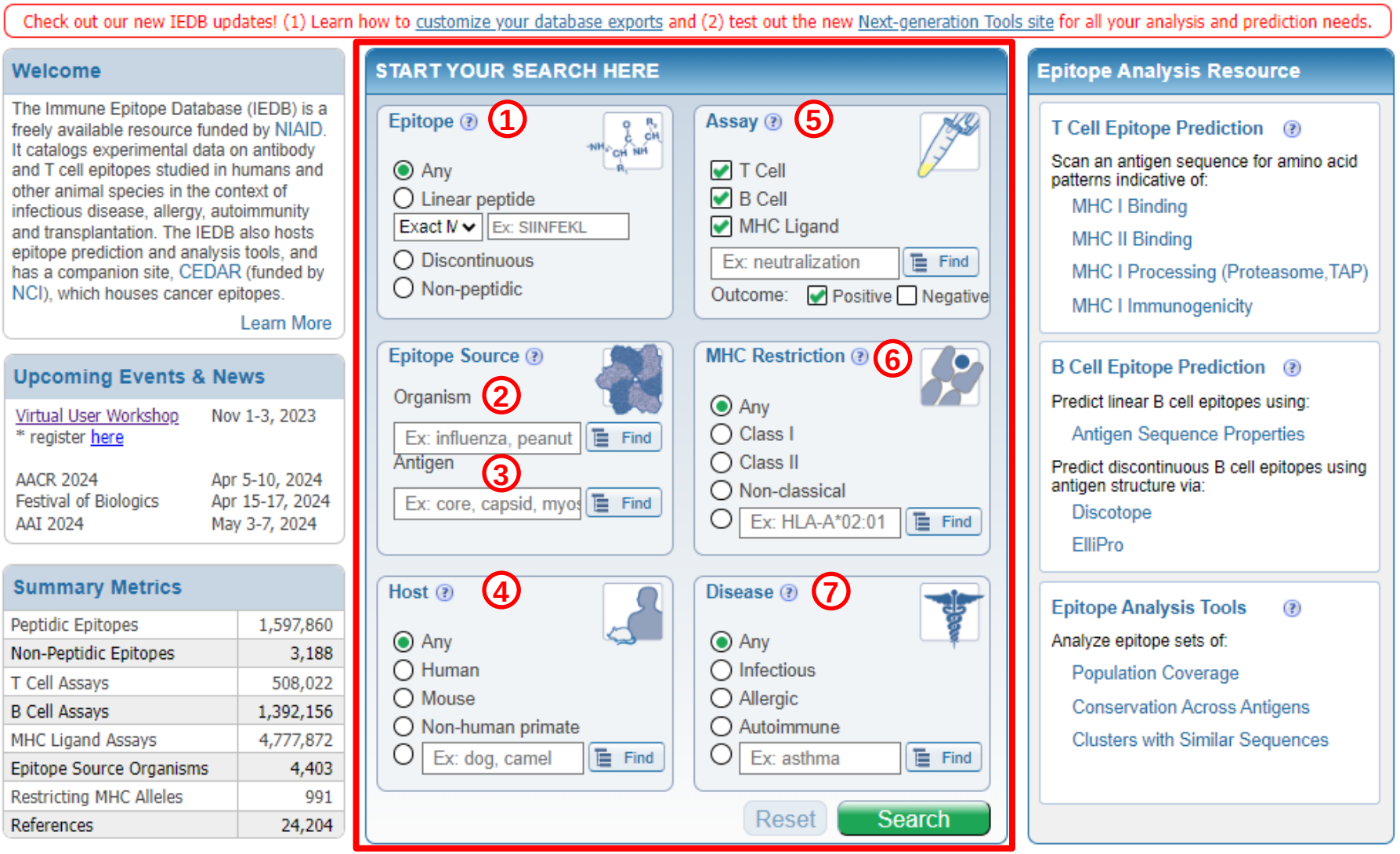
IEDB
Immune Epitope Database & Tools

Accessing the Data: Query, Reporting, and Examples

www.iedb.org

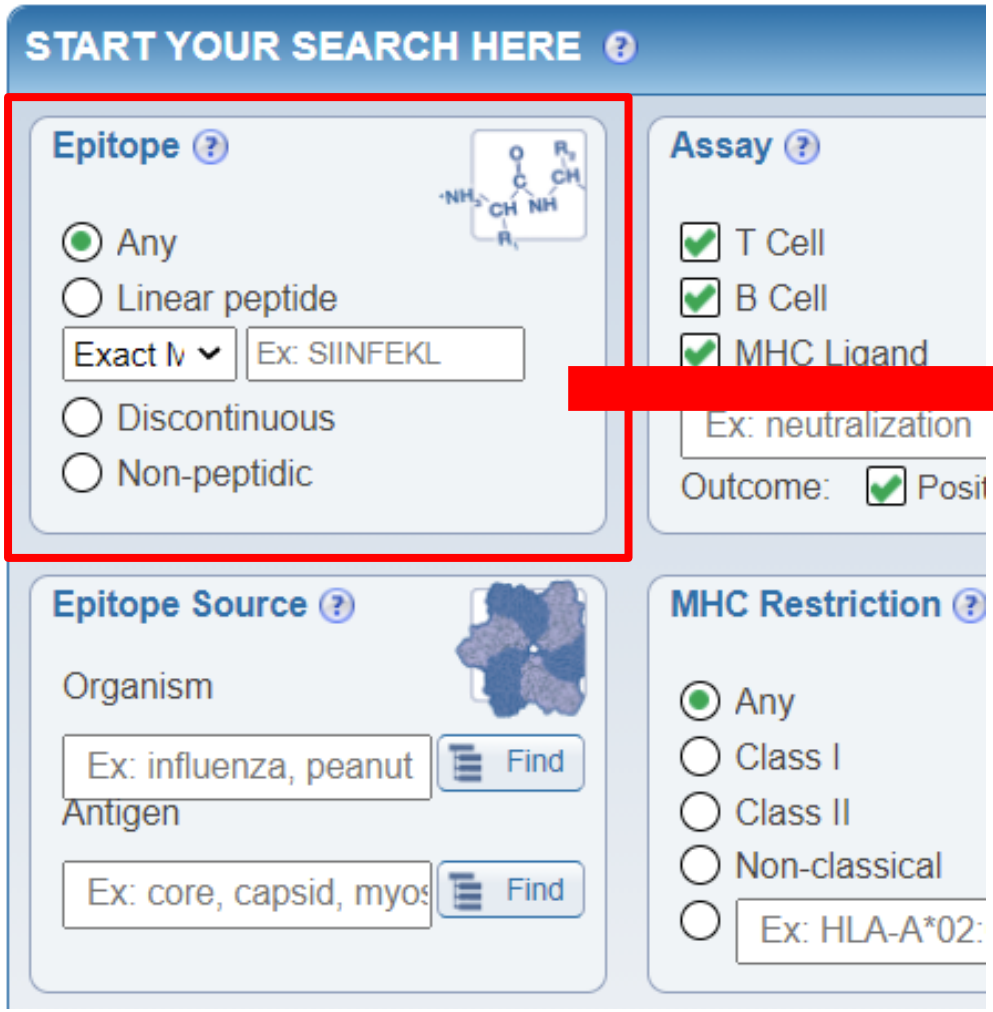
Presented by: Randi Vita, MD, Lead Ontology and Quality Manager
& Sidne Fitzpatrick, PhD, Curator

