elizabeth D. Kilpatrick, Jeffrey S. Koenig, Francis A. Ennis

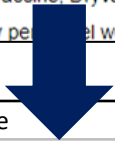
Materials And Methods

Donors.

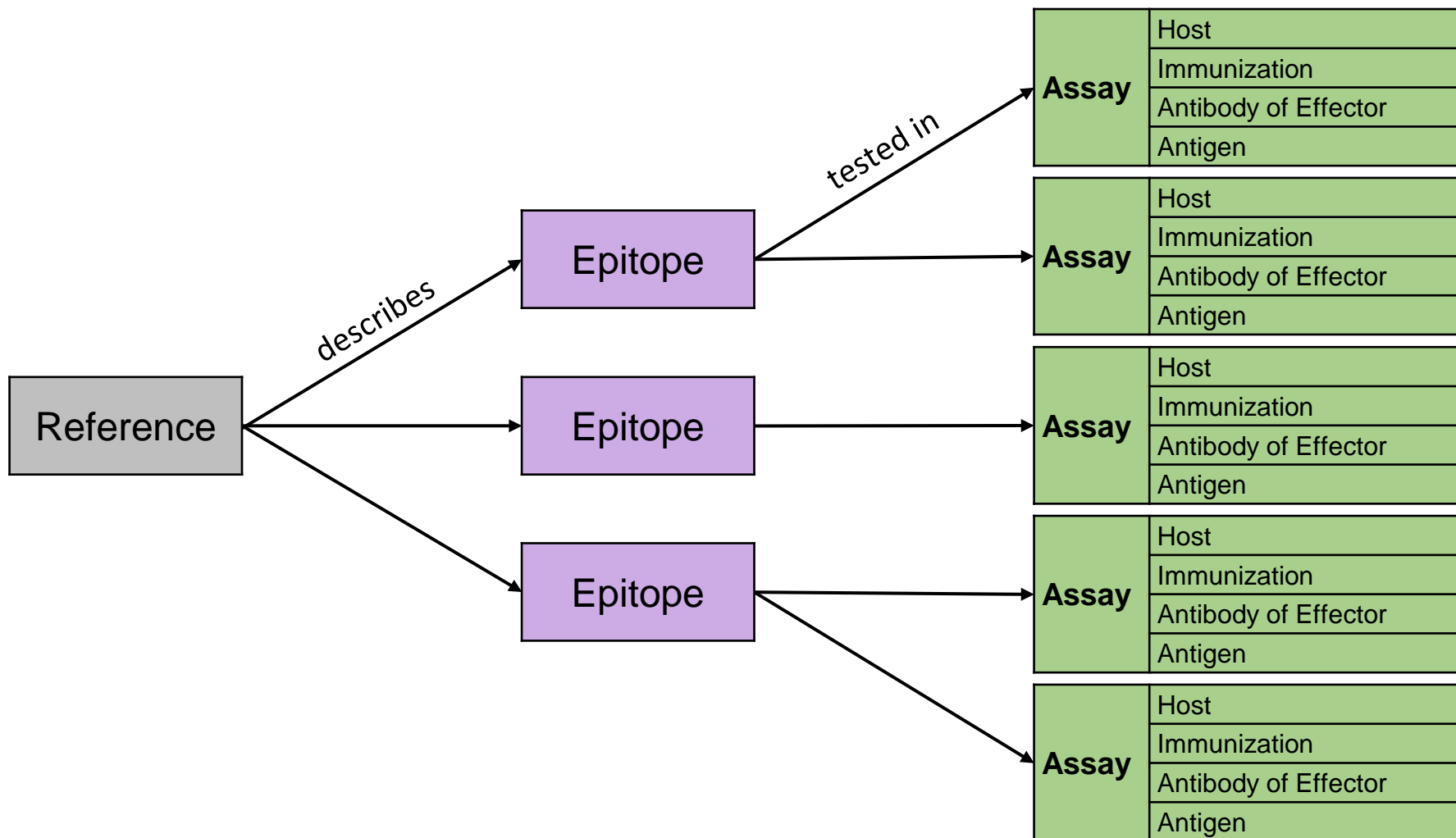
Donors in this study were three HLA-A*0201–positive laboratory workers received primary immunization by scarification with the licensed smallpox vaccine, Dryvax®, as recommended by the Centers for Disease Control and Prevention for laboratory personnel working with vaccinia viruses.



Epitope	Structure	Name	74A
		Chemical Type	Peptide / Protein
		Sequence	CLTEYILWV
		Domain / Region	Defined Epitope
	Source	Species	Vaccinia Virus Ankara
		Strain	Ankara (MVA)
		Antigen	Putative 21.7k protein
		Antigen Accession	2772819
	Antigen Positions	79-87	
Context	Immunization	Immunized Species	Homo sapiens
		Immunogen Type	Source species
		Administration	Scarification
	Assay	Antigen Type	Epitope
		Assay Type	ELISPOT
		Response Measured	Cytokine Release-IFN-g
		MHC Allele	HLA-A*0201



Data Structure: A Database of Experiments

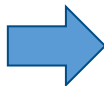


Collaborations with Ontologies

- Provides standardized nomenclature, definitions, synonyms, and hierarchical relationships
- Makes curation easier → Finders
- Enhances user experience → Finders
- Ensures consistency and accuracy
- Finds errors
- Facilitates interoperability

External Resources and Ontologies

Peptidic Epitope	Amino acid sequence
	Protein source
	Organism source



Human herpesvirus 5 (HHV-5)
 NCBI
 taxon:10359

ORGANISM FINDER

Current Selection(s) Reset Apply

Search By

Name:

Organism ID:

Clear Search

Browse by Tree (Click to Select)

- [-] Human herpesvirus 1
- [-] Human herpesvirus 2
- [-] Human herpesvirus 4 (Epstein Barr virus)
- [-] Human herpesvirus 5 (Human cytomegalovirus)
 - [-] Human herpesvirus 5 (strain RV798)
 - [-] Human herpesvirus 5 TB40
 - [-] Human herpesvirus 5 strain AD169
 - [-] Human herpesvirus 5 strain Merlin
 - [-] Human herpesvirus 5 strain Toledo

Search Results (Click to Select)

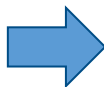
6 Records Found Page 1 of 2 5 Per Page

Organism Name	Synonyms	Organism ID
Cucumber mosaic virus (cucumber mosaic cucumovirus)	Cucumber mosaic virus, cucumber mosaic cucumovirus, cucumber mosaic virus CMV, cucumber mosaic cucumovirus CMV, cucumber mosaic virus, CMV, CMV	12305
Lymphocytic choriomeningitis mammarenavirus	Lymphocytic choriomeningitis mammarenavirus, Lymphocytic choriomeningitis virus, lymphocytic choriomeningitis virus LCMV, LCMV	11623
Murid betaherpesvirus 1 (Murine cytomegalovirus)	Murine cytomegalovirus, Murid betaherpesvirus 1, murine herpesvirus 1, murine cytomegalovirus MCMV, murine cytomegalovirus (MCMV), Murid herpesvirus 1, Mouse cytomegalovirus 1	10366
Human herpesvirus 5 (Human cytomegalovirus)	herpes virus 5,CMV,HHV5,HSV-5,HSV5, Human cytomegalovirus, Human betaherpesvirus 5, human herpesvirus type 5, Human herpesvirus 5, HHV-5	10359
Rhesus cytomegalovirus strain 68-1 (Rhesus cytomegalovirus (strain 68-1) (RhCMV))	Rhesus cytomegalovirus strain 68-1, Rhesus cytomegalovirus (strain 68-1) (RhCMV), Rhesus cytomegalovirus (strain 68-1)	103930

6 Records Found Page 1 of 2 5 Per Page

External Resources and Ontologies

Peptidic Epitope	Amino acid sequence
	Protein source
	Organism source



PKYVKQNTLKLAT
 hemagglutinin HA1
 GenBank/UniProt
 GI:AAL62329.1—UniProt:Q8V285

MOLECULE FINDER

Current Selection(s) Reset Apply

Search By

Name:

Molecule ID:

Source Organism: Finder

Search

Browse by Tree (Click to Select)

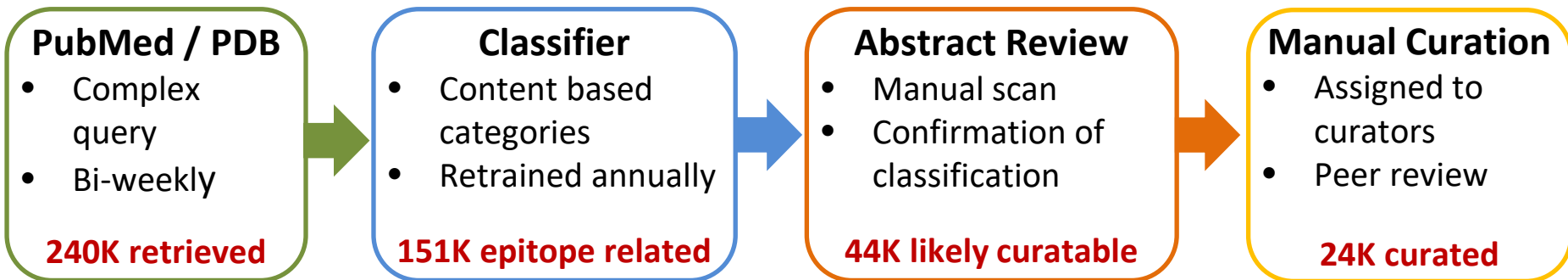
- [-] Bacteriophage (RNA) protein
- [-] Influenza virus protein
 - [-] Influenza A virus protein
 - [-] Hemagglutinin
 - signal peptide (1-17)
 - mature protein (18-565)
 - Hemagglutinin HA1 chain (18-342)
 - Hemagglutinin HA2 chain (344-565)
 - Matrix protein 1

Search Results (Click to Select)

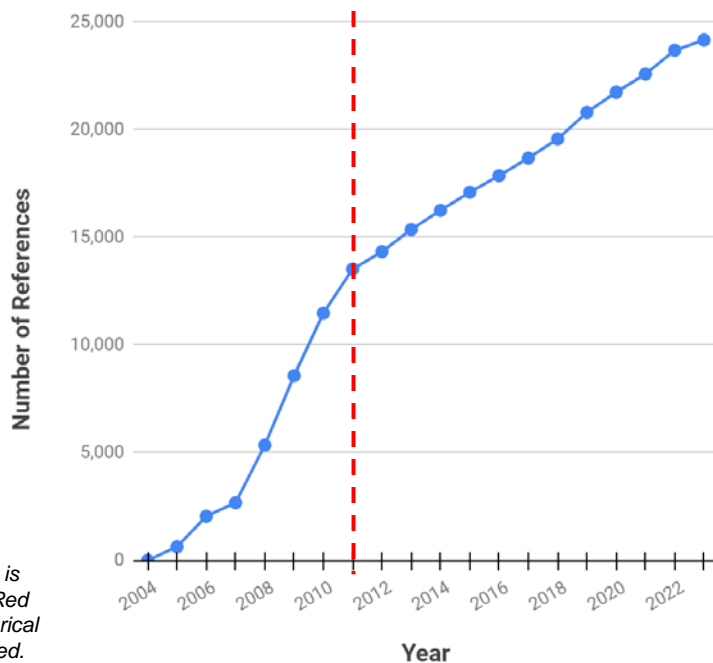
53 Records Found Page 1 of 11 5 Per Page

Molecule Name	Synonyms	Database ID	Organism Name
Influenza A virus protein	influenza A, Influenza A virus, Human Influenza A Virus, Influenza virus type A, FLUAV	IEDB [11320]	Influenza A virus
Influenza B virus (Influenza virus type B) protein	Influenza B virus, Influenza virus type B, FLUBV	IEDB [11520]	Influenza B virus (Influenza virus type B)
Influenza C virus (Influenza C viruses) protein	Influenza C viruses, Influenza C virus, Influenza virus type C, FLUCV	IEDB [11552]	Influenza C virus (Influenza C viruses)

Literature Curation

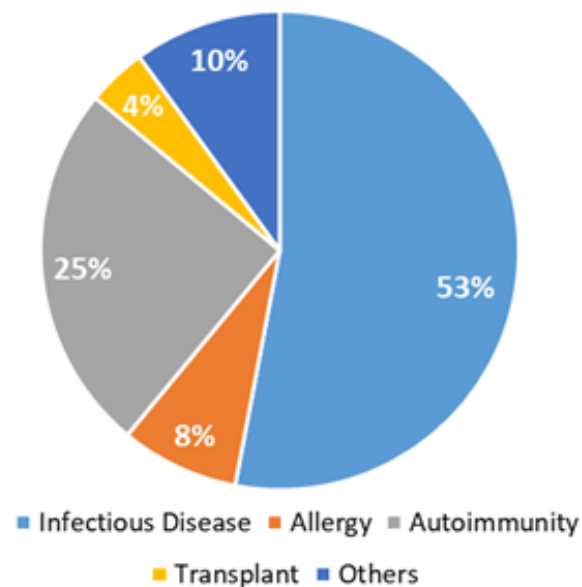


Growth of IEDB Curated References



Note: 2023 data is based on Q1-3. Red line indicates historical curation completed.

Categorical Breakdown of Curated References



Consistency and Quality Control Measures

- Manually curated by a team of PhD-level scientists with specific expertise
- Formal curation guidelines and peer review
Curation Manual: http://curationwiki.iedb.org/wiki/index.php/Main_Page
- External immunological experts
- Built in validation in the curation application

Data Submissions

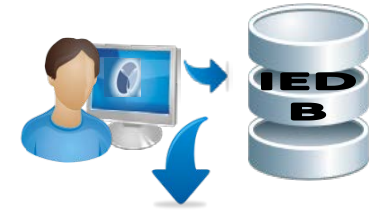
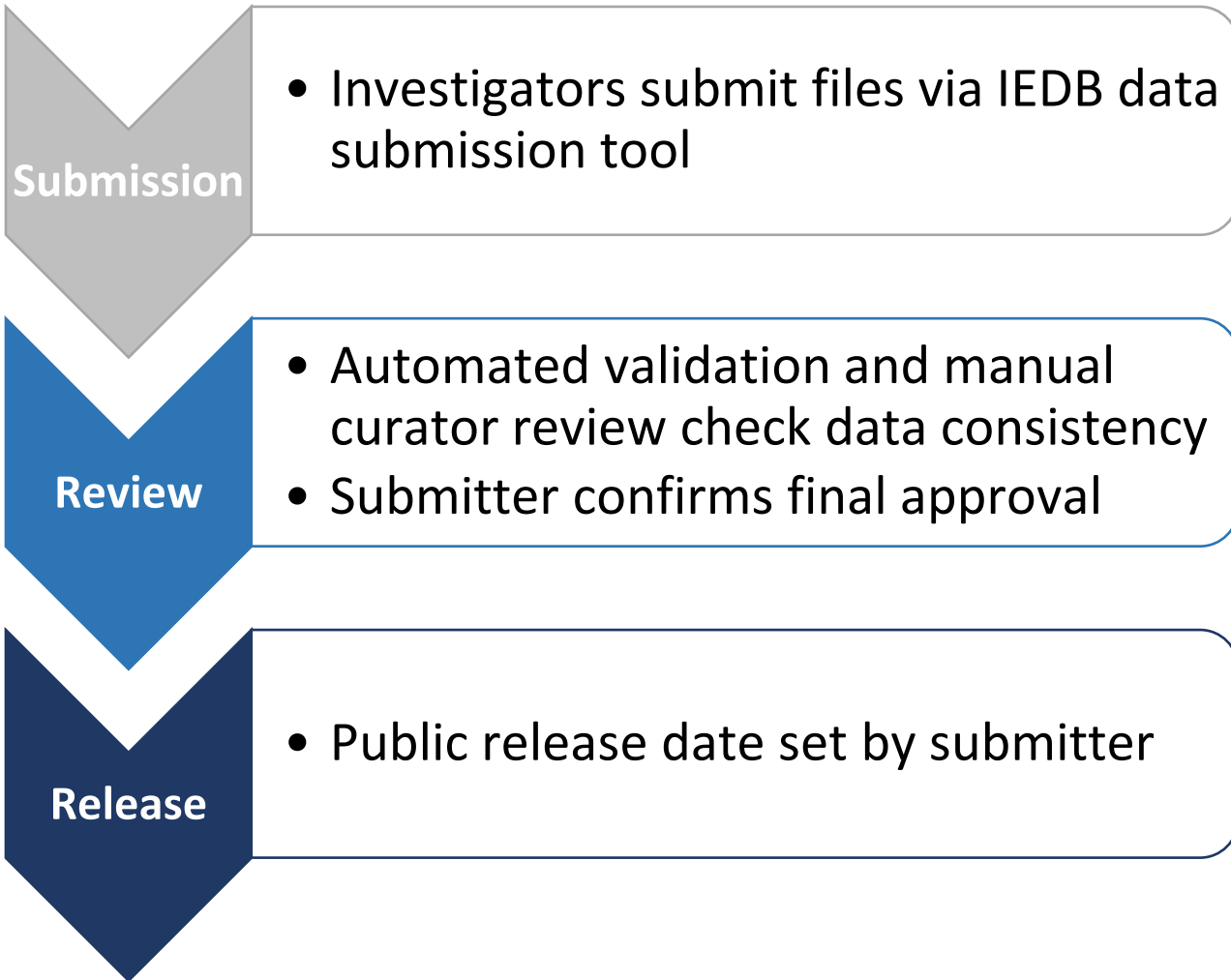
- Primarily sourced through NIAID Epitope Discovery contracts
- Data deposition is open to the general research community on a case-by-case basis

As of October, 2022:

- Data from **340 submissions** are publicly available & **90 submissions** are in process or on-hold
- Submitted data comprises **~20% of epitopes** available in the IEDB

Inquire by contacting: nblazeska@lji.org or
submissionsupport@iedb.org!