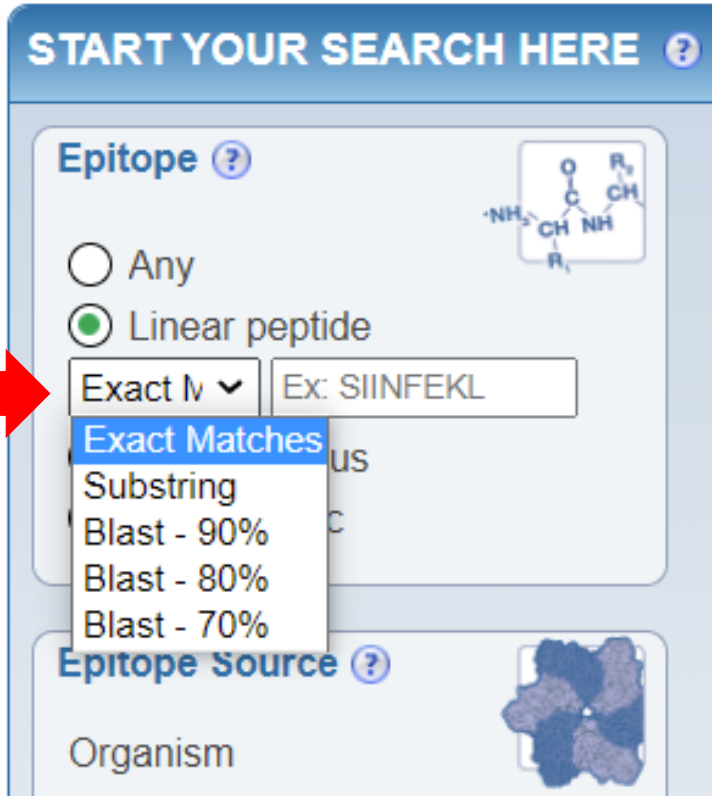
Home Page Query



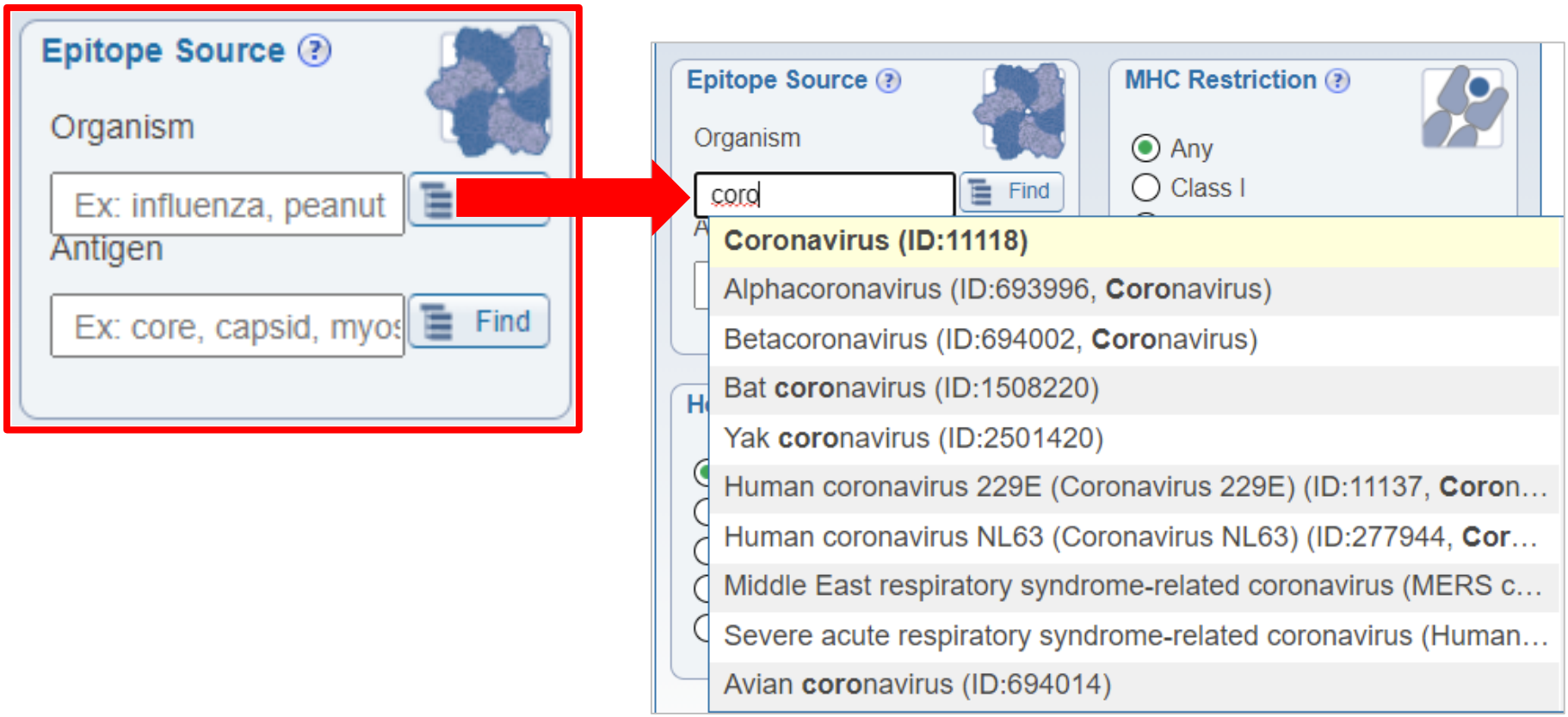
Epitope Search Pane

Search by epitope sequence

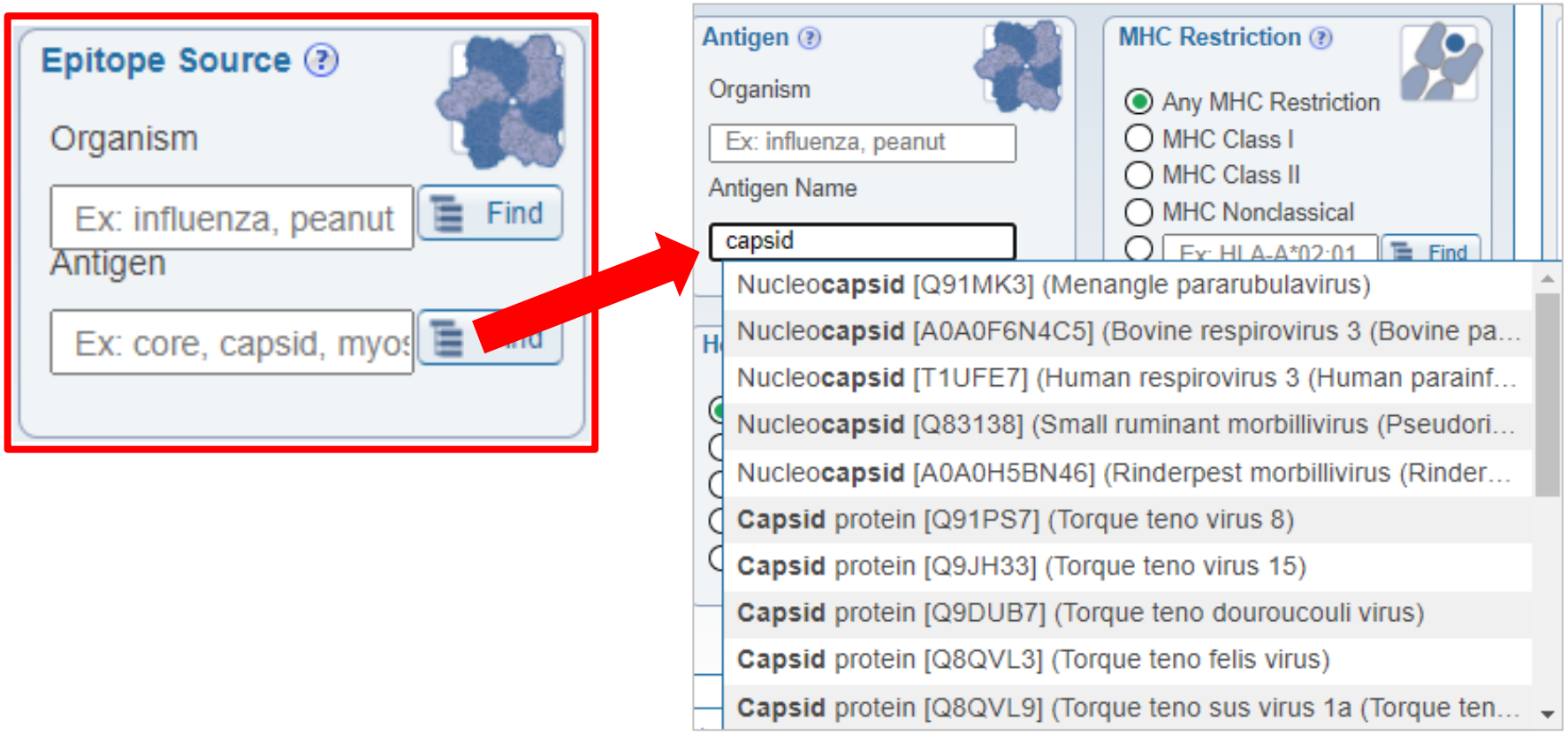




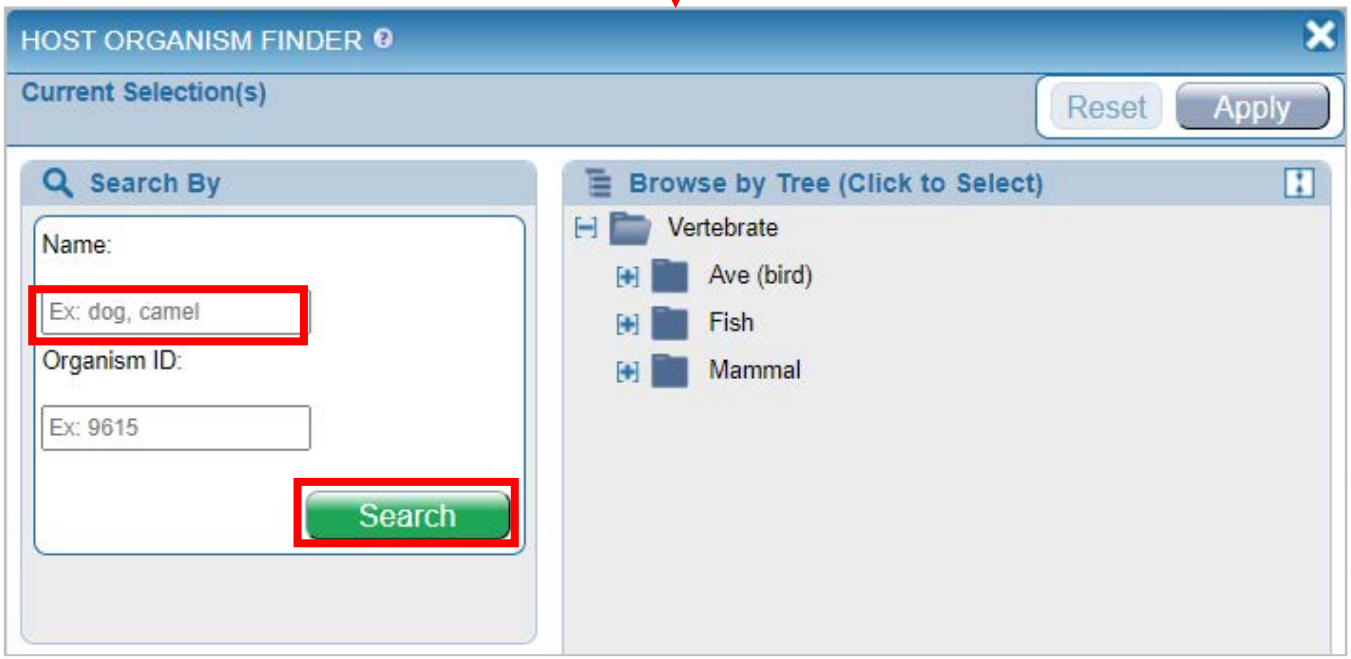
Antigen Search Pane: Organism



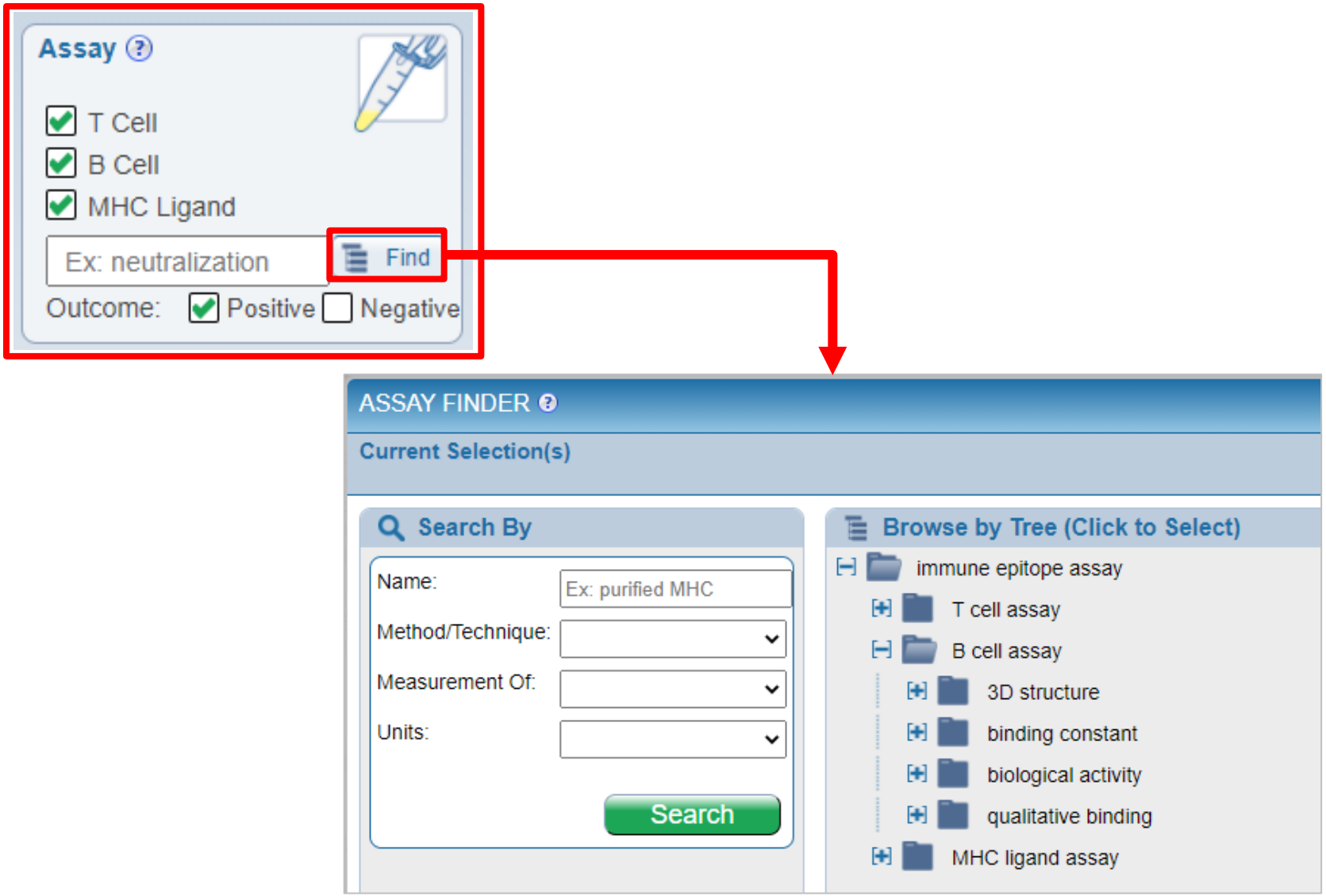
Antigen Search Pane: Antigen



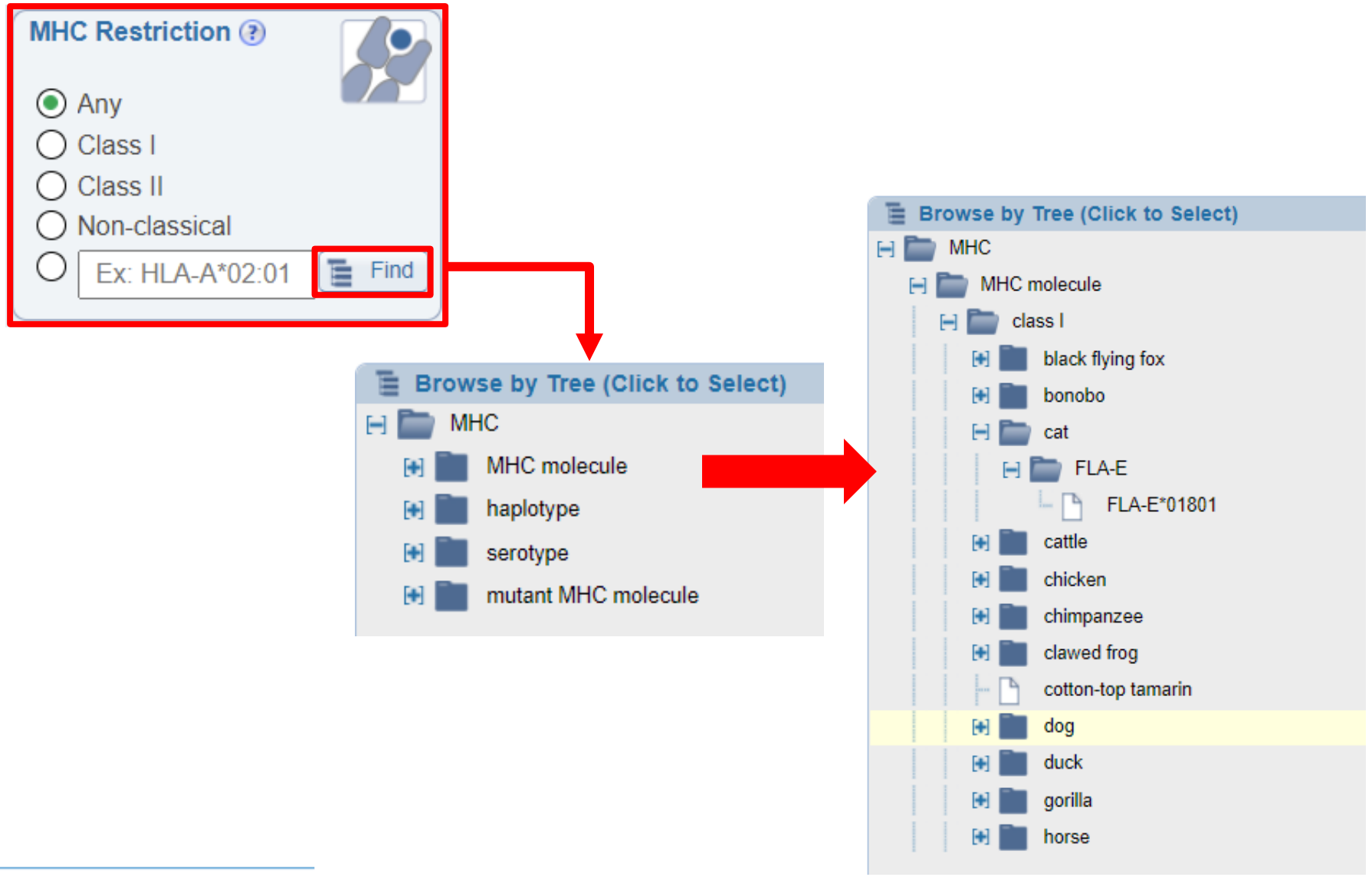
Host Search Pane



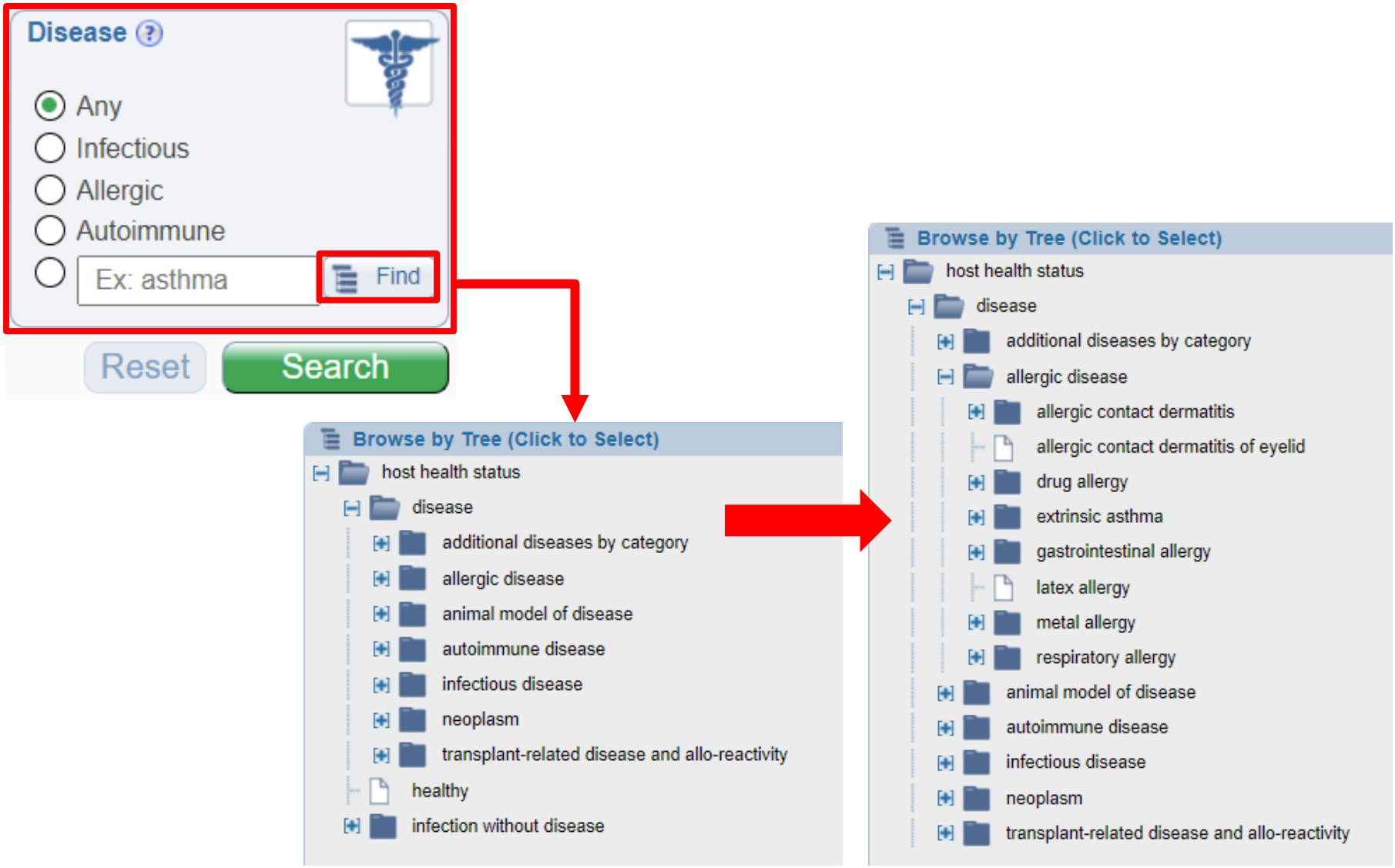
Assay Search Pane



MHC Restriction Search Pane

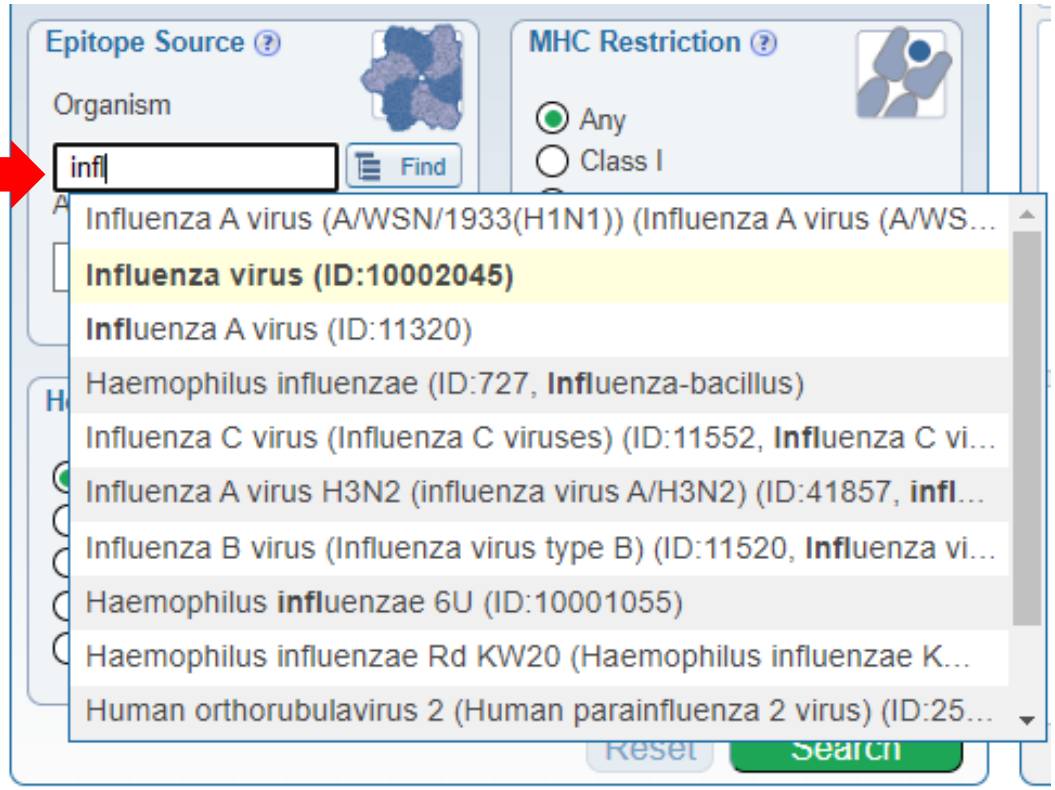


Disease Search Pane



User Queries: How to see the differences between B and T cell responses for any pathogen?

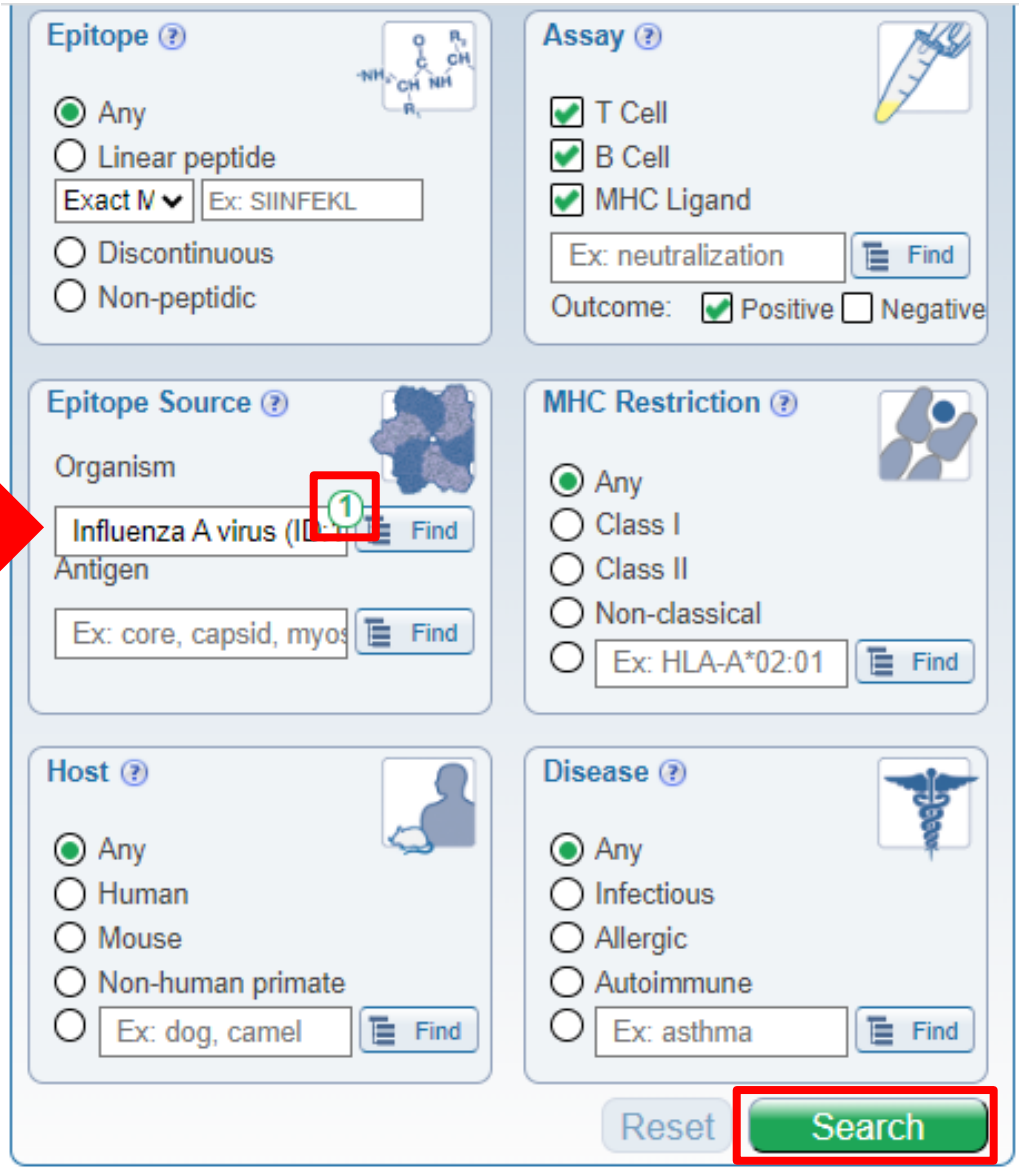
Start typing the organism name and autocomplete will provide options for which the IEDB has data