Direct Submission Process



IEDB.org: Homepage & Cumulative Data



Help

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Home

Specialized Searches

Analysis Resource

Check out our new IEDB updates! (1) Learn how to [customize your database exports](#) and (2) test out the new [Next-generation Tools site](#) for all your analysis and prediction needs.

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 and other animal species in the context of infectious disease, allergy, autoimmunity and transplantation. The IEDB also hosts epitope prediction and analysis tools, and has a companion site, [CEDAR](#) (funded by NCI), which houses cancer epitopes.

[Learn More](#)

Upcoming Events & News

[Virtual User Workshop](#) Nov 1-3, 2023
* register [here](#)

AACR 2024 Apr 5-10, 2024
Festival of Biologics Apr 15-17, 2024
AAI 2024 May 3-7, 2024

Summary Metrics

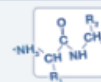
Peptidic Epitopes	1,597,734
Non-Peptidic Epitopes	3,187
T Cell Assays	507,401
B Cell Assays	1,391,378
MHC Ligand Assays	4,777,560
Epitope Source Organisms	4,403
Restricting MHC Alleles	991
References	24,153

START YOUR SEARCH HERE

Epitope ?

- Any
 Linear peptide
 Discontinuous
 Non-peptidic

Exact M



Assay ?

- T Cell
 B Cell
 MHC Ligand

Ex: neutralization

Outcome: Positive Negative



Epitope Source ?

Organism

Ex: influenza, peanut

Antigen

Ex: core, capsid, myosin



MHC Restriction ?

- Any
 Class I
 Class II
 Non-classical

Ex: HLA-A*02:01



Host ?

- Any
 Human
 Mouse
 Non-human primate

Ex: dog, camel



Disease ?

- Any
 Infectious
 Allergic
 Autoimmune

Ex: asthma



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:
Discoptope
ElliPro

Epitope Analysis Tools ?

Analyze epitope sets of:
Population Coverage
Conservation Across Antigens
Clusters with Similar Sequences

IEDB.org: Homepage & Search Interface



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Summary Metrics

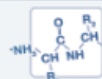
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 Discontinuous
 Non-peptidic

Exact M



Assay ?

- T Cell
 B Cell
 MHC Ligand

Ex: neutralization

Outcome: Positive Negative



Epitope Source ?

Organism

Ex: influenza, peanut

Antigen

Ex: core, capsid, myosin



MHC Restriction ?

- Any
 Class I
 Class II
 Non-classical
 Ex: HLA-A*02:01



Host ?

- Any
 Human
 Mouse
 Non-human primate
 Ex: dog, camel



Disease ?

- Any
 Infectious
 Allergic
 Autoimmune
 Ex: asthma



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:

- Discoptope
- ElliPro

Epitope Analysis Tools ?

Analyze epitope sets of:

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

Example Query: HBV T Cell Epitopes in Humans

START YOUR SEARCH HERE ?

Epitope ?

Any
 Linear peptide
Exact M Ex: SIINFEKL
 Discontinuous
 Non-peptidic

Assay ?

T Cell
 B Cell
 MHC Ligand
Ex: neutralization
Outcome: Positive Negative

Epitope Source ?

Organism

Antigen
Ex: core, capsid, myos

MHC Restriction ?

Any
 Class I
 Class II
 Non-classical
Ex: HLA-A*02:01

Host ?

Any
 Human
 Mouse
 Non-human primate
Ex: dog, camel

Disease ?

Any
 Infectious
 Allergic
 Autoimmune
Ex: asthma

Results Summarized in Tables

IMMUNE EPITOPE DATABASE AND ANALYSIS RESOURCE

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

Pending Filters: **Current Filters:** Organism: Hepatitis B virus (hepatitis B virus (HBV)) (ID:10407_HBV) Include Positive Assays No B cell assays No MHC assays Host: Homo sapiens (human)

Reset Search

Filter Options T Cell

Epitopes (471) | Antigens (5) | Assays (1508) | Receptors (3235) | References (150)

Go To Records Starting At 1200 GO | Export Results ↗

471 Records Found | Page 1 of 19 GO | 25 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
	16833 SDFFPSV	External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	62	163
	72794 WLSLLVPFV	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	28	58
	16755 FLLTRILTI	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	24	77
	16751 FLLSLGIHL	Protein P	Hepatitis B virus (hepatitis B virus (HBV))	15	24
	21145 GLSRYVARL	Protein P	Hepatitis B virus (hepatitis B virus (HBV))	12	30
	21139 GLSPTWLSV	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	10	17
	15061 EYLVSGVW	External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	8	15
	34616 KYTSFPWLL	Protein P	Hepatitis B virus (hepatitis B virus (HBV))	8	13
	59585 SLYADSPSV	Protein P	Hepatitis B virus (hepatitis B virus (HBV))	8	15
	16832 FLPSDFFPSI	External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	7	14
	37187 LLDYQGMLPV	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	7	9
	61745 STLPEITVRRR	Capsid protein	Hepatitis B virus (hepatitis B virus (HBV))	6	11
	69524 VLHKRTLGL	Protein X	Hepatitis B virus (hepatitis B virus (HBV))	6	6
	38701 LPSDFFPSV	External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	5	14
	58740 SIVSPFIPLL	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	5	31
	75040 YMDDWLGA	Protein P	Hepatitis B virus (hepatitis B virus (HBV))	5	11
	5191 ATVELLSFLPSDFFPSV	External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	4	7
	6556 CLFKDWEEL	Protein X	Hepatitis B virus (hepatitis B virus (HBV))	4	6
	15848 FLLTRILTI	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	4	9
	15849 FLLTRILTIPOSLED	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	4	11
	37120 LLLCLFLV	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	4	5
	62477 SWLSLLVPF	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	4	6
	178829 FLGPLLLVQA	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	4	13
	2002 AILSKTGDPV	Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	3	4
	5911 AYRPPNAPILSTLPE	External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	3	3

471 Records Found | Page 1 of 19 GO | Go To Records Starting At 1200 GO | Export Results ↗

Filter Options: Any, Linear peptide, Length, Sequence, Discontinuous, Non-peptidic, 3D structure available, Amino acid modification

Epitope Source: Organism: Hepatitis B virus (hepatitis 1), Antigen: Ex: core, capsid, myosin, Include related structure: Select multiple options

TCR: Has TCR sequence, Type: Any Type, Paired chains only, Chain: Any Type, Sequence: Exact Matches

T Cell Assay

Detail Pages

Summarize Relevant Information

Details Pages:

- Epitope Summary
- Compiled Data
 - MHC Ligand Assay(s)
 - B Cell Assay(s)
 - T Cell Assay(s)
- External Resources

Also available for:

- Assays
- Receptors
- References

EPITOPE SUMMARY

FLPSDFFFPSV is a linear peptidic epitope (epitope ID 16833) studied as part of External core antigen from Hepatitis B virus (hepatitis B virus (HBV)) and Capsid protein from Hepatitis B virus (hepatitis B virus (HBV)). This epitope has been studied for immune reactivity in 101 publication(s), tested in 215 T cell assays, 8 B cell assays, 88 MHC ligand assays and has 3D structure(s) 3OXR, 3OXS, 1HHH and 3OX8.