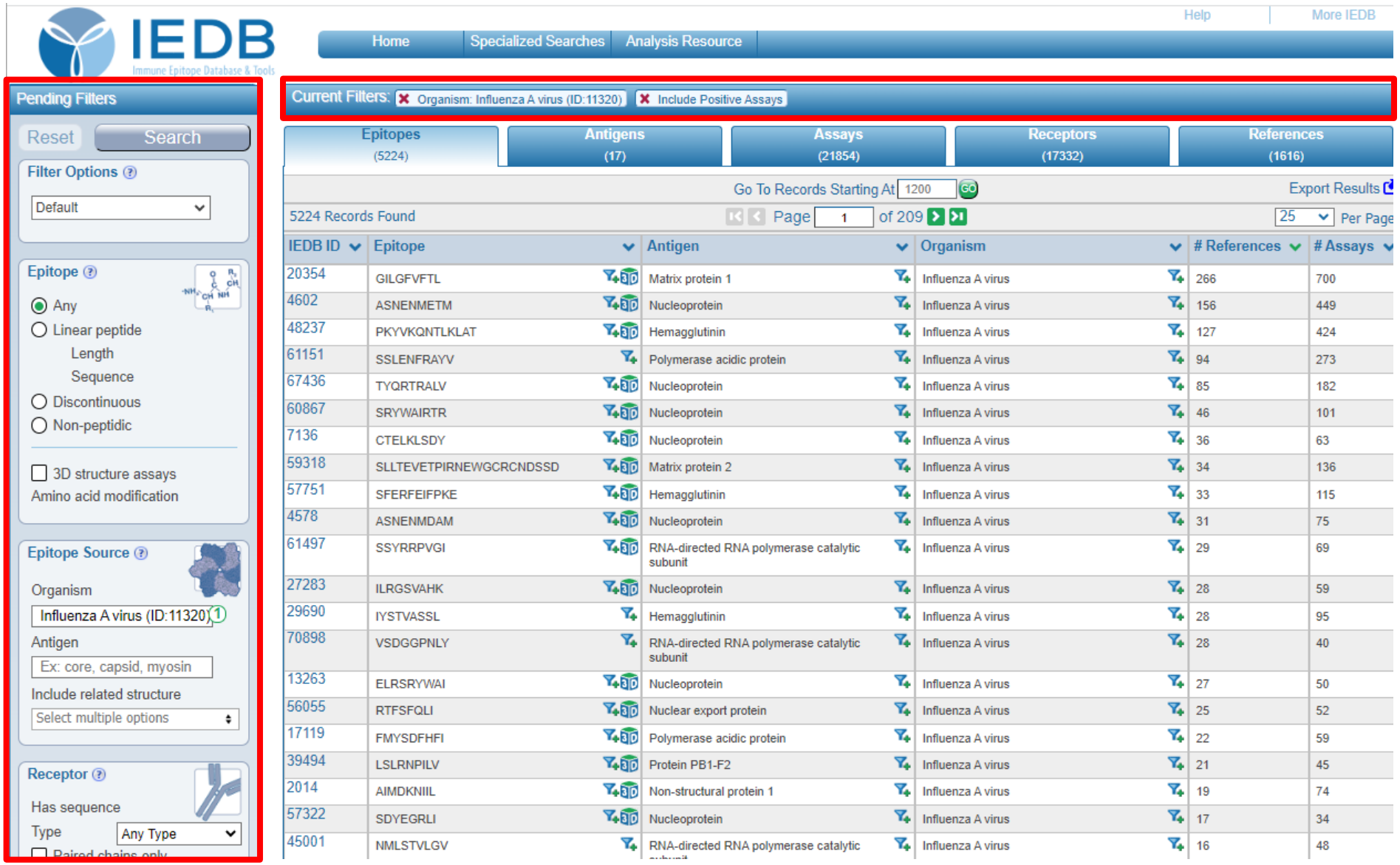
User Queries: How to see the differences between B and T cell responses for any pathogen?

Select Influenza A virus
This is a multi-select field
The number displays how many selections you have made
Once your query is built, click "Search"

**You can select from all search panes or from none

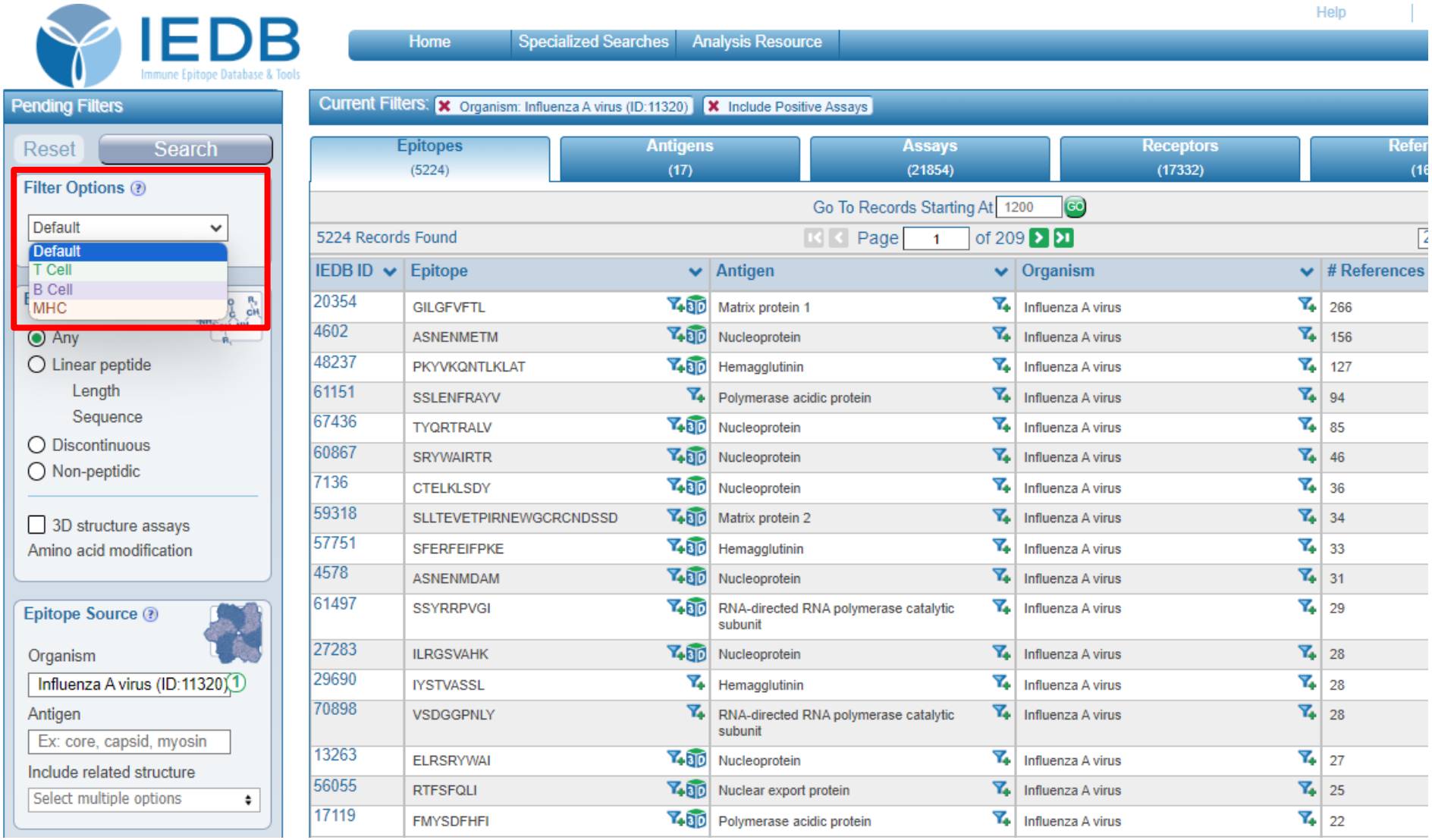


Results Page: Pending Filters/Current Filters



IEDB ID	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	266	700
4602	ASNENMETM	Nucleoprotein	Influenza A virus	156	449
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	127	424
61151	SSLENFRAYV	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	SLLTEVETPIRNEWGCRCNDSSD	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
27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	28	59
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	28	95
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	28	40
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	27	50
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	AIMDKNIIL	Non-structural protein 1	Influenza A virus	19	74
57322	SDYEGRLI	Nucleoprotein	Influenza A virus	17	34
45001	NMLSTVLGV	RNA-directed RNA polymerase catalytic	Influenza A virus	16	48

Results Page: Pending Filters/Filter Options



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60867	SRYWAIRTR	Nucleoprotein	Influenza A virus	46
7136	CTELKLSDY	Nucleoprotein	Influenza A virus	36
59318	SLLTEVETPIRNEWGCRCNDSSD	Matrix protein 2	Influenza A virus	34
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	33
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	31
61497	SSYRRPVGI	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	29
27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	28
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	28
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	28
13263	ELRSRYWAI	Nucleoprotein	Influenza A virus	27
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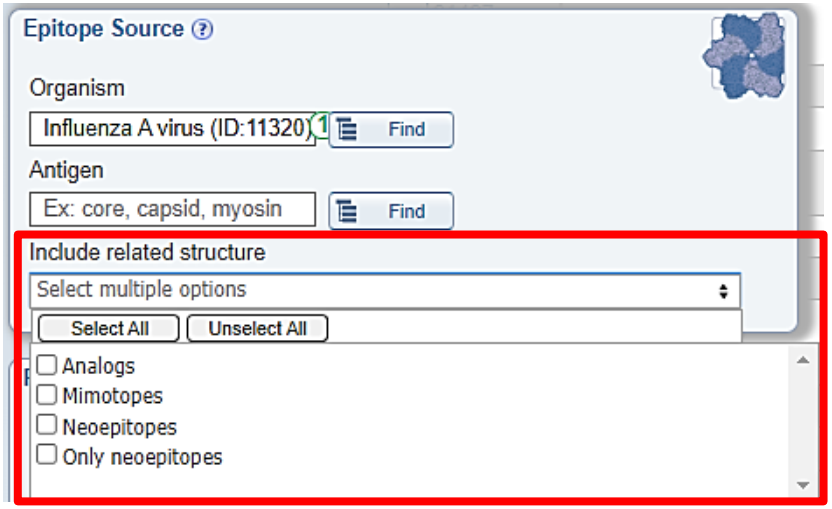
17119	FMYSDFHFI	Polymerase acidic protein	Influenza A virus	22

Results Page: Additional Filter Options

Default



Results Page: Additional Filter Options

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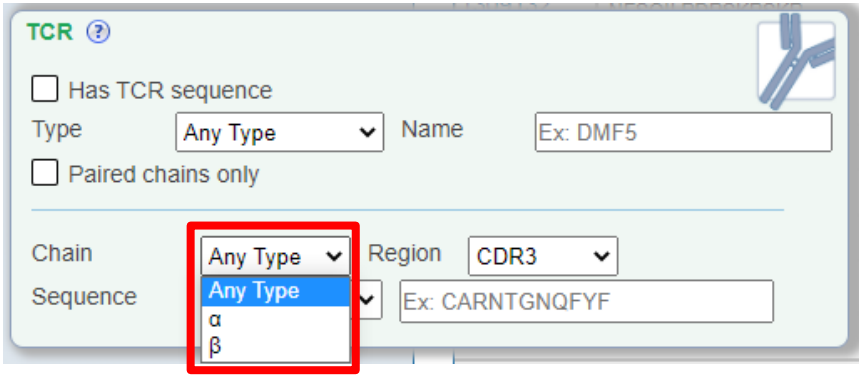
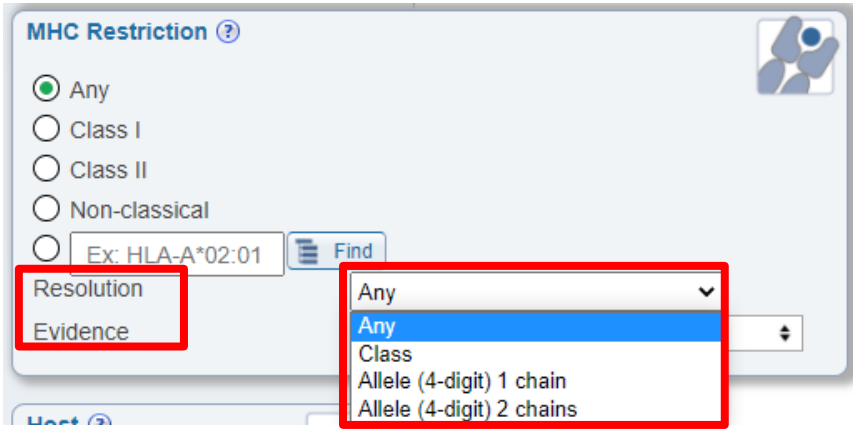
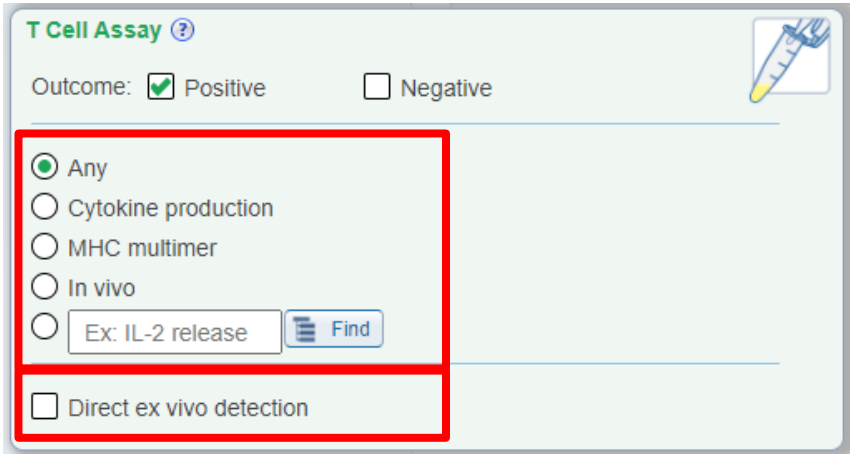
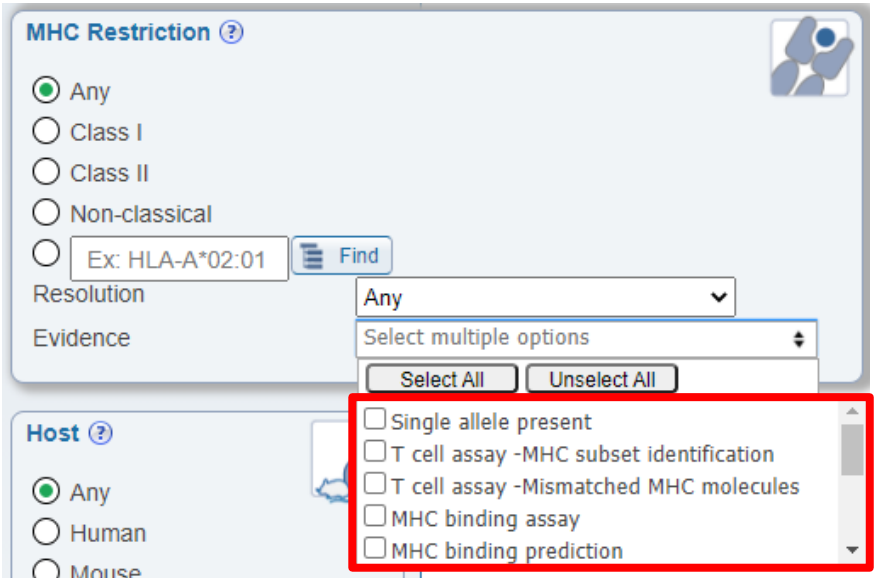