COMPILED DATA

MHC Ligand Assay(s) 88

MHC molecule	Positive / All
HLA-A*02:01	35/35
HLA-A*02:03	8/8
HLA-A*02:06	8/8
HLA-A*02:02	6/6
HLA-A*02:07	4/4
HLA-A*68:02	4/4
HLA-A*03:01	0/3
HLA-A*11:01	0/3
HLA-A*02:05	2/2
HLA-A*01:01	0/2
HLA-B*07:02	0/2
HLA-B*15:02	0/2
HLA-A*02:04	1/1
HLA-A*02:11	1/1
HLA-A2	1/1
HLA-B44	1/1
H2-Kd	0/1
HLA-A*24:02	0/1
HLA-A*31:01	0/1
HLA-A*68:01	0/1
Mamu-A1*001:01	0/1










B Cell Assay(s) 8

Assay Type	Positive / All
qualitative binding	7/7
dissociation constant KD	1/1

T Cell Assay(s) 215

Assay Type	Positive / All
cytotoxicity	63/74
IFNg release	65/66
qualitative binding	45/50
TNFa release	7/8
IL-2 release	4/4
proliferation	4/4
IL-4 release	2/2
TNF release	2/2
activation	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 

Antigens: Identifying Protein Source of Epitopes

Current Filters: ✗ Organism: Hepatitis B virus (hepatitis B virus (HBV)) (ID:10407, HBV) ✗ Include Positive Assays ✗ No B cell assays ✗ No MHC assays ✗ Host: Homo sapiens (human)

Epitopes (471) Antigens (5) Assays (1508) Receptors (3235) References (150)


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

5 Records Found Page 1 of 1 25 Per Page

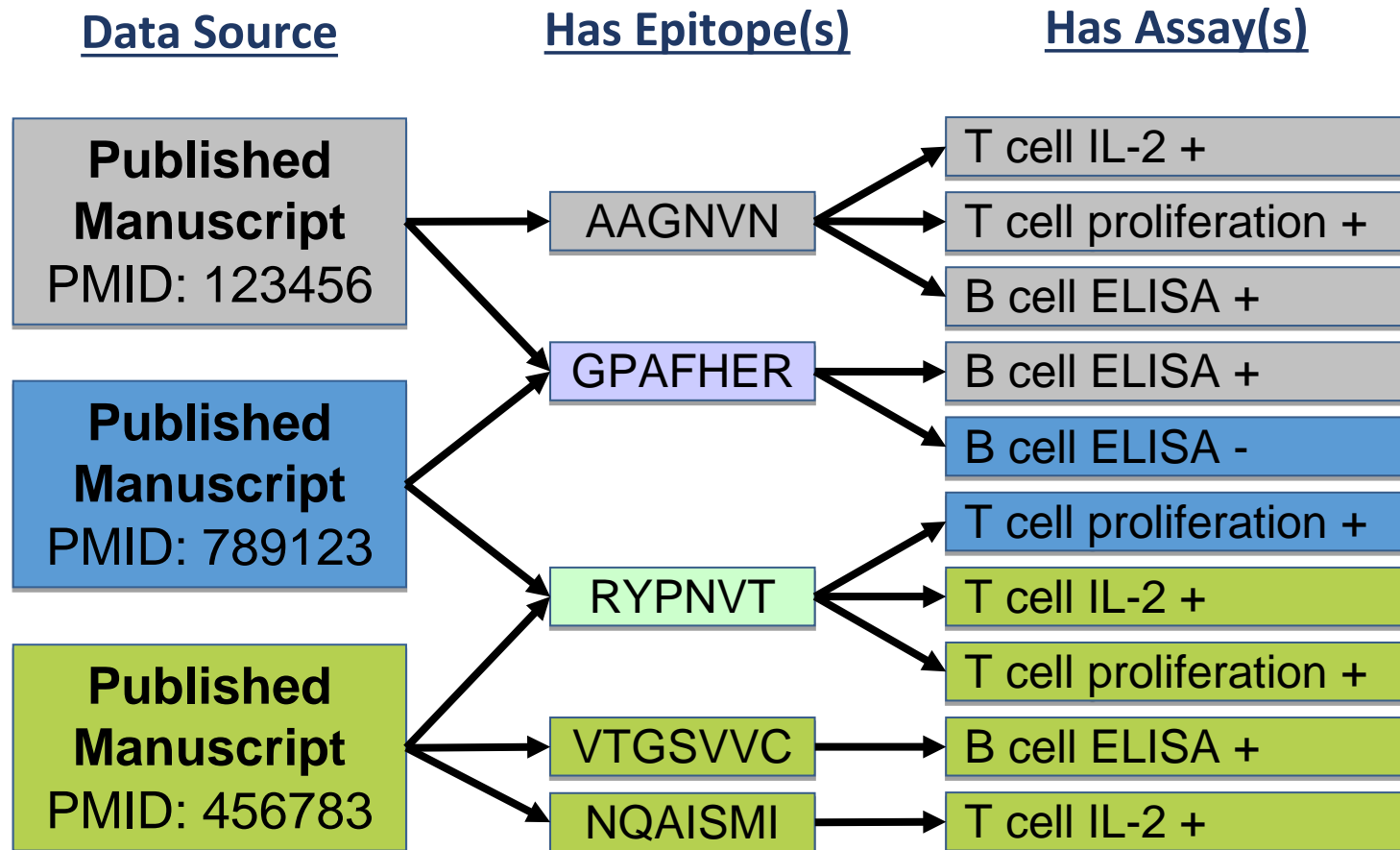
Antigen	Organism	# Epitopes	# Assays	# References
External core antigen	Hepatitis B virus (hepatitis B virus (HBV))	121	410	90
Large envelope protein	Hepatitis B virus (hepatitis B virus (HBV))	181	680	85
Protein P	Hepatitis B virus (hepatitis B virus (HBV))	103	262	40
Capsid protein	Hepatitis B virus (hepatitis B virus (HBV))	41	99	35
Protein X	Hepatitis B virus (hepatitis B virus (HBV))	33	57	12

5 Records Found Page 1 of 1 25 Per Page

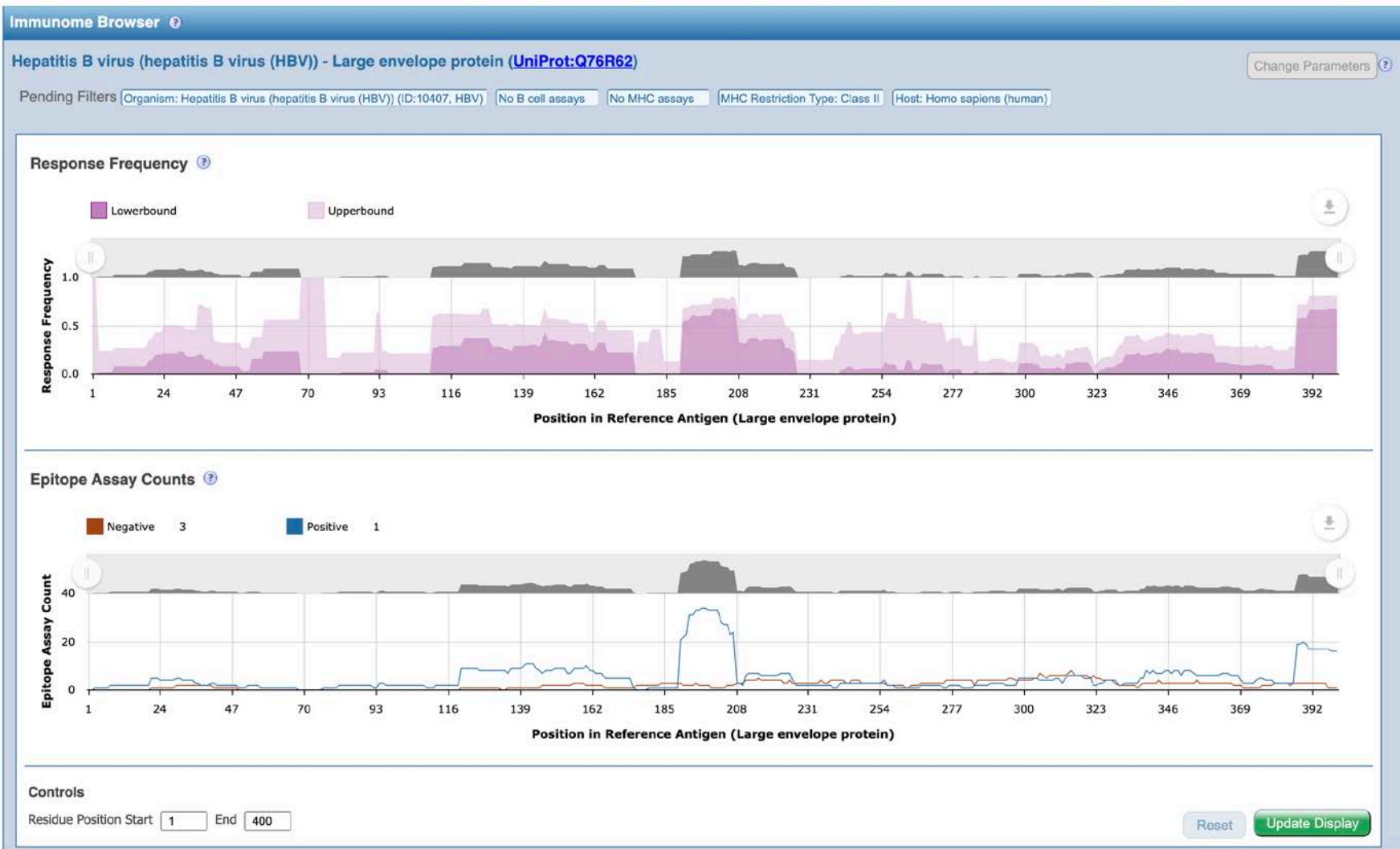
Go To Records Starting At [Export Results](#)



Data Aggregation



ImmunomeBrowser: Visualization on Reference Proteins



Also available as a standalone tool on AR!