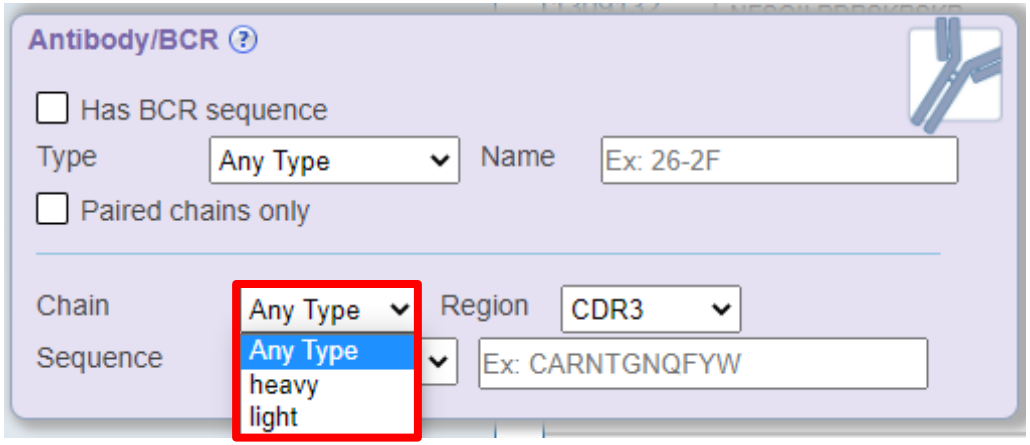


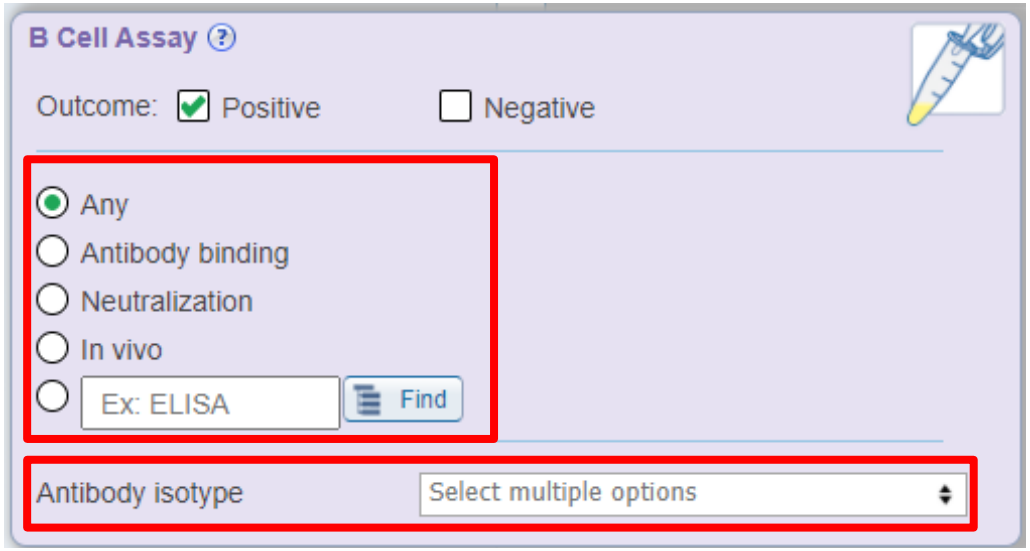




Results Page: Additional Filter Options

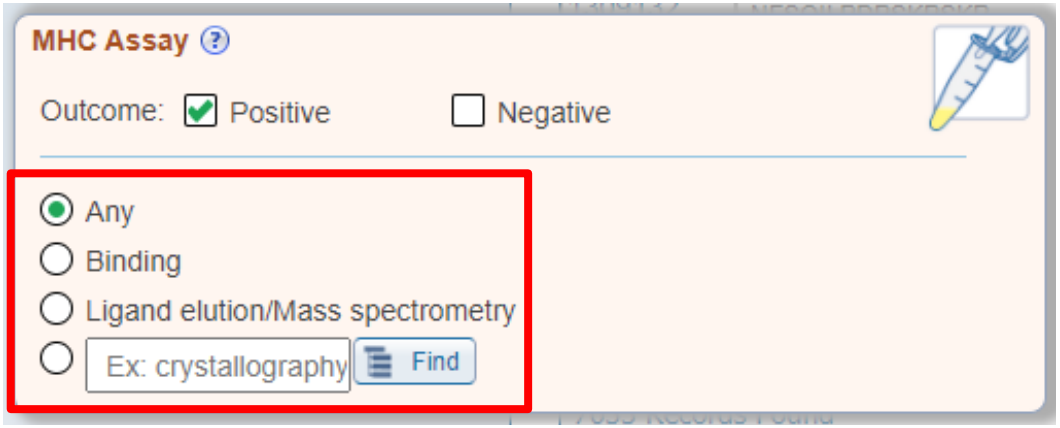
B Cell

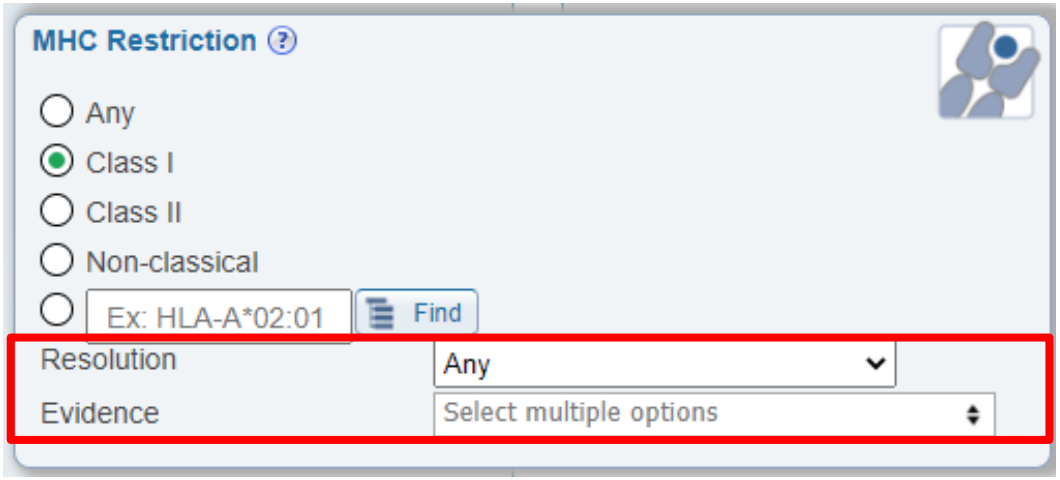




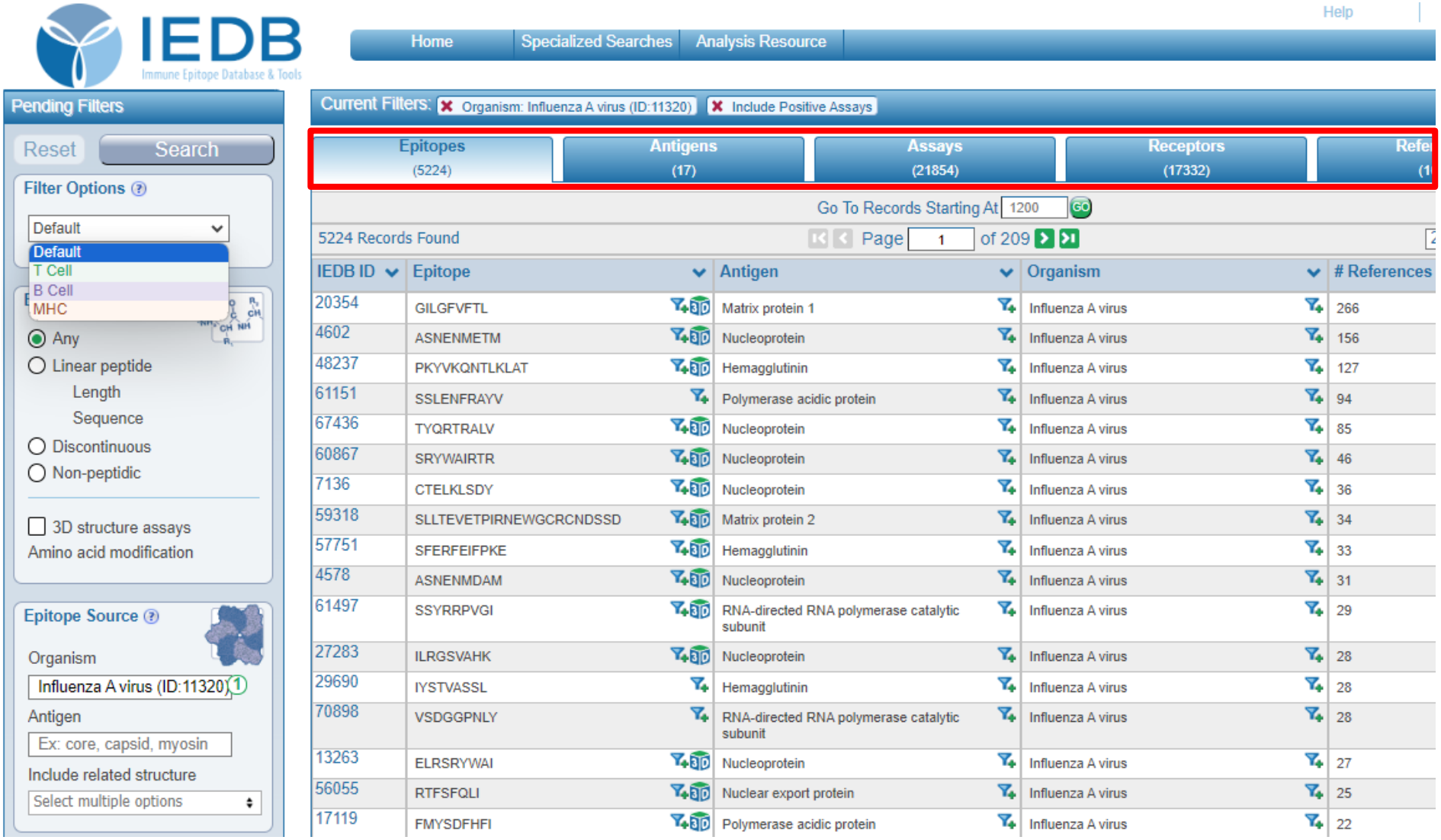
Results Page: Additional Filter Options

MHC





Results Page: Epitope Tab



IEDB ID	Epitope	Antigen	Organism	# References
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48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	127
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67436	TYQRTRALV	Nucleoprotein	Influenza A virus	85
60867	SRYWAIRTR	Nucleoprotein	Influenza A virus	46
7136	CTELKLSDY	Nucleoprotein	Influenza A virus	36
59318	SLLTEVETPIRNEWGCRCNDSSD	Matrix protein 2	Influenza A virus	34
57751	SFERFEIFPKE	Hemagglutinin	Influenza A virus	33
4578	ASNENMDAM	Nucleoprotein	Influenza A virus	31
61497	SSYRRPVGI	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	29
27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	28
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	28
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	28
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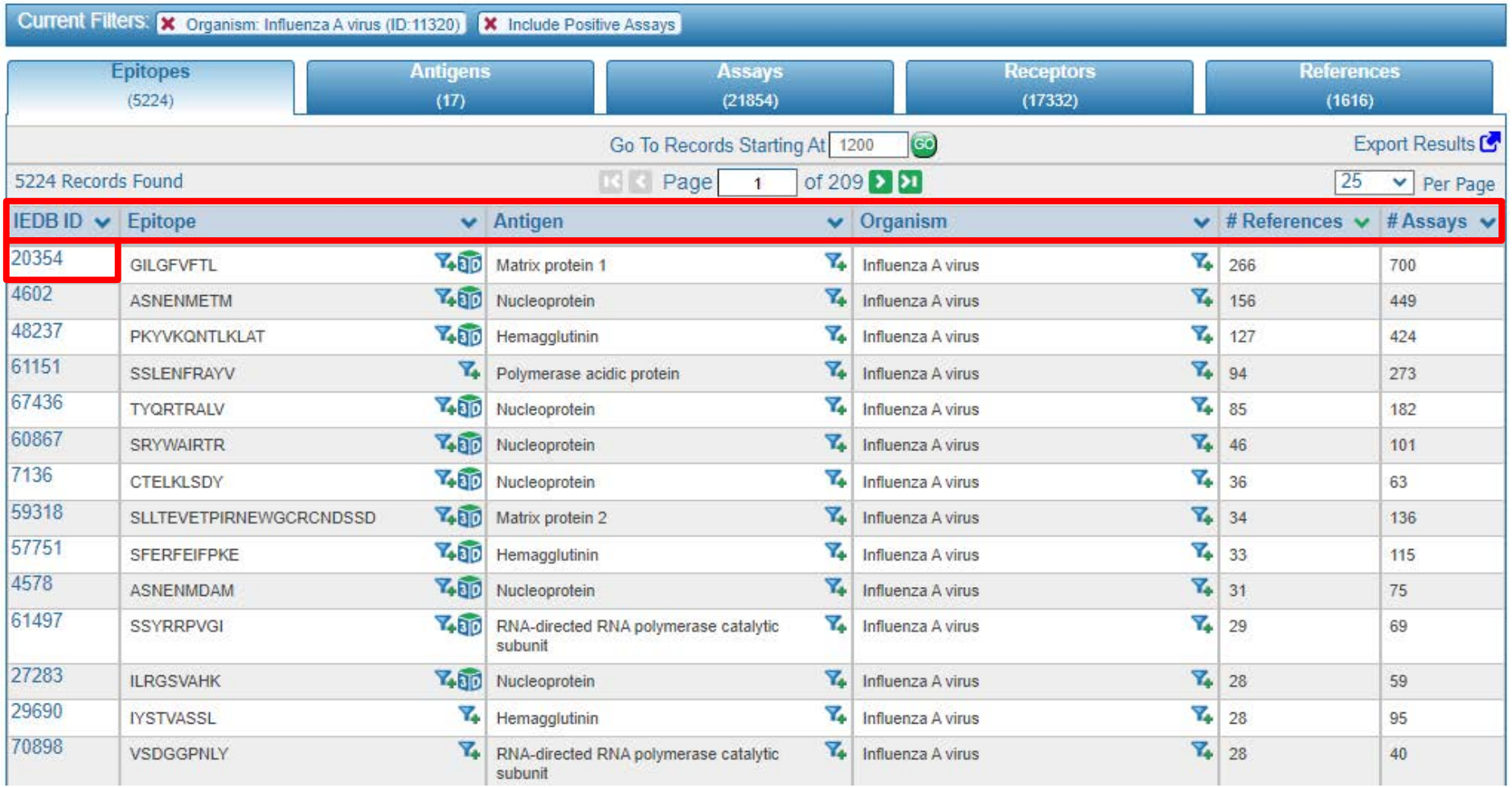
Results Page: Epitope Table Headers



Current Filters: Organism: Influenza A virus (ID:11320) | Include Positive Assays

Epitopes (5224) | Antigens (17) | Assays (21854) | Receptors (17332) | References (1616)

Go To Records Starting At 1200 GO | Export Results

5224 Records Found | Page 1 of 209 | 25 Per Page

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	266	700
4602	ASNENMETM	Nucleoprotein	Influenza A virus	156	449
48237	PKYVKQNTLKLAT	Hemagglutinin	Influenza A virus	127	424
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27283	ILRGSVAHK	Nucleoprotein	Influenza A virus	28	59
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	28	95
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	28	40

Results Page: Epitope Details

EPITOPE SUMMARY

GILGFVFTL is a linear peptidic epitope (epitope ID 20354) studied as part of Matrix protein 1 from Influenza A virus. This epitope has been studied for immune reactivity in 273 publication(s), tested in 620 T cell assays, 5 B cell assays, 118 MHC ligand assays and has 3D structure(s) 1HHI, 5JHD, 5ISZ, 5EUO, 5TEZ, 5E6I, 1OGA, 2VLL, 2VLK, 2VLR, 4NT6 and 2VLJ.

COMPILED DATA

MHC Ligand Assay(s) 118

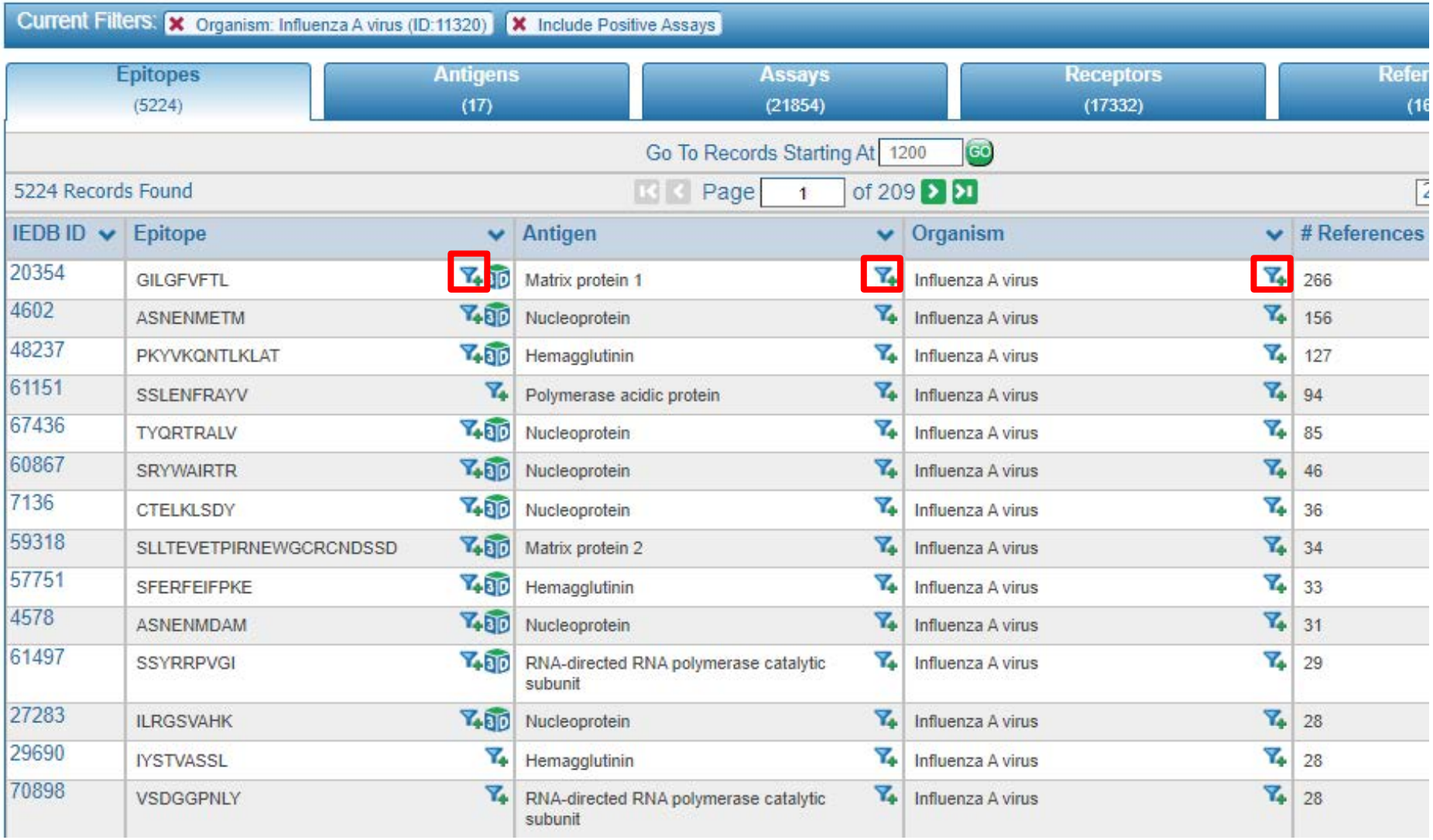
MHC molecule	Positive / All
HLA-A*02:01	78/78
HLA-A2	10/10
HLA-A*02:06	4/5
HLA-A*02:02	4/4
HLA-A*02:03	4/4
HLA-C*08:01	4/4
HLA-A*68:02	1/3
HLA-E	0/2
HLA-E*01:03	1/1
SLA-3*02:02	1/1
HLA-A*01:01	0/1
HLA-A*03:01	0/1
HLA-A*11:01	0/1
HLA-A*24:02	0/1
HLA-A3	0/1
HLA-DRA*01:01/DRB1*01:01	0/1

Results Page: Epitope Details

B Cell Assay(s) 5	
Assay Type	**Positive / All**
qualitative binding	4/4
complement-dependent cytotoxicity	1/1

T Cell Assay(s) 620	
Assay Type	**Positive / All**
IFNg release	184/191
qualitative binding	168/172
cytotoxicity	81/85
dissociation constant KD	28/36
proliferation	18/19
TNFa release	15/16
off rate	14/14
on rate	14/14
activation	10/10
3D structure	9/9
IL-2 release	7/8
CCL4/MIP-1b release	7/7
pathogen burden after challenge	6/7
degranulation	5/6
survival from pathogen challenge	5/6
perforin release	5/5
granzyme B release	4/4
TNF release	3/4
binding constant	1/1
CXCL9/MIG release	1/1
decreased disease	1/1
IL-12 release	1/1
T cell- APC binding	1/1
IL-10 release	0/1
IL-4 release	0/1

Results Pages: All Have Inline Filters



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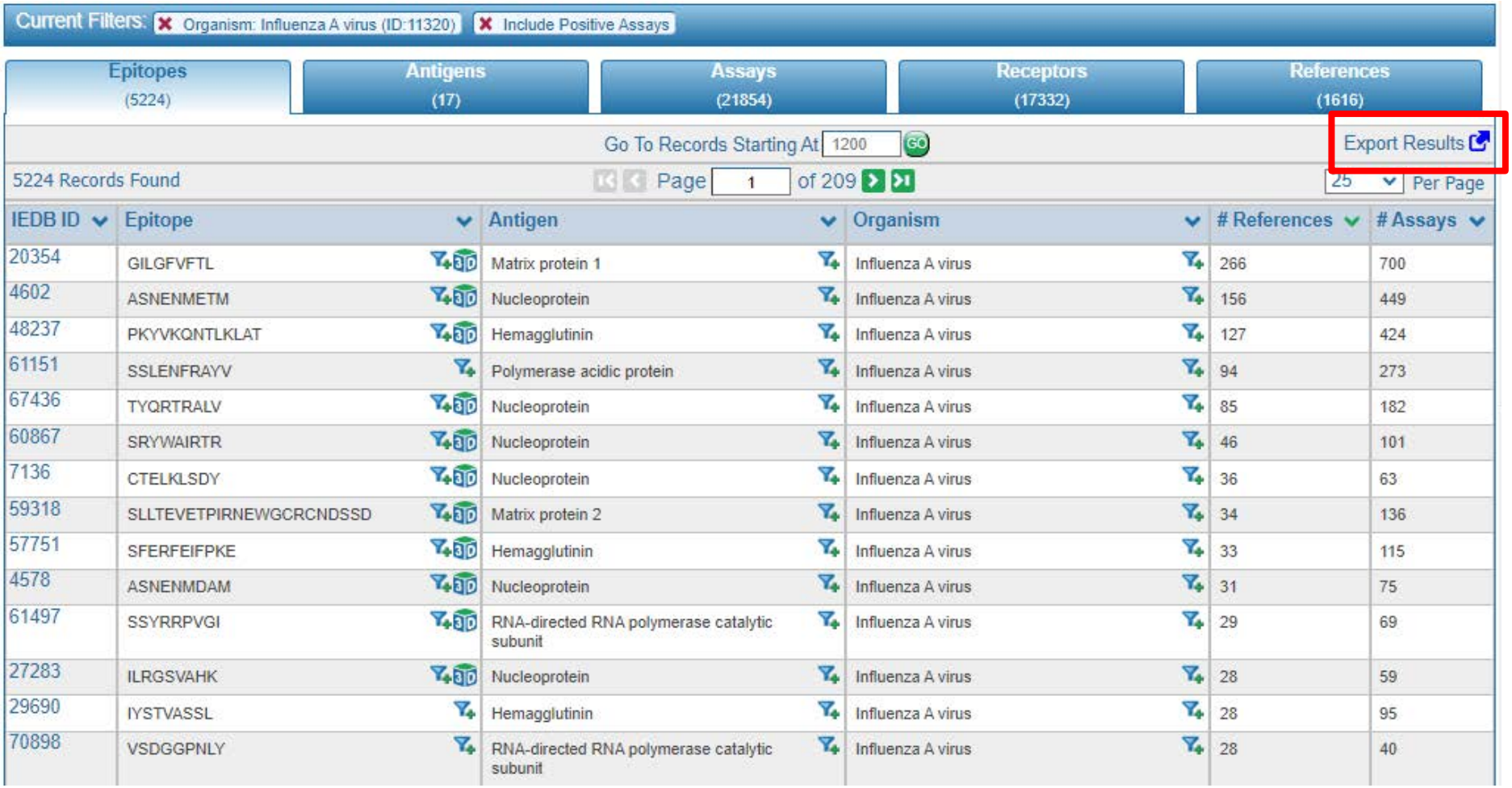
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	28
70898	VSDGGPNLY	RNA-directed RNA polymerase catalytic subunit	Influenza A virus	28

Results Pages: All Have Exports Options



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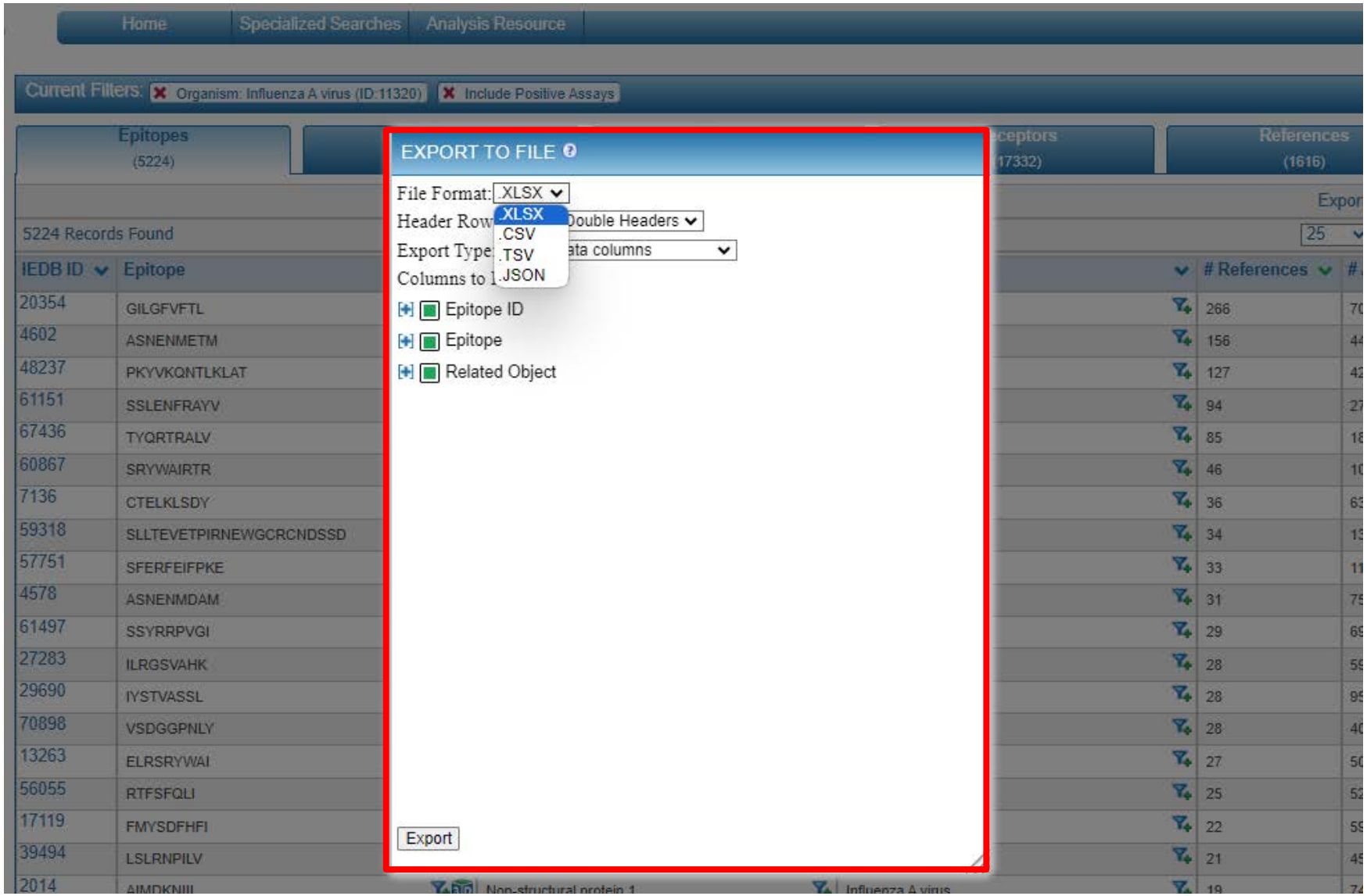
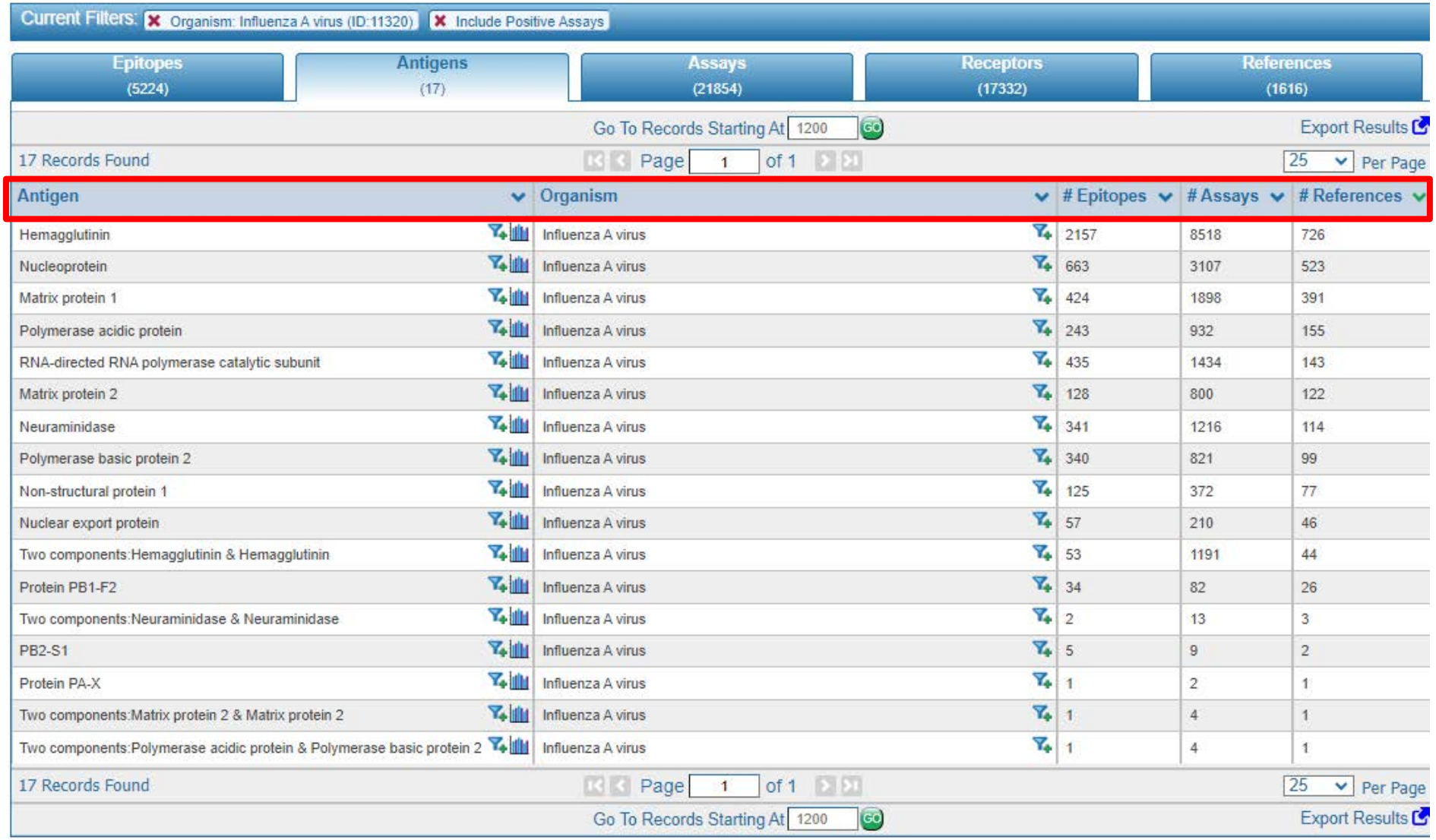
Results Pages: All Have Export Options



Results Page: Antigen Tab – Table Headers



Current Filters: Organism: Influenza A virus (ID:11320) | Include Positive Assays

Epitopes (5224) | Antigens (17) | Assays (21854) | Receptors (17332) | References (1616)

Go To Records Starting At 1200 GO — Export Results

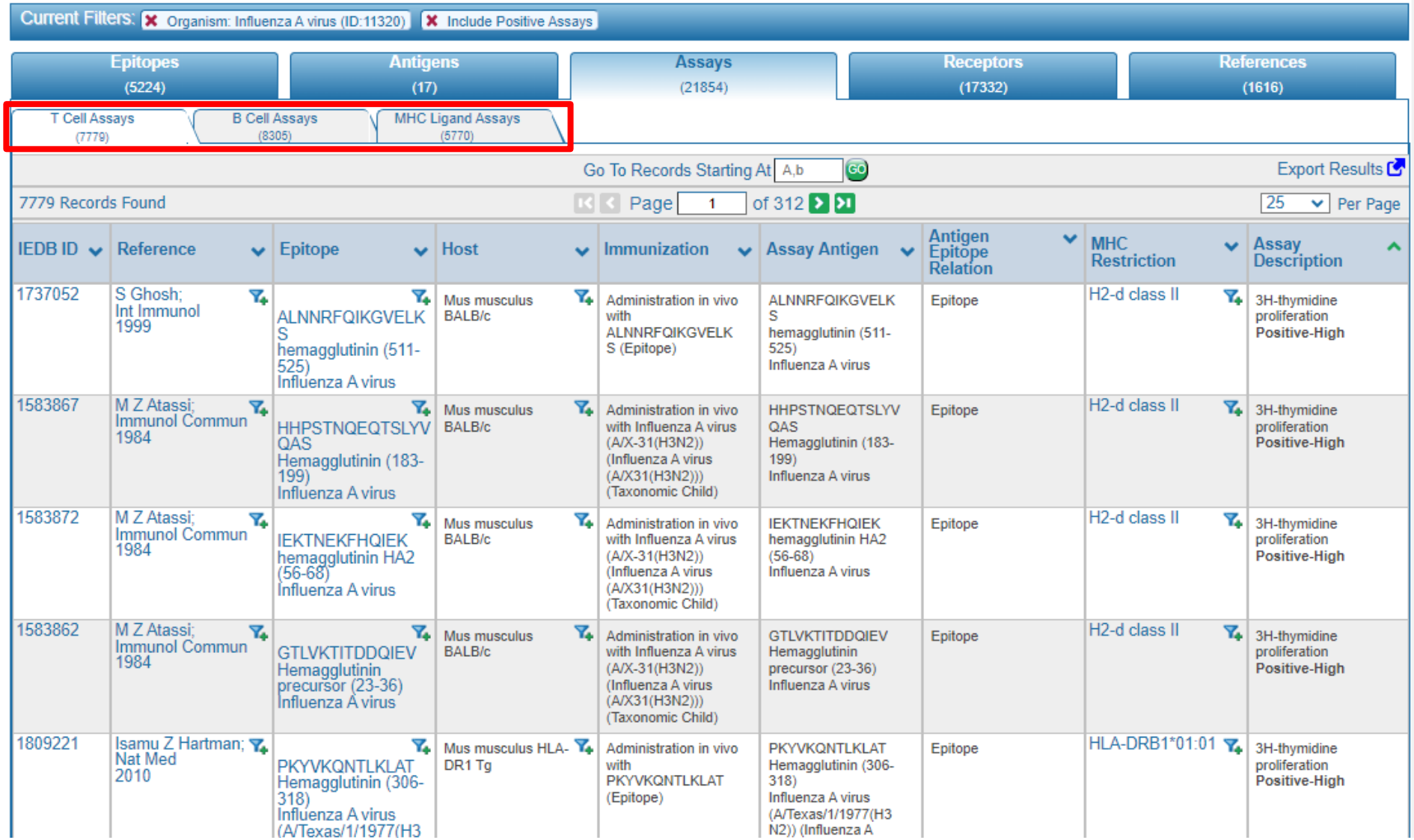
17 Records Found — Page 1 of 1 — 25 Per Page

Antigen	Organism	# Epitopes	# Assays	# References
Hemagglutinin	Influenza A virus	2157	8518	726
Nucleoprotein	Influenza A virus	663	3107	523
Matrix protein 1	Influenza A virus	424	1898	391
Polymerase acidic protein	Influenza A virus	243	932	155
RNA-directed RNA polymerase catalytic subunit	Influenza A virus	435	1434	143
Matrix protein 2	Influenza A virus	128	800	122
Neuraminidase	Influenza A virus	341	1216	114
Polymerase basic protein 2	Influenza A virus	340	821	99
Non-structural protein 1	Influenza A virus	125	372	77
Nuclear export protein	Influenza A virus	57	210	46
Two components:Hemagglutinin & Hemagglutinin	Influenza A virus	53	1191	44
Protein PB1-F2	Influenza A virus	34	82	26
Two components:Neuraminidase & Neuraminidase	Influenza A virus	2	13	3
PB2-S1	Influenza A virus	5	9	2
Protein PA-X	Influenza A virus	1	2	1
Two components:Matrix protein 2 & Matrix protein 2	Influenza A virus	1	4	1
Two components:Polymerase acidic protein & Polymerase basic protein 2	Influenza A virus	1	4	1