Assays: Experiments in which epitopes were tested

Current Filters: Epitope Structure: Linear Sequence Linear Sequence: FLPSDFFPSV Organism: Hepatitis B virus (hepatitis B virus (HBV)) (ID:10407, HBV) Include Positive Assays No B cell assays No MHC assays

Host: Homo sapiens (human)

Epitopes (1)			Antigens (2)		Assays (163)		Receptors (1)		References (62)	
T Cell Assays (163)			B Cell Assays (0)		MHC Ligand Assays (0)					
Go To Records Starting At <input type="text" value="A,b"/> <input type="button" value="GO"/>										
163 Records Found Page <input type="text" value="1"/> of 7 <input type="button" value="Previous"/> <input type="button" value="Next"/> Export Results <input type="button" value=""/>										
ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description		
1356209	A Bertoletti; Hepatology 1997	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Infectious disease via exposure to Hepatitis B virus (hepatitis B virus (HBV)) (Source Organism) followed by restimulation in vitro	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Epitope	HLA-DP	3H-thymidine proliferation Positive		
1031085	A Vitiello; J Clin Invest 1995	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Administration in vivo with FLPSDFFPSV (Epitope)	QYKANSKFIGITE Tetanus toxin precursor (830-843) Clostridium tetani	Other	HLA-A*02:01	3H-thymidine proliferation Positive		
1507988	A Bertoletti; J Exp Med 1994	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Infectious disease via exposure to Hepatitis B virus (hepatitis B virus (HBV)) (Source Organism) followed by restimulation in vitro	FLPNDFFPSA External core antigen Hepatitis B virus (hepatitis B virus (HBV))	Other Structure from Source Organism	HLA-A*02:01	51 chromium cytotoxicity Positive-Low		
1507999	A Bertoletti; J Exp Med 1994	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Infectious disease via exposure to Hepatitis B virus (hepatitis B virus (HBV)) (Source Organism) followed by restimulation in vitro	FLPVDFFPSI	Other	HLA-A*02:01	51 chromium cytotoxicity Positive-Low		
1507978	A Bertoletti; J Exp Med 1994	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Infectious disease via exposure to Hepatitis B virus (hepatitis B virus (HBV)) (Source Organism) followed by restimulation in vitro	FLPNDFFPSA External core antigen Hepatitis B virus (hepatitis B virus (HBV))	Other Structure from Source Organism	HLA-A*02:01	51 chromium cytotoxicity Positive-Low		
1276130	P A Wentworth; Mol Immunol 1995	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Primary induction in vitro with FLPSDFFPSV (Epitope)	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Epitope	HLA-A*02:01	51 chromium cytotoxicity Positive		
1276142	B Reherrmann; J Virol 1996	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Infectious disease via exposure to Hepatitis B virus (hepatitis B virus (HBV)) (Source Organism) followed by restimulation in vitro	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Epitope	HLA-A*02:01	51 chromium cytotoxicity Positive		
1326508	A Cerny; Eur J Immunol 1995	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Homo sapiens (human)	Primary induction in vitro with FLPSDFFPSV (Epitope)	FLPSDFFPSV core protein (18-27) Hepatitis B virus (hepatitis B virus (HBV))	Epitope	HLA-A*02:01	51 chromium cytotoxicity Positive		

Epitope-specific B Cell and T Cell Receptors

Current Filters: ✖ Organism: Hepatitis B virus (hepatitis B virus (HBV)) (ID:10407, HBV) ✖ Include Positive Assays ✖ No B cell assays ✖ No MHC assays ✖ Host: Homo sapiens (human)

Epitopes (471) Antigens (5) Assays (1508) Receptors (3235) References (150)

T Cell Receptors (3235) B Cell Receptors (0)

Go To Records Starting At Export Results

3235 Records Found Page of 130 Per Page

Group ID	Species	Type	Chain 1 CDR3	Chain 2 CDR3
27823	Homo sapiens (human)	αβ	CAVMADGQKLLF	CASSQTIGTGFNSNEQFF
28578	Homo sapiens (human)	αβ	CAVNGANDYKLSF	not available
28776	Homo sapiens (human)	αβ	not available	CASSLGQGGVGEKLF
28777	Homo sapiens (human)	αβ	not available	CASSQQGVWGTGELFF
29227	Homo sapiens (human)	αβ	QHAGEAPTFLSYN	CASSRRRDLGNEQFF
29228	Homo sapiens (human)	αβ	CALDSSASKIIF	CASSYLTGEGDYGTYF
30648	Homo sapiens (human)	αβ	not available	CASSQGLAGKETQYF
30649	Homo sapiens (human)	αβ	not available	CASSQGSQQGYNEQFF
30650	Homo sapiens (human)	αβ	not available	CASSQTEGGIYGTYF
30651	Homo sapiens (human)	αβ	not available	CASSQVAVSYEQYF
30652	Homo sapiens (human)	αβ	not available	CASSQVPDSYYGTYF
30653	Homo sapiens (human)	αβ	not available	CASSQVTGSNYGYTF
30654	Homo sapiens (human)	αβ	not available	CASSQVGSYHYGYTF
30655	Homo sapiens (human)	αβ	not available	CASSRGANYGYTF
30656	Homo sapiens (human)	αβ	not available	CASSRGLPPVEQFF
30657	Homo sapiens (human)	αβ	not available	CASSRGTGGYSNQPQHF
30658	Homo sapiens (human)	αβ	not available	CASSRWRGEEKLFF
30659	Homo sapiens (human)	αβ	not available	CASSFSFLGKTYGYTF
30660	Homo sapiens (human)	αβ	not available	CASSSGAGNTEAFF
30661	Homo sapiens (human)	αβ	not available	CASSSGLKMEENIQYF
30662	Homo sapiens (human)	αβ	not available	CASSSHGGAKNIQYF
30663	Homo sapiens (human)	αβ	not available	CASSRRDRDTGELFF
30664	Homo sapiens (human)	αβ	not available	CASSRIPRTGLIYEQYF
30665	Homo sapiens (human)	αβ	not available	CASSRNTGANEKLFF
30666	Homo sapiens (human)	αβ	not available	CASSRTRHNTGELFF

3235 Records Found Page of 130 Per Page

Go To Records Starting At Export Results

References: Source of Information

Pending Filters

Reset Search

Filter Options ?

B Cell

Epitope ?

Any

Linear peptide

Length

Sequence

Discontinuous

Non-peptidic

3D structure available

Amino acid modification

Epitope Source ?

Organism

Hepatitis B virus (Human h¹)

Antigen

Ex: core, capsid, myosin

Include related structure

Select multiple options

Antibody/BCR ?

Has BCR sequence

Type Any Type

Paired chains only

Current Filters: Organism: Hepatitis B virus (Human hepatitis B virus) (ID:10407, HBV) Include Positive Assays No T cell assays No MHC assays Host: Homo sapiens (human)

Epitopes (158) **Antigens** (4) **Assays** (278) **Receptors** (3) **References** (55)