17 Records Found — Page 1 of 1 — 25 Per Page

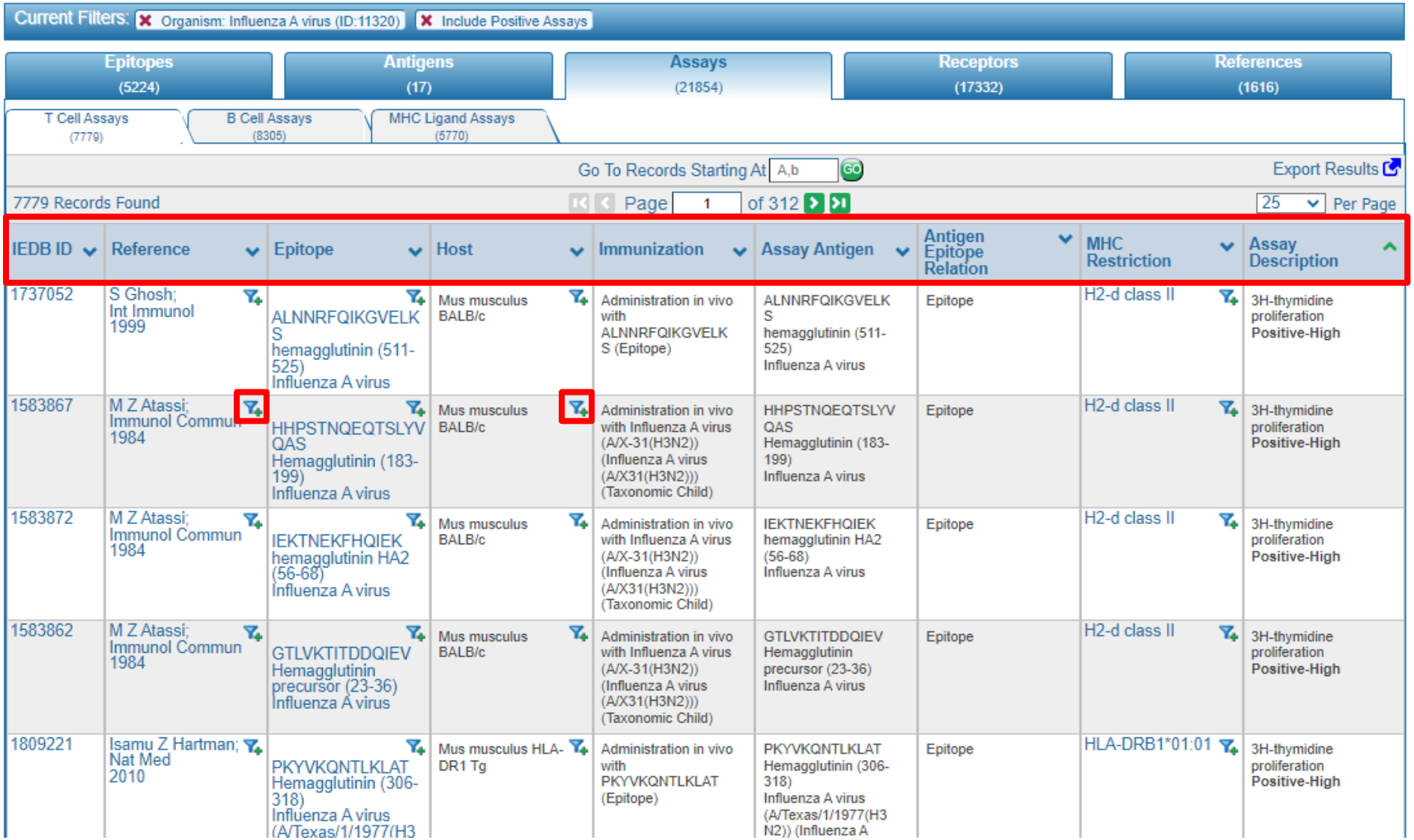
Go To Records Starting At 1200 GO — Export Results

Results Page: Assays Tab – Subtabs

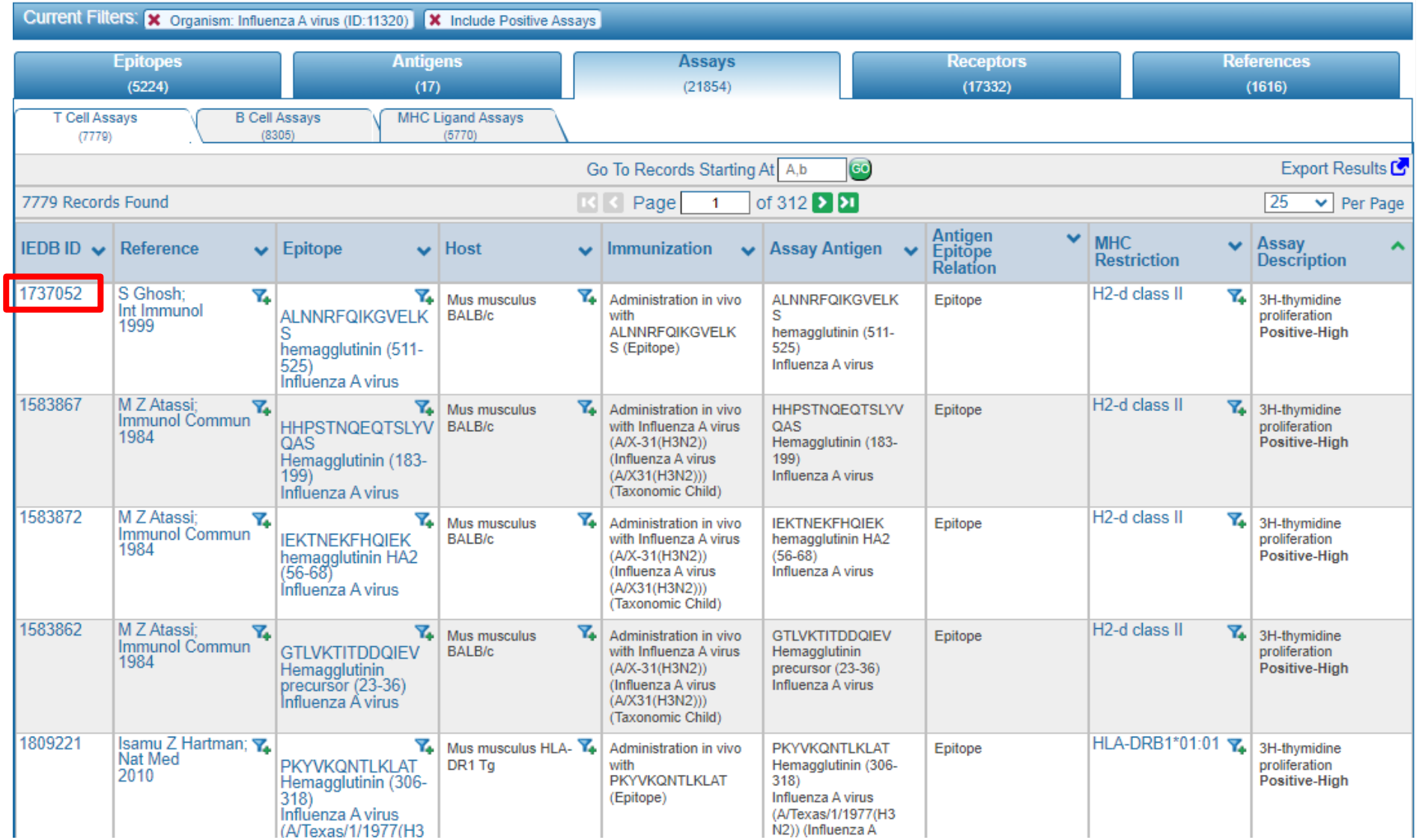


IEDB ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
1737052	S Ghosh; Int Immunol 1999	ALNNRFQIKGVELKS hemagglutinin (511-525) Influenza A virus	Mus musculus BALB/c	Administration in vivo with ALNNRFQIKGVELKS (Epitope)	ALNNRFQIKGVELKS hemagglutinin (511-525) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1583867	M Z Atassi; Immunol Commun 1984	HHPSTNQEQTSLYVQAS Hemagglutinin (183-199) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	HHPSTNQEQTSLYVQAS Hemagglutinin (183-199) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1583872	M Z Atassi; Immunol Commun 1984	IEKTNEKFHQIEK hemagglutinin HA2 (56-68) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	IEKTNEKFHQIEK hemagglutinin HA2 (56-68) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1583862	M Z Atassi; Immunol Commun 1984	GTLVKTITDDQIEV Hemagglutinin precursor (23-36) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	GTLVKTITDDQIEV Hemagglutinin precursor (23-36) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1809221	Isamu Z Hartman; Nat Med 2010	PKYVKQNTLKLAT Hemagglutinin (306-318) Influenza A virus (A/Texas/1/1977(H3	Mus musculus HLA-DR1 Tg	Administration in vivo with PKYVKQNTLKLAT (Epitope)	PKYVKQNTLKLAT Hemagglutinin (306-318) Influenza A virus (A/Texas/1/1977(H3N2)) (Influenza A	Epitope	HLA-DRB1*01:01	3H-thymidine proliferation **Positive-High**

Results Page: Assays Tab – Table Headers



Results Page: Assays Tab – Assay Details



Current Filters: Organism: Influenza A virus (ID:11320) | Include Positive Assays

Epitopes (5224) | Antigens (17) | Assays (21854) | Receptors (17332) | References (1616)

T Cell Assays (7779) | B Cell Assays (8305) | MHC Ligand Assays (5770)

Go To Records Starting At A,b GO | Export Results

7779 Records Found | Page 1 of 312 | 25 Per Page

IEDB ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
1737052	S Ghosh; Int Immunol 1999	ALNNRFQIKGVELKS hemagglutinin (511-525) Influenza A virus	Mus musculus BALB/c	Administration in vivo with ALNNRFQIKGVELKS (Epitope)	ALNNRFQIKGVELKS hemagglutinin (511-525) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation Positive-High
1583867	M Z Atassi; Immunol Commun 1984	HHPSTNQEQTSLYVQAS Hemagglutinin (183-199) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	HHPSTNQEQTSLYVQAS Hemagglutinin (183-199) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation Positive-High
1583872	M Z Atassi; Immunol Commun 1984	IEKTNEKFHQIEK hemagglutinin HA2 (56-68) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	IEKTNEKFHQIEK hemagglutinin HA2 (56-68) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation Positive-High
1583862	M Z Atassi; Immunol Commun 1984	GTLVKTITDDQIEV Hemagglutinin precursor (23-36) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	GTLVKTITDDQIEV Hemagglutinin precursor (23-36) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation Positive-High
1809221	Isamu Z Hartman; Nat Med 2010	PKYVKQNTLKLAT Hemagglutinin (306-318) Influenza A virus (A/Texas/1/1977(H3	Mus musculus HLA-DR1 Tg	Administration in vivo with PKYVKQNTLKLAT (Epitope)	PKYVKQNTLKLAT Hemagglutinin (306-318) Influenza A virus (A/Texas/1/1977(H3N2)) (Influenza A	Epitope	HLA-DRB1*01:01	3H-thymidine proliferation Positive-High

Results Page: Assays Tab – Assay Details
Reference

Reference		
Reference Type	Literature	IEDB_Reference:1017061
Title	Antigenic and immunogenic properties of totally synthetic peptide-based anti-fertility vaccines.	
Authors	S Ghosh; D C Jackson	
Affiliations	Co-Operative Research Centre for Vaccine Technology, Department of Microbiology and Immunology, University of Melbourne, Parkville 3052, Victoria, Australia.	
Journal	Int Immunol	PMID:10383943
Year	1999	
Abstract	In this study we describe the results of experiments in which a variety of totally synthetic luteinizing hormone releasing hormone (LHRH) vaccines were assembled and examined for their abilities to elicit antibody responses and induce sterility in mice. It is shown that totally synthetic vaccines consisting of a 15 residue-defined T cell epitope and the 10 residue LHRH epitope not only induced high titers of antibody but also induced sterility. This effect did not appear to correlate with antibody titer, antibody isotype or comparative antibody affinity, but may be related to the length of time for which antibodies are present to exert their influence.	
Curation Last Updated	2023-08-18 20:47:10	

Results Page: Assays Tab – Assay Details
Epitope

Epitope		
Epitope ID	2790	IEDB_epitope:2790
Chemical Type	Linear peptide	
Linear Sequence	ALNNRFQIKGVELKS	
Source Molecule Name	hemagglutinin	GenPept:AAA87553.1
Source Organism	Influenza A virus	NCBITaxon:11320
Starting Position	511	
Ending Position	525	

Epitope Reference Details		
Epitope Structure Defines	Epitope containing region/antigenic site	
Epitope Name	T4	
Location of Data in Reference	Materials and Methods	

Results Page: Assays Tab – Assay Details

In Vivo Immunization

Immunization		
Host Organism	Mus musculus BALB/c	ONTIE:0000001

Host Details		
Sex	F	

1st In Vivo Process		
In Vivo Process Type	Administration in vivo	OBI:0600007

Administration Details		
Adjuvants	Freund's complete;	
Route	subcutaneous	
Dose Schedule	1 doses of 20 nmol.	

1st Immunogen		
Epitope Relation	Epitope	
Chemical Type	Linear peptide	
Linear Sequence	ALNNRFQIKGVELKS	
Source Molecule Name	hemagglutinin	GenPept:AAA87553.1
Source Organism	Influenza A virus	NCBITaxon:11320
Starting Position	511	
Ending Position	525	

Immunization Comments		
Immunization Comments	T cells were enriched from popliteal and inguinal lymph nodes.	

Results Page: Assays Tab – Assay Details

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

Effector Cells		
Effector Cell Tissue Type	Lymph Node	UBERON:0000029
Effector Cell Type	T cell	CL:0000084
Effector Cell Culture Conditions	Direct Ex Vivo	

Antigen Presenting Cells		
Cell Tissue Type	Lymph Node	UBERON:0000029
Cell Type	Lymph node cells	OBI:1110041
Cell Culture Conditions	Direct Ex Vivo	

Results Page: Assays Tab – Assay Details

MHC Allele		
MHC Allele Name	H2-d class II	MRO:0001774
MHC Evidence Code	Cited reference	

Antigen		
Epitope Relation	Epitope	
Chemical Type	Linear peptide	
Linear Sequence	ALNNRFQIKGVELKS	
Source Molecule Name	hemagglutinin	GenPept:AAA87553.1
Source Organism	Influenza A virus	NCBITaxon:11320
Starting Position	511	
Ending Position	525	

Assay Reference Details		
Location of Assay Data in Reference	Figure 2	

Results Page: Receptors Tab – Subtabs & Groups

Current Filters: Organism: Influenza A virus (ID:11320) | Include Positive Assays

Epitopes (5224) | Antigens (17) | Assays (21854) | Receptors (17332) | References (1616)

T Cell Receptors (17101) | B Cell Receptors (231)

Go To Records Starting At 1200 GO | Export Results

17101 Records Found | Page 1 of 685 | 25 Per Page

Group ID	Species	Type	Chain 1 CDR3	Chain 2 CDR3
819	Homo sapiens (human)	αβ	AGAGSQGNLI	ASSSRSSYEQY
820	Homo sapiens (human)	αβ	AGAGSQGNLI	ASSIRSSYEQY
1239	Mus musculus C57BL/6	αβ	VLGDRQGGRALI	ASSSRTGGHAEQF
1250	Mus musculus C57BL/6	αβ	ILSGGSNYKLT	ASSFGREQY
1410	Mus musculus B10.D2	αβ	ASNSGGSNAKLT	ASGETGTNERL
1513	Homo sapiens (human)	αβ	AGAIGSSNTGKLI	ASSIRSSYEQY
1514	Homo sapiens (human)	αβ	AGPGGSSNTGKLI	ASSLIYPGELF
1515	Homo sapiens (human)	αβ	AAQGSQGNLI	ASSIRSSYEQY
1516	Homo sapiens (human)	αβ	AAQGSQGNLI	ASSIGVYGYT
1517	Homo sapiens (human)	αβ	AAQGSQGNLI	ASSIRAAETQY
1518	Homo sapiens (human)	αβ	AAQGSQGNLI	ASSTFGANVLT
1519	Homo sapiens (human)	αβ	AVGGSQGNLI	ASSIRSSYEQY
1520	Homo sapiens (human)	αβ	AASFIIQGAQKLV	ASSLLGGWSEAF
1524	Homo sapiens (human)	αβ	AVTGGGSQGNLI	ASSIRSSYEQY
1525	Homo sapiens (human)	αβ	AVQGSQGNLI	ASSIRAAETQY
1526	Homo sapiens (human)	αβ	AGAFGSSNTGKLI	ASSIRSAYEQY
1527	Homo sapiens (human)	αβ	AGAGGGSQGNLI	ASSIRSSTEAF
1528	Homo sapiens (human)	αβ	AGAGGGSQGNLI	ASSRRSSDEQY

Results Page: Receptors Tab – Receptor Group

T cell receptor (receptor group ID 819)

Alpha beta TCR with alpha chain CDR3 of AGAGSQGNLI and beta chain CDR3 of ASSSRSSYEQY was reported in Homo sapiens (human). This TCR has accessions for alpha chain 5HHM_D, 1OGA_D, 2VLJ_D and beta chain 5HHM_E, 1OGA_E, 2VLJ_E and was shown in 3D Structures 5HHM, 1OGA, 2VLR, 2VLJ and 2VLK.

alpha		beta		Epitopes (# assays)
Gene usage	CDR sequences	Gene usage	CDR sequences	
V:TRAV27*01 D: J:TRAJ42*01	CDR1:SVFSS CDR2:VVTGGEV CDR3:AGAGSQGNLI	V:TRBV19*01 D: J:TRBJ2-7*01	CDR1:LNHDA CDR2:SQIVND CDR3:ASSSRSSYEQY	GILGFVFTL (1), GILEFVFTL (1), GILGLVFTL (2), GIWGFVFTL (1)
V Domain: LEQSPQFLSIQEGENLTVYCNSSSVFSSLQ...		V Domain: GITQSPKYLFRKEGQNVTLSCEQNLNHDAM...		
V:TRAV27*01 D: J:TRAJ42*01	CDR1:SVFSS CDR2:VVTGGEV CDR3:AGAGSQGNLI	V:TRBV19*01 D: J:TRBJ2-7*01	CDR1:LNHDA CDR2:SQIVND CDR3:ASSSRSSYEQY	GILGFVFTL (5)
V Domain: LLEQSPQFLSIQEGENLTVYCNSSSVFSSL...		V Domain: GGITQSPKYLFRKEGQNVTLSCEQNLNHDA...		
V:TRAV27 D: J:TRAJ42	CDR1: CDR2: CDR3:AGAGSQGNLI	V:TRBV19 D: J:TRBJ2-7	CDR1: CDR2: CDR3:ASSSRSSYEQY	GILGFVFTL (1)
V Domain:		V Domain:		

Epitope summary

This TCR was studied for the following epitopes GILGFVFTL studied as part of Matrix protein 1 from Influenza A virus (epitope ID 20354, 4 publications, 7 assays), GILEFVFTL studied as part of Matrix protein 1 from Influenza A virus (epitope ID 538549, 1 publication, 1 assay), GILGLVFTL studied as part of Matrix protein 1 from Influenza A virus (epitope ID 538552, 1 publication, 2 assays) and GIWGFVFTL studied as part of Matrix protein 1 from Influenza A virus (epitope ID 538554, 1 publication, 1 assay).