Go To Records Starting At 1982 GO

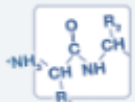
Export Results

55 Records Found Page 1 of 3 25 Per Page


Ref ID	PMID	Author	Title	Journal	Date
1039372	34406663	Sreya Tarafdar; Maria Luisa Virata; Hailing Yan; Lilin Zhong; Lu Deng; Yanqun Xu; Yong He; Evi Struble; Pei Zhang	Multiple epitopes of hepatitis B virus surface antigen targeted by human plasma-derived immunoglobulins coincide with clinically observed escape mutations.	J Med Virol	2021
1039298	34358170	Jisu Hong; Youngjin Choi; Yoonjoo Choi; Jiwoo Lee; Hyo Jeong Hong	Epitope-Paratope Interaction of a Neutralizing Human Anti-Hepatitis B Virus PreS1 Antibody That Recognizes the Receptor-Binding Motif.	Vaccines (Basel)	2021
1036989	32504577	Qiao Wang; Eleftherios Michailidis; Yingpu Yu; Zijun Wang; Ariene M Hurley; Deena A Oren; Christian T Mayer; Anna Gazumyan; Zhenmi Liu; Yunjiao Zhou; Till Schoofs; Kai-Hui Yao; Jan P Niekte; Jianbo Wu; Qingling Jiang; Chenhui Zou; Mohammad Kabbani; Corrine Quirk; Thiago Oliveira; Kalsang Chhosphei; Qianqian Zhang; William M Schneider; Cyprien Jahan; Tianlei Ying; Jill Horowitz; Marina Caskey; Mila Jankovic; Davide F Robbiani; Yumei Wen; Ype P de Jong; Charles M Rice; Michel C Nussenzweig	A Combination of Human Broadly Neutralizing Antibodies against Hepatitis B Virus HBsAg with Distinct Epitopes Suppresses Escape Mutations.	Cell Host Microbe	2020
1037271	32855110	Inna Tulaeva; Carolin Cornelius; Petra Ziegelmayer; René Ziegelmayer; René Schmutz; Patrick Lemell; Milena Weber; Margarete Focke-Tejkt; Alexander Karaulov; Rainer Henning; Rudolf Valenta	Quantification, epitope mapping and genotype cross-reactivity of hepatitis B preS-specific antibodies in subjects vaccinated with different dosage regimens of BM32.	EBioMedicine	2020
1035521	30771531	M-W Lai; K-H Liang; C-T Yeh	Diverse immune responses to HBV surface epitope variants after vaccine booster in adolescents immunized in infancy.	Clin Microbiol Infect	2019
1033695	29847243	Chang-Yu Chang; Fu-Ling Chang; Chen-Wei Chiang; Yan-Ni Lo; Tsai-Yu Lin; Wang-Chuan Chen; Keng-Chang Tsai; Yu-Ching Lee	Interaction of S17 Antibody with the Functional Binding Region of the Hepatitis B Virus Pre-S2 Epitope.	Viral Immunol	2018
1032281	28949917	Dan Li; Wenhui He; Ximing Liu; Sanduo Zheng; Yonghe Qi; Huiyu Li; Fengfeng Mao; Juan Liu; Yinyan Sun; Lijing Pan; Kaixin Du; Keqiong Ye; Wenhui Li; Jianhua Sui	A potent human neutralizing antibody Fc-dependently reduces established HBV infections.	Elife	2017
1025661	23452727	Zhongji Meng; Ruihua Song; Yue Chen; Yang Zhu; Yanhui Tian; Ding Li; Daxiang Cui	Rapid screening and identification of dominant B cell epitopes of HBV surface antigen by quantum dot-based fluorescence polarization assay.	Nanoscale Res Lett	2013
1025788	23597076	Jessica Z Bereszczak; Rebecca J Rose; Esther van Duijn; Norman R Watts; Paul T Wingfield; Alasdair C Steven; Albert J R Heck	Epitope-distal effects accompany the binding of two distinct antibodies to hepatitis B virus capsids.	J Am Chem Soc	2013
1019757	20412816	Kazuto Tajiri; Tatsuhiko Ozawa; Aishun Jin; Yoshiharu Tokimitsu; Masami Minemura; Hiroyuki Kishii; Toshiro Suwama; Atsushi Murauchi	Analysis of the epitope and neutralizing capacity of human monoclonal antibodies induced by hepatitis B vaccine.	Antiviral Res	2010

Example Query II: Influenza Virus Epitopes


START YOUR SEARCH HERE

Epitope 


Any
 Linear peptide
Exact M
 Discontinuous
 Non-peptidic

Assay 


T Cell
 B Cell
 MHC Ligand
Ex: neutralization
Outcome: Positive Negative

Epitope Source 


Organism
 1
Antigen
Ex: core, capsid, myosin

MHC Restriction 

Any
 Class I
 Class II
 Non-classical
Ex: HLA-A*02:01

Host 

Any
 Human
 Mouse
 Non-human primate
Ex: dog, camel

Disease 

Any
 Infectious
 Allergic
 Autoimmune
Ex: asthma

Results: All influenza virus epitopes

Both positive and negative assay outcomes



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Pending Filters

Reset Search

Filter Options ?

Default

Epitope ?

- Any
- Linear peptide
- Length
- Sequence
- Discontinuous
- Non-peptidic

3D structure assays
Amino acid modification

Epitope Source ?

Organism
Influenza virus (ID:100020)

Antigen
Ex: core, capsid, myosin

Include related structure
Select multiple options

Receptor ?

Has sequence

Type
Any Type

Paired chains only

Chain
Any Type

Sequence
Exact Matches

Assay ?

Current Filters: Organism: Influenza virus (ID:10002045) Include Positive Assays Include Negative Assays

Epitopes (10161) | Antigens (31) | Assays (38497) | Receptors (17358) | References (1679)

Go To Records Starting At 1200 Export Results

10161 Records Found Page 1 of 407 Per Page 25

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	271	738
4602	ASNENMETM	Nucleoprotein	Influenza A virus	161	487
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	134	490
61151	SLENFRAYV	Polymerase acidic protein	Influenza A virus	94	290
67436	TYQTRALV	Nucleoprotein	Influenza A virus	88	210
60867	SRYWAIRTR	Nucleoprotein	Influenza A virus	57	146
7136	CTELKLSDY	Nucleoprotein	Influenza A virus	40	89
59318	SLLTEVETPIRNEWGCRCNDSSD	Matrix protein 2	Influenza A virus	34	151
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	33	98
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	33	127
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	32	80
27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	31	68
61497	SSYRRPVGI	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	31	78
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	31	58
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	30	106
56055	RTFSFQLI	Nuclear export protein	Influenza A virus	27	63
17119	FMYSDFHFI	Polymerase acidic protein	Influenza A virus	26	68
39494	LSLRNPILV	Protein PB1-F2	Influenza A virus	24	52
2014	AIMDKNIL	Non-structural protein 1	Influenza A virus	20	81
57322	SDYEGRLI	Nucleoprotein	Influenza A virus	19	43
45001	NMLSTVLGV	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	17	66
18406	FYIQMCTEL	Nucleoprotein	Influenza A virus	16	48
41602	MGLIYNRM	Matrix protein 1	Influenza A virus	16	41
42143	MMMGFMNML	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	14	36
24408	HNTNGVTAACSHE	Hemagglutinin	Influenza A virus	13	21

10161 Records Found Page 1 of 407 Per Page 25

Go To Records Starting At 1200 Export Results

Results: Positive influenza virus epitopes

Positive assay outcomes



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Pending Filters

Reset Search

Filter Options
Default

Epitope
 Any
 Linear peptide
 Length
 Sequence
 Discontinuous
 Non-peptidic
 3D structure assays
 Amino acid modification

Epitope Source
 Organism
 Influenza virus (ID:100020)
 Antigen
 Ex: core, capsid, myosin
 Include related structure
 Select multiple options

Receptor
 Has sequence
 Type: Any Type
 Paired chains only
 Chain: Any Type
 Sequence: Exact Matches

Current Filters: ✖ Organism: Influenza virus (ID:10002045) ✖ Include Positive Assays

Epitopes (5993) | Antigens (31) | Assays (23300) | Receptors (17358) | References (1639)

Go To Records Starting At 1200 Export Results
 5993 Records Found Page 1 of 240 Per Page 25

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	264	695
4602	ASNENMETM	Nucleoprotein	Influenza A virus	156	449
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	127	424
61151	SLENFRAYV	Polymerase acidic protein	Influenza A virus	94	273
67436	TYQRTRALV	Nucleoprotein	Influenza A virus	85	182
60867	SRYWAIRTR	Nucleoprotein	Influenza A virus	46	101
7136	CTELKLSDY	Nucleoprotein	Influenza A virus	36	63
59318	SLLTEVETPIRNEWGCRNDSSD	Matrix protein 2	Influenza A virus	34	136
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	33	115
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	31	75
61497	SSYRRPVGI	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	29	69
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	28	95
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	27	50
27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	27	57
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	27	39
56055	RTFSFQLI	Nuclear export protein	Influenza A virus	25	52
17119	FMYSDFHFI	Polymerase acidic protein	Influenza A virus	22	59
39494	LSLRNPILV	Protein PB1-F2	Influenza A virus	21	45
2014	AIMDKNIL	Non-structural protein 1	Influenza A virus	19	74
57322	SDYEGRLI	Nucleoprotein	Influenza A virus	17	34
45001	NMLSTVLGV	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	16	48
18406	FYIQMCTEL	Nucleoprotein	Influenza A virus	13	35
41602	MGLIYNRM	Matrix protein 1	Influenza A virus	13	28
54593	RLIQNSLTI	Nucleoprotein	Influenza A virus	13	29
16681	FLKDVMESE	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	12	18

Results: Influenza virus epitopes that bind

Positive assay outcomes for MHC assays

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Pending Filters
 Reset Search

Filter Options
 MHC

Current Filters: ✗ Organism: Influenza virus (ID:10002045) ✗ Include Positive Assays ✗ No T cell assays ✗ No B cell assays

Epitopes (2869) | **Antigens** (25) | **Assays** (6502) | **Receptors** (0) | **References** (430)