Results Page: References Tab – Table Headers

Current Filters: Organism: Influenza A virus (ID:11320) | Include Positive Assays

Epitopes (5224) | Antigens (17) | Assays (21854) | Receptors (17332) | References (1616)

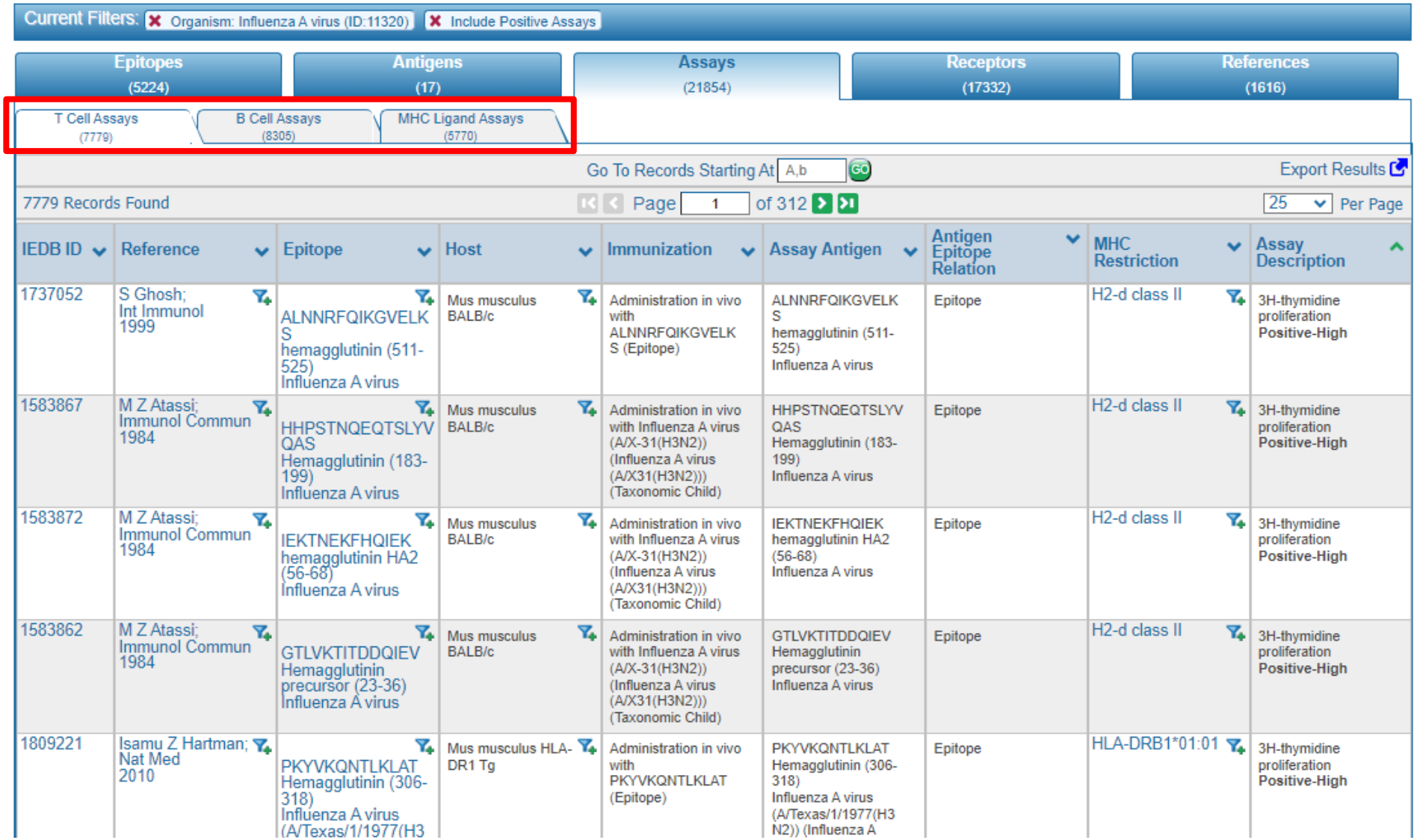
Go To Records Starting At 1982 GO | Export Results

1616 Records Found | Page 1 of 65 | 25 Per Page

IEDB ID	PMID	Author	Title	Journal	Date
1042927	37280206	Julien Schmidt; Johanna Chiffelle; Marta A S Perez; Morgane Magnin; Sara Bobisse; Marion Arnaud; Raphael Genolet; Julien Cesbron; David Barras; Blanca Navarro Rodrigo; Fabrizio Benedetti; Alexandra Michel; Lise Queiroz; Petra Baumgaertner; Philippe Guillaume; Michael Hebeisen; Olivier Michielin; Tu Nguyen-Ngoc; Florian Huber; Melita Irving; Stéphanie Tissot-Renaud; Brian J Stevenson; Sylvie Rusakiewicz; Denarda Dangaj Laniti; Michal Bassani-Sternberg; Nathalie Rufer; David Gfeller; Lana E Kandalaft; Daniel E Speiser; Vincent Zoete; George Coukos; Alexandre Harari	Neoantigen-specific CD8 T cells with high structural avidity preferentially reside in and eliminate tumors.	Nat Commun	2023
1042920	3758676[illegible]	Siri Amanda Tvingsholm; Marcus Svensson Frej; Vibeke Mindahl Rafa; Ulla Kring Hansen; Maria Ormhøj; Alexander Tyron; Agnete W P Jensen; Mohammad Kadivar; Amalie Kai Bentzen; Kamilla K Munk; Gitte N Aasbjerg; Jeppe S H Ternander; Christina Heeke; Tripti Tamhane; Christian Schmess; Samuel A Funt; Julie Westerlin Kjeldsen; Anders Handrup Kverneland; Özcan Met; Arianna Draghi; Søren Nyboe Jakobsen; Marco Donia; Inge Marie Svane; Sine Reker Hadrup	TCR-engaging scaffolds selectively expand antigen-specific T-cells with a favorable phenotype for adoptive cell therapy.	J Immunother Cancer	2023
1042874	37491224	Ujjwal Kumar; Priya Goyal; Zaid K Madni; Kajal Kamble; Vineet Gaur; Maitreyi S Rajala; Dinakar M Salunke	A structure and knowledge-based combinatorial approach to engineering universal scFv antibodies against influenza M2 protein.	J Biomed Sci	2023
1042307	37074450	Jing-Ying Sun; Chun-Yan Guo; Guo-Rong Wang; Li-Ting Yan; Qing Feng; Yan Li; Xue-Ping Huo; Xin Xie; Jun Hu; Li-Jun Sun	Identification of Heterophilic Epitopes of H1N1 Influenza Virus Hemagglutinin.	Curr Microbiol	2023
1042647	37344603	Wen Tzuen Heng; Hui Xuan Lim; Kuan Onn Tan; Chit Laa Poh	Validation of Multi-epitope Peptides Encapsulated in PLGA Nanoparticles Against Influenza A Virus.	Pharm Res	2023

User Queries: How to see the differences between B and T cell responses for any pathogen?

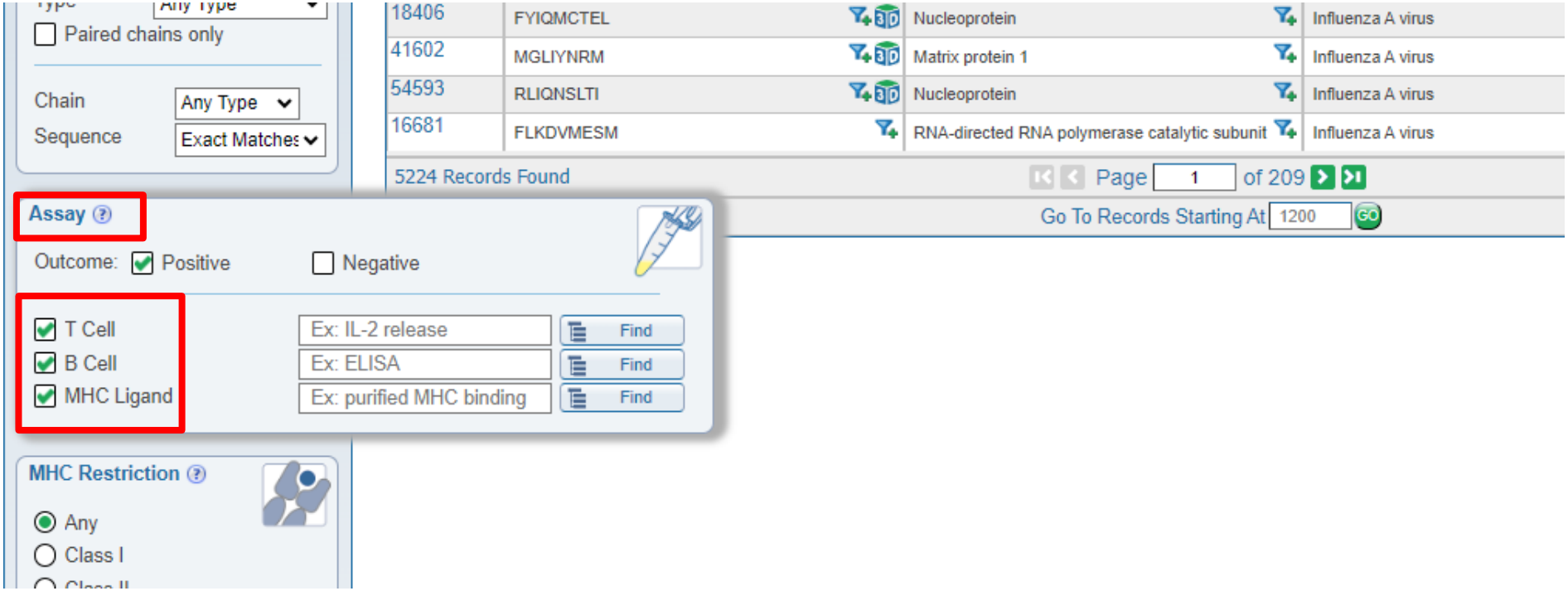
Results Page: Assays Tab – Subtabs



IEDB ID	Reference	Epitope	Host	Immunization	Assay Antigen	Antigen Epitope Relation	MHC Restriction	Assay Description
1737052	S Ghosh; Int Immunol 1999	ALNNRFQIKGVELKS hemagglutinin (511-525) Influenza A virus	Mus musculus BALB/c	Administration in vivo with ALNNRFQIKGVELKS (Epitope)	ALNNRFQIKGVELKS hemagglutinin (511-525) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1583867	M Z Atassi; Immunol Commun 1984	HHPSTNQEQTSLYVQAS Hemagglutinin (183-199) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	HHPSTNQEQTSLYVQAS Hemagglutinin (183-199) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1583872	M Z Atassi; Immunol Commun 1984	IEKTNEKFHQIEK hemagglutinin HA2 (56-68) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	IEKTNEKFHQIEK hemagglutinin HA2 (56-68) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1583862	M Z Atassi; Immunol Commun 1984	GTLVKTITDDQIEV Hemagglutinin precursor (23-36) Influenza A virus	Mus musculus BALB/c	Administration in vivo with Influenza A virus (A/X-31(H3N2)) (Influenza A virus (A/X31(H3N2))) (Taxonomic Child)	GTLVKTITDDQIEV Hemagglutinin precursor (23-36) Influenza A virus	Epitope	H2-d class II	3H-thymidine proliferation **Positive-High**
1809221	Isamu Z Hartman; Nat Med 2010	PKYVKQNTLKLAT Hemagglutinin (306-318) Influenza A virus (A/Texas/1/1977(H3	Mus musculus HLA-DR1 Tg	Administration in vivo with PKYVKQNTLKLAT (Epitope)	PKYVKQNTLKLAT Hemagglutinin (306-318) Influenza A virus (A/Texas/1/1977(H3N2)) (Influenza A	Epitope	HLA-DRB1*01:01	3H-thymidine proliferation **Positive-High**

Results Page: Additional Filters

Differences Between B and T Cell Responses



Assay Type Filters

Differences Between B and T Cell Responses

T cell assays only = T cell epitopes (2,268 epitopes)

Current Filters: ✖ Organism: Influenza A virus (ID:11320) ✖ Include Positive Assays ✖ No B cell assays ✖ No MHC assays

Epitopes (2268)	Antigens (11)	Assays (7779)	Receptors (17101)	References (906)

Go To Records Starting At 1200 GO Export Results

2268 Records Found Page 1 of 91 25 Per Page

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
20354	GILGFVFTL	Matrix protein 1	Influenza A virus	211	588
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
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	27	54
29690	IYSTVASSL	Hemagglutinin	Influenza A virus	26	86
61497	SSYRRPVGI	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

Assay Type Filters

Differences Between B and T Cell Responses

B cell assays only = B cell epitopes (1,356 epitopes)

Current Filters: Organism: Influenza A virus (ID:11320) | Include Positive Assays | No T cell assays | No MHC assays

Epitopes (1356) | Antigens (15) | Assays (8305) | Receptors (231) | References (512)

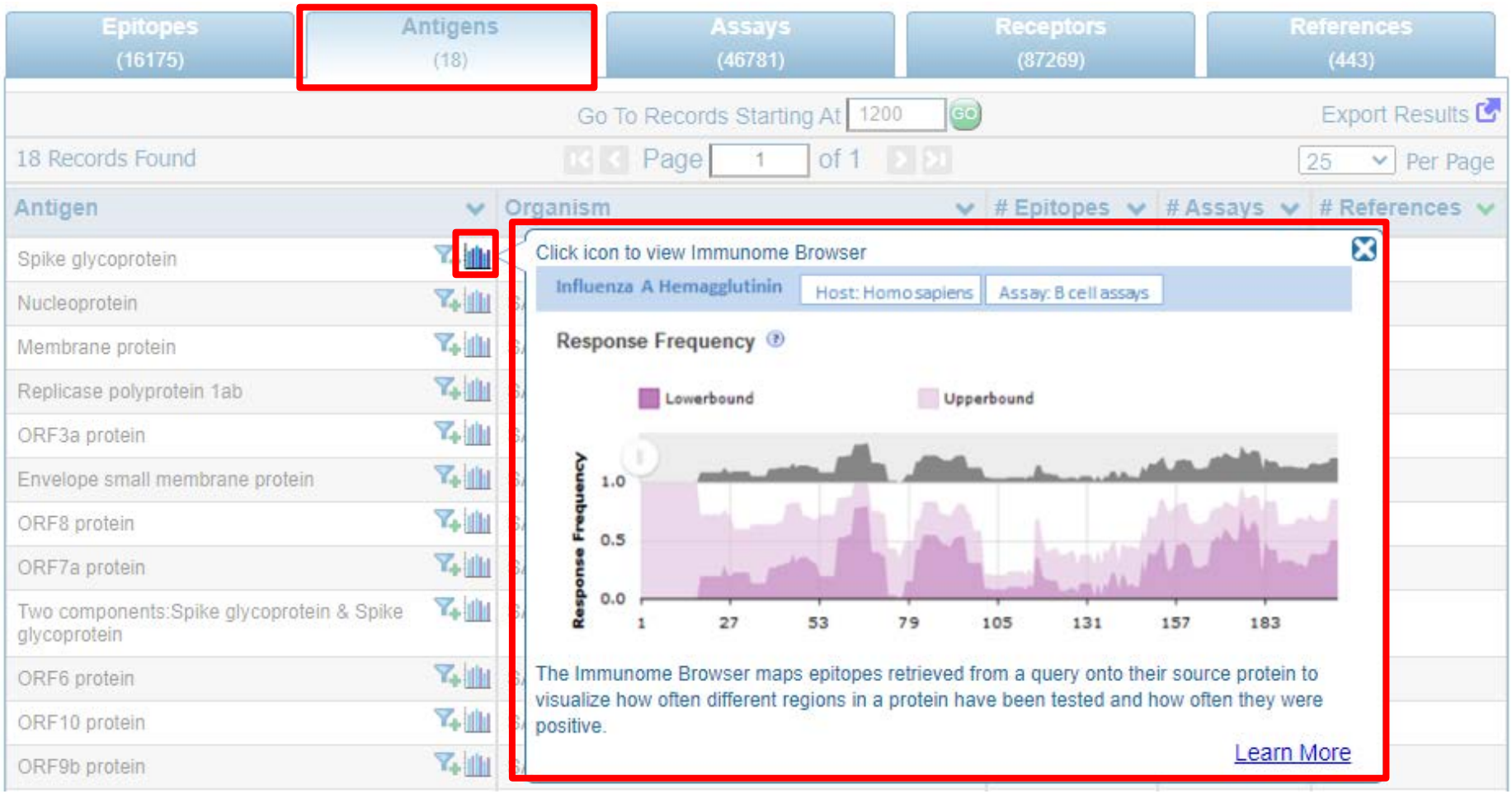
Go To Records Starting At 1200 GO | Export Results

1356 Records Found | Page 1 of 55 | 25 Per Page

IEDB ID	Epitope	Antigen	Organism	# References	# Assays
59318	SLLTEVETPIRNEWGCRCNDSSD	Matrix protein 2	Influenza A virus	32	111
119645	SLLTEVETPTRNEWECRCSDSSD	Matrix protein 2	Influenza A virus	11	31
42596	MSLLTEVETPIRNEWGCRCNDSSD	Matrix protein 2	Influenza A virus	9	49
75441	YPYDVPDYA	Hemagglutinin	Influenza A virus	9	17
97505	MSLLTEVETPTRNEWECRCSDSSD	Matrix protein 2	Influenza A virus	6	17
133698	SLLTEVETPIRNEWG	Matrix protein 2	Influenza A virus	6	50
164106	A: H45, S46, S306, T333; B: V362, D363, G364, W365...	Two components:Hemagglutinin & Hemagglutinin	Influenza A virus	6	74
36931	LKLAT	Hemagglutinin	Influenza A virus	5	13
46443	NVPEKQT	Hemagglutinin	Influenza A virus	5	13
72805	WLTEKEGSYP	Hemagglutinin	Influenza A virus	5	9
136883	SLLTEVETPIRNEWGCRCNGSSD	Matrix protein 2	Influenza A virus	5	14
2224249	A: H44, Q46, D47, I48, S304, M305, P306; B: V364, ...	Two components:Hemagglutinin & Hemagglutinin	Influenza A virus	5	103

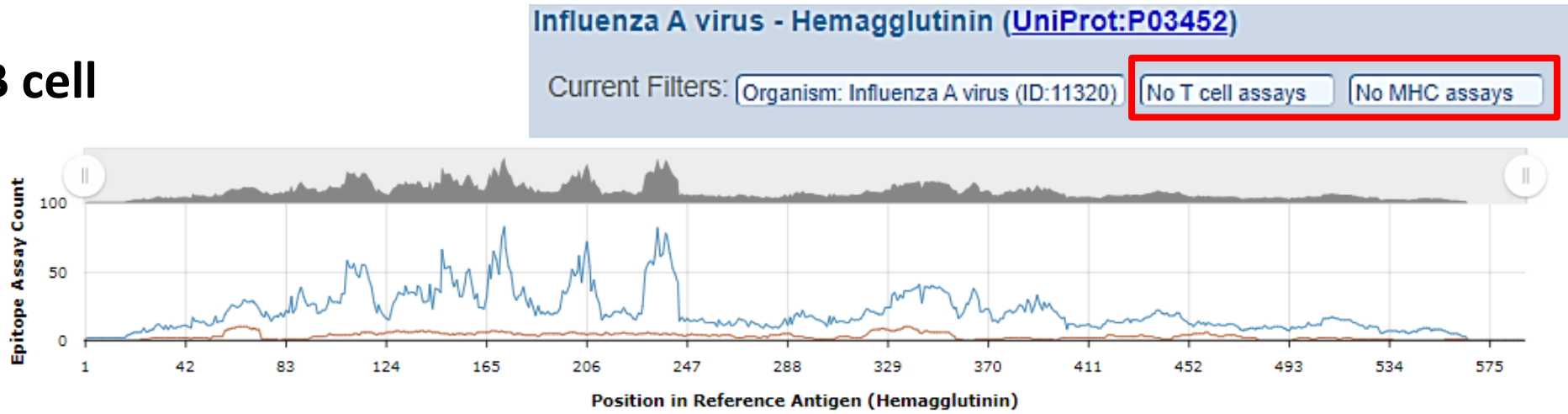
User Queries: How to *see* the differences between B and T cell responses?