Go To Records Starting At 1200 Export Results

2869 Records Found | Page 1 of 115 | 25 Per Page

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	84	270
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	82	107
4602	ASNENMETM	Nucleoprotein	Influenza A virus	45	55
60867	SRYWAIRTR	Nucleoprotein	Influenza A virus	20	34
67436	TYQRTRALV	Nucleoprotein	Influenza A virus	18	20
7136	CTELKLSDY	Nucleoprotein	Influenza A virus	13	18
16681	FLKDVMESM	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	12	17
61151	SSLENFRAYV	Polymerase acidic protein	Influenza A virus	12	21
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	12	18
17119	FMYSDFHFI	Polymerase acidic protein	Influenza A virus	11	23
54593	RLIQNSLTI	Nucleoprotein	Influenza A virus	11	18
18274	FVRQCFNPM	Polymerase acidic protein	Influenza A virus	10	18
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	9	13
17337	FPNEVGARI	Polymerase basic protein 2	Influenza A virus	9	9
24819	HSNLNDATY	Nucleoprotein	Influenza A virus	9	14
42612	MSNEGSYFF	Nucleoprotein	Influenza A virus	9	15
45001	NMLSTVLGV	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	9	21
65229	TMLYNKMEF	Polymerase basic protein 2	Influenza A virus	9	17
72836	WMACHSAAF	Nucleoprotein	Influenza A virus	9	18
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	8	9
17455	FPYTGDPY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	8	12
41360	MEFEFQSL	Polymerase basic protein 2	Influenza A virus	8	16
3599	APIEHIASM	Polymerase acidic protein	Influenza A virus	7	8
4011	AQNAISTTF	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	7	13
17877	FSVQRNLPF	Nucleoprotein	Influenza A virus	7	7

Epitope
 Any
 Linear peptide
 Length
 Sequence
 Discontinuous
 Non-peptidic
 3D structure assays
 Amino acid modification

Epitope Source
 Organism
 Influenza virus (ID:100020)
 Antigen
 Ex: core, capsid, myosin
 Include related structure
 Select multiple options

MHC Assay
 Outcome: Positive
 Any
 Binding
 Ligand elution/Mass spectrometry
 Ex: crystallography

Results: Influenza virus epitopes that are immunogenic

Positive assay outcomes for T cell assays

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Pending Filters

Reset Search

Filter Options

T Cell

Current Filters: Organism: Influenza virus (ID:10002045) | **Include Positive Assays** | No B cell assays | No MHC assays

Epitopes (2351) | Antigens (19) | Assays (7962) | Receptors (17112) | References (911)

Go To Records Starting At 1200 Export Results

2351 Records Found Page 1 of 95 Per Page 25

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	209	583
4602	ASNENMETM	Nucleoprotein	Influenza A virus	132	394
61151	SSELENFRAYV	Polymerase acidic protein	Influenza A virus	90	252
67436	TYQRTRALV	Nucleoprotein	Influenza A virus	76	160
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	60	154
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	33	107
60867	SRYWAIRTR	Nucleoprotein	Influenza A virus	32	67
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	28	66
7136	CTELKLSDY	Nucleoprotein	Influenza A virus	28	45
27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	26	52
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	26	86
61497	SSYRRPVGII	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	26	60
56055	RTFSFQLI	Nuclear export protein	Influenza A virus	23	41
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	20	37
39494	LSLRNPILV	Protein PB1-F2	Influenza A virus	20	37
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	18	21
2014	AIMDKNIL	Non-structural protein 1	Influenza A virus	16	61
17119	FMYSDFHFI	Polymerase acidic protein	Influenza A virus	15	36
57322	SDYEGRLI	Nucleoprotein	Influenza A virus	15	28
18406	FYIQMCTEL	Nucleoprotein	Influenza A virus	11	27
24408	HNTNGVTAACSHE	Hemagglutinin	Influenza A virus	11	18
45001	NMLSTVLGV	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	11	27
52824	QVYSLIRPNENPAHK	Nucleoprotein	Influenza A virus	11	27
59318	SLLTEVETPIRNEWGCRCDNDSSD	Matrix protein 2	Influenza A virus	11	25
38471	LPFEKSTVM	Nucleoprotein	Influenza A virus	10	24

Epitope

Any

Linear peptide

Length

Sequence

Discontinuous

Non-peptidic

3D structure assays

Amino acid modification

Epitope Source

Organism

Influenza virus (ID:10002045)

Antigen

Ex: core, capsid, myosin

Include related structure

Select multiple options

TCR

Has TCR sequence

Type

Any Type

Paired chains only

Chain

Any Type

Sequence

Exact Matches

Results: Influenza virus mouse epitopes that are immunogenic

Positive assay outcomes for T cell assays in a mouse host

IEDB Immune Epitope Database & Tools

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Pending Filters

Reset Search

Filter Options

T Cell

Epitope

Any

Linear peptide

Length

Sequence

Discontinuous

Non-peptidic

3D structure assays

Amino acid modification

Epitope Source

Organism

Influenza virus (ID:100020)

Antigen

Ex: core, capsid, myosin

Include related structure

Select multiple options

TCR

Has TCR sequence

Type: Any Type

Paired chains only

Chain: Any Type

Sequence: Exact Matches

Current Filters: Organism: Influenza virus (ID:10002045) | Include Positive Assays | No B cell assays | No MHC assays | Host: Mus (mice)

Epitopes (999) | **Antigens (16)** | **Assays (4017)** | **Receptors (1938)** | **References (532)**

Go To Records Starting At 1200

Export Results

999 Records Found

Page 1 of 40

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
4602	ASNENMETM	Nucleoprotein	Influenza A virus	132	394
61151	SSLENFRAYV	Polymerase acidic protein	Influenza A virus	90	252
67436	TYQRTRALV	Nucleoprotein	Influenza A virus	76	160
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	32	105
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	28	66
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	26	97
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	26	86
61497	SSYRPPVGI	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	26	60
56055	RTFSFQLI	Nuclear export protein	Influenza A virus	23	41
39494	LSLRNPILV	Protein PB1-F2	Influenza A virus	20	37
57322	SDYEGRLI	Nucleoprotein	Influenza A virus	15	28
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	13	20
52824	QVYSLRPNENPAHK	Nucleoprotein	Influenza A virus	11	27
59318	SLLTEVETPIRNEWGCRNDSSD	Matrix protein 2	Influenza A virus	11	25
18406	FYIQMCTEL	Nucleoprotein	Influenza A virus	10	23
24408	HNTNGVTAACSHE	Hemagglutinin	Influenza A virus	10	17
41602	MGLYNRM	Matrix protein 1	Influenza A virus	10	19
129797	RNLLWLTGKNGLYPNLS	Hemagglutinin	Influenza A virus	10	15
17119	FMYSDFHI	Polymerase acidic protein	Influenza A virus	9	21
67437	TYQRTRALVRTG	Nucleoprotein	Influenza A virus	9	16
129995	SSFERFEIFPKESSWPN	Hemagglutinin	Influenza A virus	9	14
5757	AYERMCNIL	Nucleoprotein	Influenza A virus	8	19
6802	CPKYVRSAKLRM	Hemagglutinin	Influenza A virus	8	13
29560	IYATVAGSL	Hemagglutinin	Influenza A virus	8	10
128521	EIFPKESSWPNHVTGV	Hemagglutinin	Influenza A virus	8	13

Results: Influenza virus epitopes that offer protection from disease

Positive assay outcomes for T cell assays (decreased disease, adoptive transfer, challenge) in a mouse host

The screenshot displays the IEDB Assay Finder interface. The top section shows a table of results with columns for Details, Epitope, Antigen, Organism, # References, and # Assays. The Assay Finder window is open, showing search filters and a tree view of assay types.