Immunome Browser

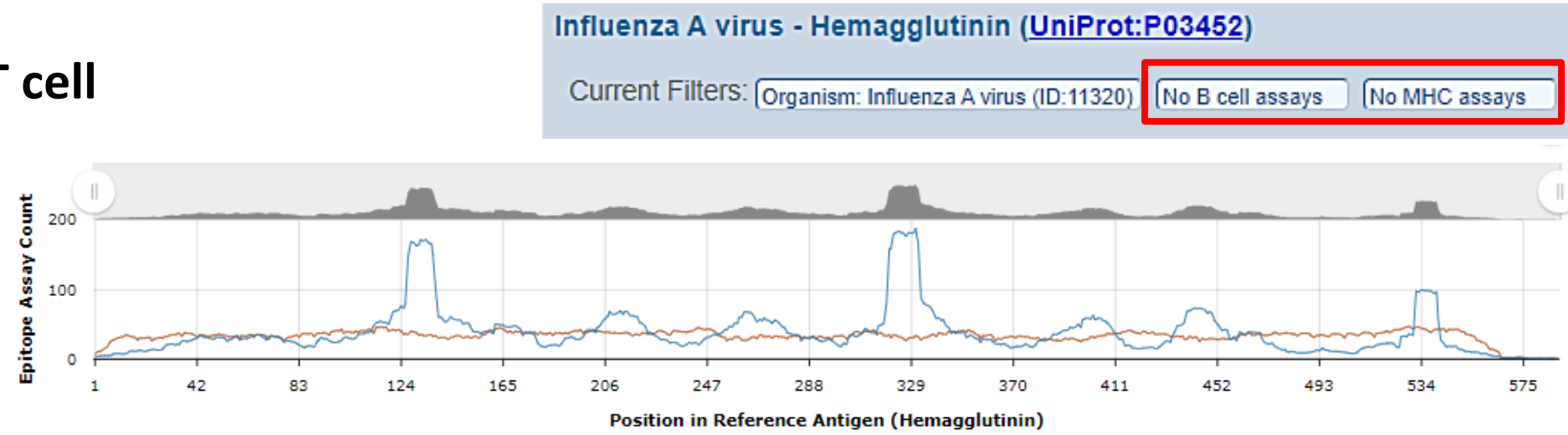


User Queries: How to *see* the differences between B and T cell responses?

B cell

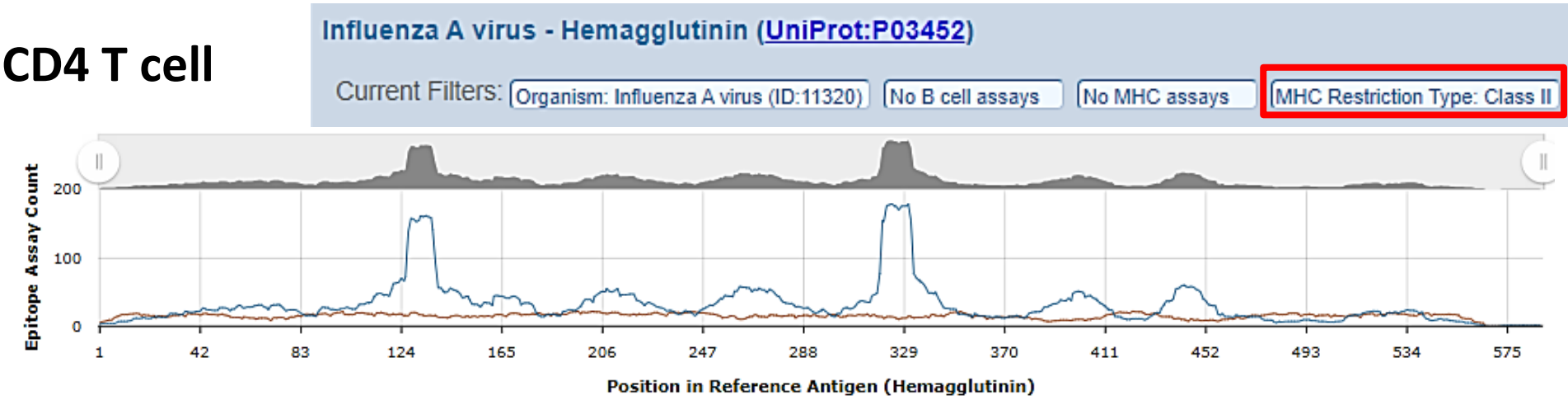


T cell

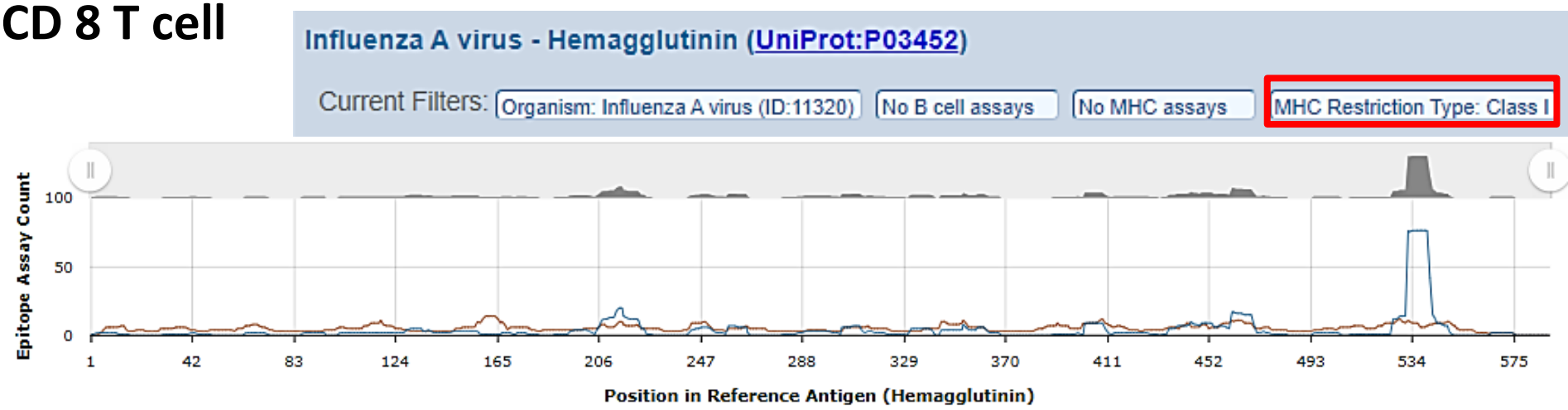


User Queries: How to *see* the differences between CD4 and CD8 T cell responses?

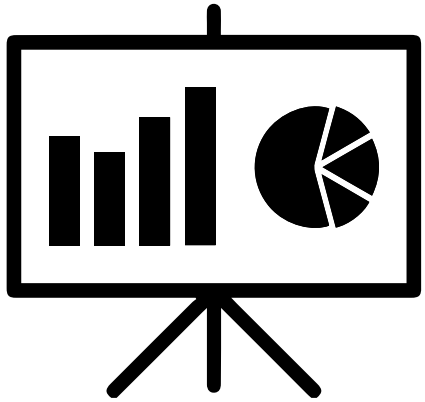
CD4 T cell



CD 8 T cell



Additional Slides



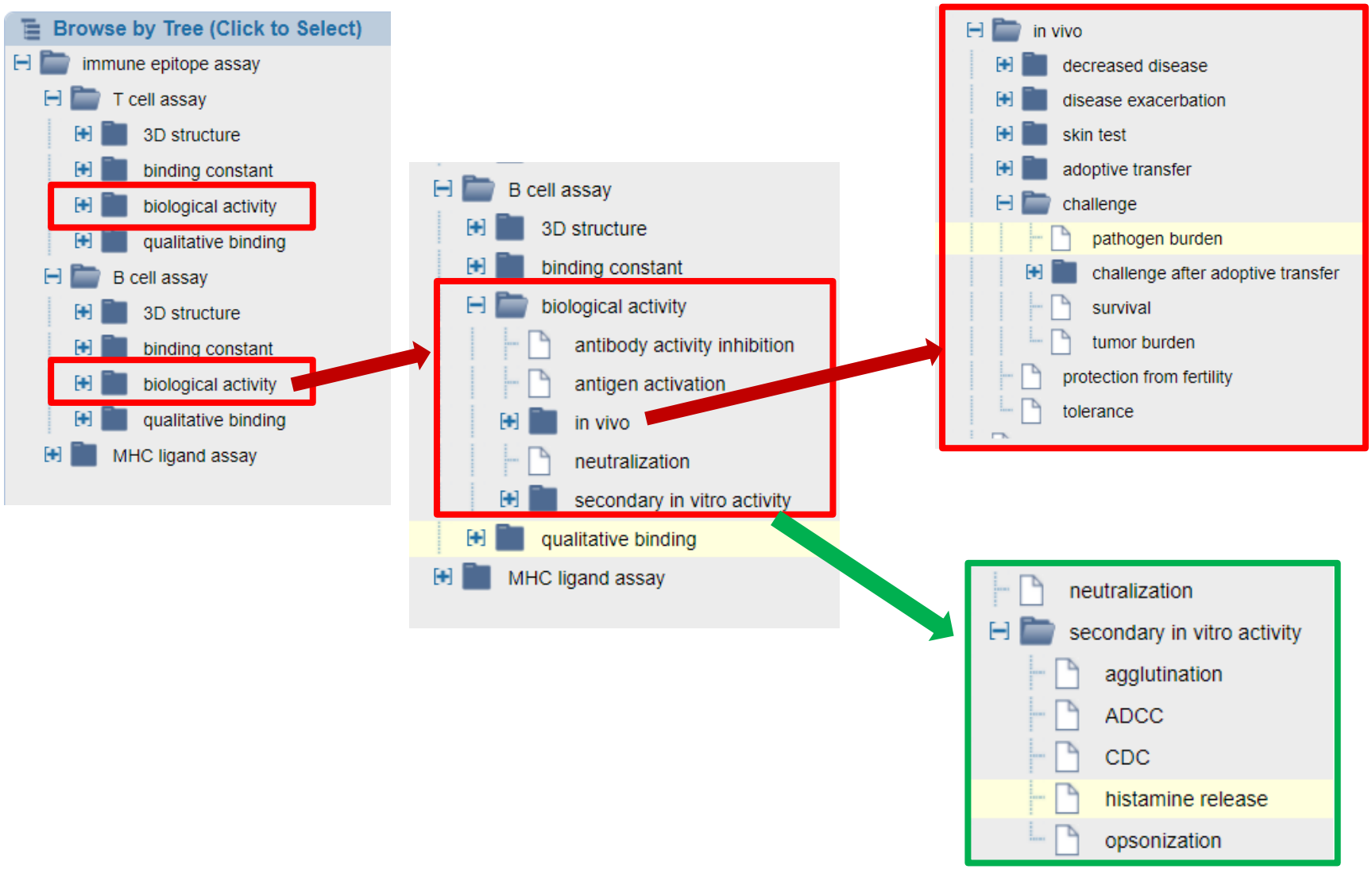
Exports – Epitope Source Antigen

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 Queries: How can we assess the protective capability of the epitopes of the database?



Exports – Epitope Source Organism

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

Exports – Assay Types

Top Header row = Field Group (Reference, Epitope, etc.)
2nd Header Row = Field (terms may repeat)

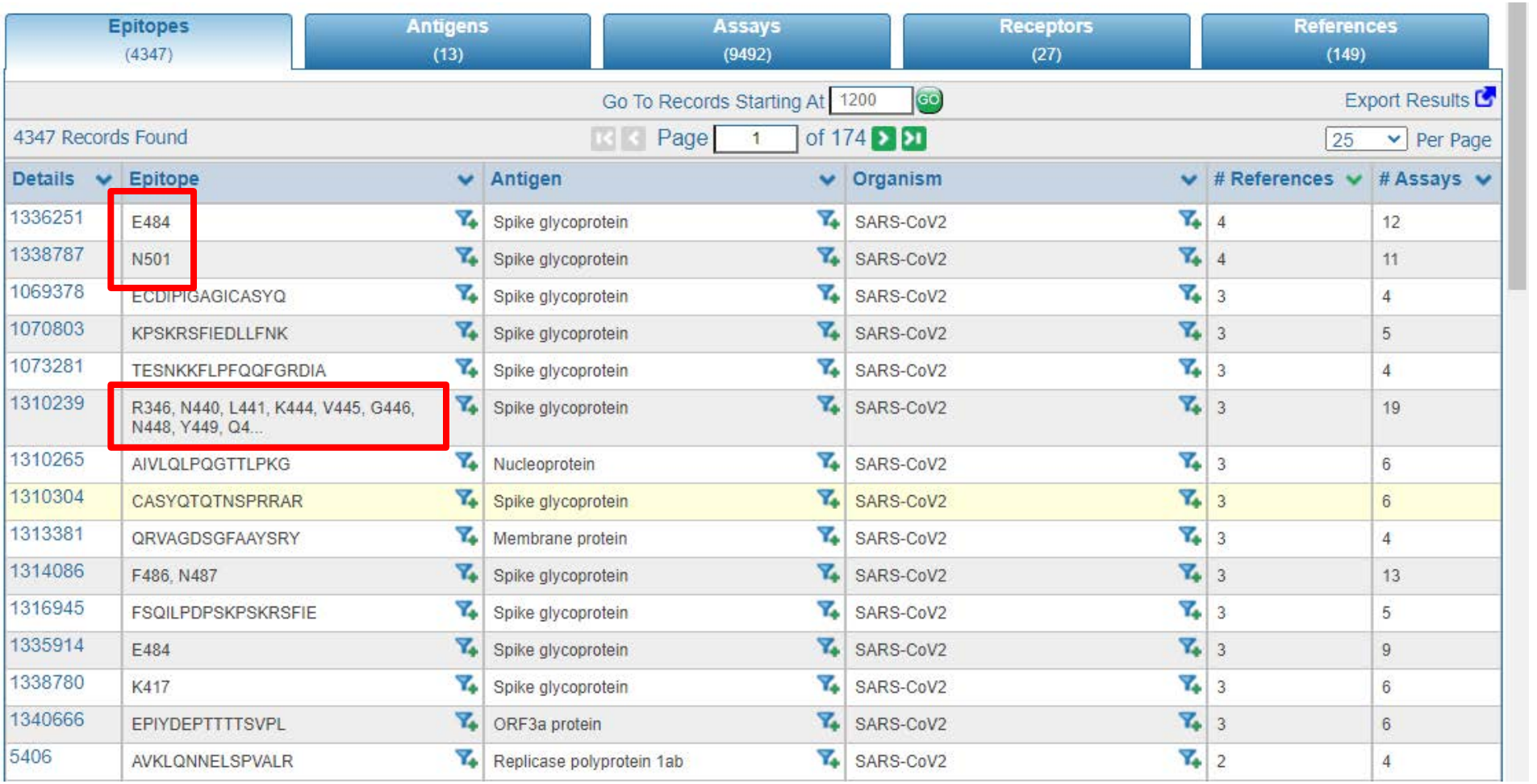
Separate method and assay group columns allow sorting

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

Assay	Assay	Assay	Assay	Assay	Assay	Assay	Assay
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, a	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, a	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, a	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, a	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

Results Page: Discontinuous Epitopes

B cell assays only = B cell epitopes



Epitopes (4347) | Antigens (13) | Assays (9492) | Receptors (27) | References (149)

Go To Records Starting At 1200 GO — Export Results

4347 Records Found — Page 1 of 174 — 25 Per Page

Details	Epitope	Antigen	Organism	# References	# Assays
1336251	E484	Spike glycoprotein	SARS-CoV2	4	12
1338787	N501	Spike glycoprotein	SARS-CoV2	4	11
1069378	ECDIPIGAGICASYQ	Spike glycoprotein	SARS-CoV2	3	4
1070803	KPSKRSFIEDLLFNK	Spike glycoprotein	SARS-CoV2	3	5
1073281	TESNKKFLPFQQFGRDIA	Spike glycoprotein	SARS-CoV2	3	4
1310239	R346, N440, L441, K444, V445, G446, N448, Y449, Q4...	Spike glycoprotein	SARS-CoV2	3	19
1310265	AIVLQLPQGTTLPKG	Nucleoprotein	SARS-CoV2	3	6
1310304	CASYQTQTNSPRRAR	Spike glycoprotein	SARS-CoV2	3	6
1313381	QRVAGDSGFAAYSRY	Membrane protein	SARS-CoV2	3	4
1314086	F486, N487	Spike glycoprotein	SARS-CoV2	3	13
1316945	FSQILPDPSKPSKRSFIE	Spike glycoprotein	SARS-CoV2	3	5
1335914	E484	Spike glycoprotein	SARS-CoV2	3	9
1338780	K417	Spike glycoprotein	SARS-CoV2	3	6
1340666	EPIYDEPTTTTSVPL	ORF3a protein	SARS-CoV2	3	6
5406	AVKLQNNELSPVALR	Replicase polyprotein 1ab	SARS-CoV2	2	4

User Query: What protein are B cell epitope residues in reference to?

Epitope		
Epitope ID	1314086	IEDB_epitope:1314086
Chemical Type	Discontinuous peptide	
Source Name	surface glycoprotein [Severe acute respiratory syndrome coronavirus 2]	GenPept:QHD43416.1
Source Organism	SARS-CoV2	NCBITaxon:2697049
Discontinuous Residues	F486, N487	

Epitope Reference Details		
Epitope Structure Defines	Partial Epitope	
Epitope Name	Epitope of COV2-2196 on SARS-CoV-2	
Reference Region	F486, N487	
Location of Data in Reference	Figure 3	