Table Data:

Details	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	194	528
4602	ASNENMETM	Nucleoprotein	Influenza A virus	130	376
24454				38	249
				75	158
				37	148
				33	107
				32	67
				28	66
				27	44
				26	86
				26	60
				24	46
				23	41
				20	37
				20	37
				16	18
				15	60
				15	36
				15	28
				11	27
				10	25
				10	17
				10	24
				10	19
				10	23

Assay Finder Search Filters:

- Epitope: Any (selected), Linear peptide, Length, Sequence, Discontinuous, Non-peptidic
- Epitope Source: Organism (Influenza virus (ID:100020)), Antigen (Ex: core, capsid, myosin), Include related structure
- TCR: Has TCR sequence, Type (Any Type), Paired chains only
- T Cell Assay: Outcome (Positive selected), Any, Cytokine production, MHC multimer, In vivo, Ex: IL-2 release

Assay Finder Current Selection(s): decreased disease, adoptive transfer, challenge

Assay Finder Search By: Name: Ex: IL-2, Release; Method/Technique: ; Measurement Of: ; Units: ; Search

Assay Finder Browse by Tree (Click to Select):

- T cell assay
 - 3D structure
 - binding constant
 - biological activity
 - activation
 - cytokine release
 - cytotoxicity
 - degranulation
 - helper response
 - in vivo activity
 - decreased disease (selected)
 - disease exacerbation
 - adoptive transfer (selected)
 - in vivo proliferation
 - challenge (selected)
 - tolerance
 - type IV hypersensitivity (DTH)
 - proliferation
 - suppression
 - qualitative binding

Results: Influenza virus epitopes that offer protection from disease

Positive assay outcomes for T cell assays (decreased disease, adoptive transfer, challenge) in a mouse host

IEDB Immune Epitope Database & Tools

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Pending Filters
 Reset Search

Filter Options (?)
 T Cell

Current Filters: Organism: Influenza virus (ID:10002045) | Include Positive Assays | No B cell assays | No MHC assays | Host: Mus (mice) | T Cell Assays: challenge, adoptive transfer, decreased disease

Epitopes (45) | Antigens (9) | Assays (101) | Receptors (38) | References (55)

Go To Records Starting At 1200 Export Results

45 Records Found Page 1 of 2 Per Page 25

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
67436	TYQTRALV	Nucleoprotein	Influenza A virus	9	12
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	8	12
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	7	12
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	7	8
4602	ASNENMETM	Nucleoprotein	Influenza A virus	5	5
61151	SSELENFRAYV	Polymerase acidic protein	Influenza A virus	4	4
59318	SLLTEVETPIRNEWGCRNDSSD	Matrix protein 2	Influenza A virus	3	3
17119	FMYSDFHF	Polymerase acidic protein	Influenza A virus	2	2
1547318	GNCVVQCQTERGGLN	Hemagglutinin	Influenza A virus	2	2
2014	AIMDKNIL	Non-structural protein 1	Influenza A virus	1	1
2790	ALNNRFQIKGVELKS	Hemagglutinin	Influenza A virus	1	2
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	1	1
5757	AYERMCNIL	Nucleoprotein	Influenza A virus	1	1
16098	FHDSNVKNL	Hemagglutinin	Influenza A virus	1	1
18406	FYIQMCTEL	Nucleoprotein	Influenza A virus	1	1
19421	GERQNATEI	Nucleoprotein	Influenza A virus	1	1
23311	GYAQTDCVL	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	1	1
41602	MGLIYNRM	Matrix protein 1	Influenza A virus	1	1
42596	MSLLTEVETPIRNEWGCRNDSSD	Matrix protein 2	Influenza A virus	1	1
42597	MSLLTEVETPIRNEWGCRNGSSD	Matrix protein 2	Influenza A virus	1	1
48650	PNGYIEGK	Polymerase basic protein 2	Influenza A virus	1	1
54593	RLIQNSLTI	Nucleoprotein	Influenza A virus	1	1
54594	RLIQNSLTIERMVLS	Nucleoprotein	Influenza A virus	1	1
56055	RTFSFQLI	Nuclear export protein	Influenza A virus	1	1
61497	SSYRRPVG	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	1	1

Epitope Source (?)
 Organism: Influenza virus (ID:100020) 1
 Antigen: Ex: core, capsid, myosin
 Include related structure
 Select multiple options

TCR (?)
 Has TCR sequence
 Type: Any Type
 Paired chains only
 Chain: Any Type
 Sequence: Exact Matches

More Exports



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Home | Specialized Searches | Analysis Resource

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

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* register here	
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T Cell Assays	507,656
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START YOUR SEARCH HERE

Epitope

Any
 Linear peptide
 Discontinuous
 Non-peptidic

Exact M

Assay

T Cell
 B Cell
 MHC Ligand

Ex: neutralization

Outcome: Positive Negative

Epitope Source

Organism

Antigen

MHC Restriction

Any
 Class I
 Class II
 Non-classical

Ex: HLA-A*02:01

Host

Any
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 Mouse
 Non-human primate

Ex: dog, camel

Disease

Any
 Infectious
 Allergic
 Autoimmune

Ex: asthma

Epitope Analysis Tools

T Cell Epitope Prediction

Scan an antigen sequence for amino acid patterns indicative of:

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More Exports

https://www.iedb.org/database_export_v3.php

XML Database Export	
Complete Database Export	510MB
iedbAccessionList.zip	80kB
MhcAlleleNameList.zip	533kB
OrganismList.zip	39MB
AssayTypeList.zip	5kB
GeoLocList.zip	3kB

IEDB Schema	
Curation.xsd (Primary IEDB schema)	49kB
CurationSimpleTypes.xsd	323kB
iedbAccessionList.xsd	909B
MhcAlleleNameList.xsd	1kB
OrganismList.xsd	751B
AssayTypeList.xsd	771B
GeoLocList.xsd	642B

MySQL Database Export	
SQL Statement Export	516MB
MyISAM Binary Export	1GB

Physical Entity Relationship Diagram	
iedb_public_erd.pdf	31kB

CSV Metric Exports	
epitope_full_v3.zip	78MB
antigen_full_v3.zip	2MB
tcell_full_v3.zip	37MB
bcell_full_v3 (single_file.zip) (multi_file.zip)	66MB
mhc_ligand_full (single_file.zip) (multi_file.zip)	231MB
reference_full_v3.zip	3MB
receptor_full_v3.zip	6MB
tor_full_v3.zip	5MB
bor_full_v3.zip	967kB
iedb_3d_full.zip	4MB

TSV Metric Exports	
epitope_full_v3_tsv.zip	78MB
antigen_full_v3_tsv.zip	2MB
tcell_full_v3_tsv.zip	37MB
bcell_full_v3_tsv.zip	66MB
mhc_ligand_full_tsv.zip	231MB
reference_full_v3_tsv.zip	3MB
tor_full_v3_tsv.zip	5MB
bor_full_v3_tsv.zip	967kB

Excel Metric Exports	
epitope_full_v3.xlsx	172MB
antigen_full_v3.xlsx	4MB
tcell_full_v3.xlsx	154MB
bcell_full_v3.xlsx	318MB
mhc_ligand_full.xlsx	805MB
reference_full_v3.xlsx	4MB
tor_full_v3.xlsx	17MB
bor_full_v3.xlsx	2MB

Json Metric Exports	
epitope_full_v3_json.zip	114MB
antigen_full_v3_json.zip	2MB
tcell_full_v3_json.zip	73MB
bcell_full_v3_json.zip	139MB

Help integrated throughout the website



Help

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START YOUR SEARCH HERE

Epitope Filter epitopes by molecular structure. [Learn More](#)

Any
 Linear peptide
 Discontinuous
 Non-peptidic

Exact N [Find](#)

B Cell
 MHC Ligand

Ex: neutralization [Find](#)

Outcome: Positive Negative

Epitope Source

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Ex: influenza, peanut [Find](#)

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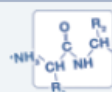
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 Linear peptide
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Exact IV



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 MHC Ligand

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Outcome: Positive Negative



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Ex: influenza, peanut

Antigen

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Solution Center: help.iedb.org

Accessible through header and footer on every page or submit via email to help@iedb.org

The screenshot shows the IEDB Solutions Center Forum homepage. At the top, there is a search bar with the text "Search". Below the search bar is the main heading "IEDB Solutions Center Forum". Underneath, there are three main categories: "IEDB Publications" (IEDB-related publications authored by members of the IEDB team), "General", and "Future features" (Possible new features or enhancements to existing ones derived from user help requests). Below these categories is a section titled "Promoted articles" which lists several articles, including "A survey of known immune epitopes in the enteroviruses strains associated with acute flaccid myelitis (2019)", "Getting Started", "Immune Epitope Database Query API (IQ-API)", "IEDB User Documentation Release 3", "Next-Generation IEDB Tools Website and API - Release 1.0", "Comprehensive Review of Human Plasmodium falciparum-Specific CD8+ T Cell Epitopes (2019)", "Citing the IEDB", "What are the IEDB Filter Options?", "IEDB Annual Compendium for 2021", "IEDB Analysis Resource v2.26 release notes (24 Feb 2022)", "Introducing the IEDB Customized Data Exports", "IEDB 3D Viewers (IEDB-3D 2.0)", "2022 IEDB Virtual User Workshop Presentations", "IEDB Analysis Resource v2.27 release notes (25 May 2023)", and "IEDB v3.10.0 release notes".

The screenshot shows the "Submit a request" form on the IEDB Solutions Center website. At the top right, there are links for "Submit a request" and "Sign in". The page title is "Submit a request". Below the title, there is a search bar with the text "Search". The form fields are: "Your email address*" (text input), "Subject*" (text input), and "Description*" (text area). Below the description field, there is a note: "Please enter the details of your request. A member of our support staff will respond as soon as possible." Underneath the note is an "Attachments" section with a text input field and a button labeled "Add file or drop files here". At the bottom of the form is a blue "Submit" button.