

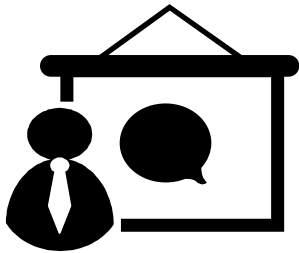
Welcome to the

**2020 IEDB Virtual User
Workshop – Day 1**

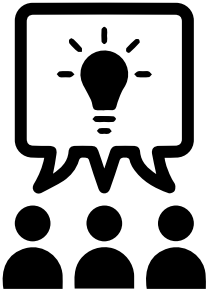
Thursday, November 5, 2020

Annual IEDB User Workshop – Why?

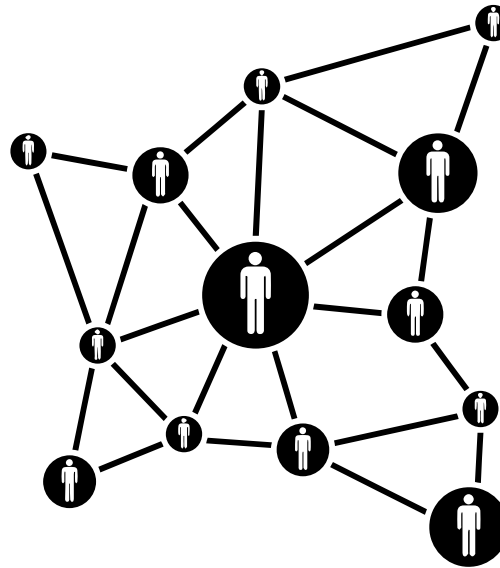
2 Day Event



IEDB and Tools overview with detailed research examples



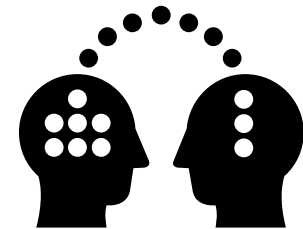
Improve our resources through user feedback



Engage with global user community



Answer user questions to facilitate learning



Share ideas to further scientific research



**We've
gone from this...**



To this...



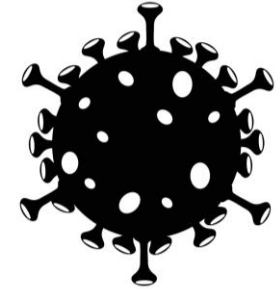
New challenges create new opportunities!



Completely virtual from the comfort of your own home



Registered and approved over 160 attendees – our largest workshop ever!



New presentation topics on the novel coronavirus

ENGAGE | ENJOY | LEARN

Who You'll Hear From



Dr. Alessandro Sette
Principal Investigator



Dr. Bjoern Peters
Co-Principal Investigator



Dr. Randi Vita
*Lead Ontology & Quality
Manager*



Dr. Alba Grifoni
LJI Research Faculty/Instructor



Dr. Jason Greenbaum
Bioinformatics Core Director



Dr. William Chronister
*Bioinformatics Postdoctoral
Researcher*



Austin Crinklaw
Tools Research Technician



Dr. Paolo Marcatili
DTU Associate Professor



Who You'll Hear From



Dr. Bette Korber
Laboratory Fellow



Dr. Will Fischer
Staff Scientist



Dr. Brian Foley
Research Scientist



Dr. Elizabeth-Sharon Fung
Annotator, Editor

User Workshop Structure

Day 1

START YOUR SEARCH HERE ?

Epitope ?

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

Assay ?

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

Antigen ?

Organism

Antigen Name

MHC Restriction ?

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

Host ?

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

Disease ?

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

Process Overview and Database

Day 2

IEDB Analysis Resource

[Overview](#) [T Cell Tools](#) [B Cell Tools](#) [Analysis Tools](#) [Tools-API](#) [Usage](#) [Download](#) [Data](#)

Epitope Prediction and Analysis Tools

Welcome to the Immune Epitope Database Analysis Resource. This site provides a collection of tools for the prediction and analysis of immune epitopes. It serves as a companion site to the [Immune Epitope Database \(IEDB\)](#), a manually curated database of experimentally characterized immune epitopes.

The tools contained fall into the following categories:

T Cell Epitope Prediction Tools

This set of tools includes MHC class I & II binding predictions, as well as peptide processing predictions and immunogenicity predictions.

B Cell Epitope Prediction Tools

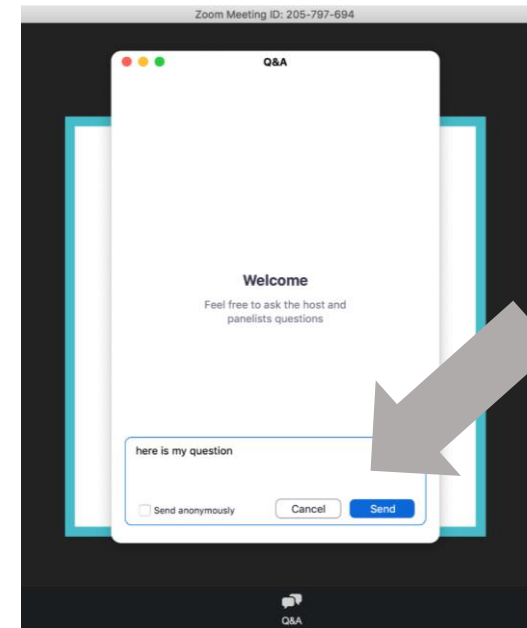
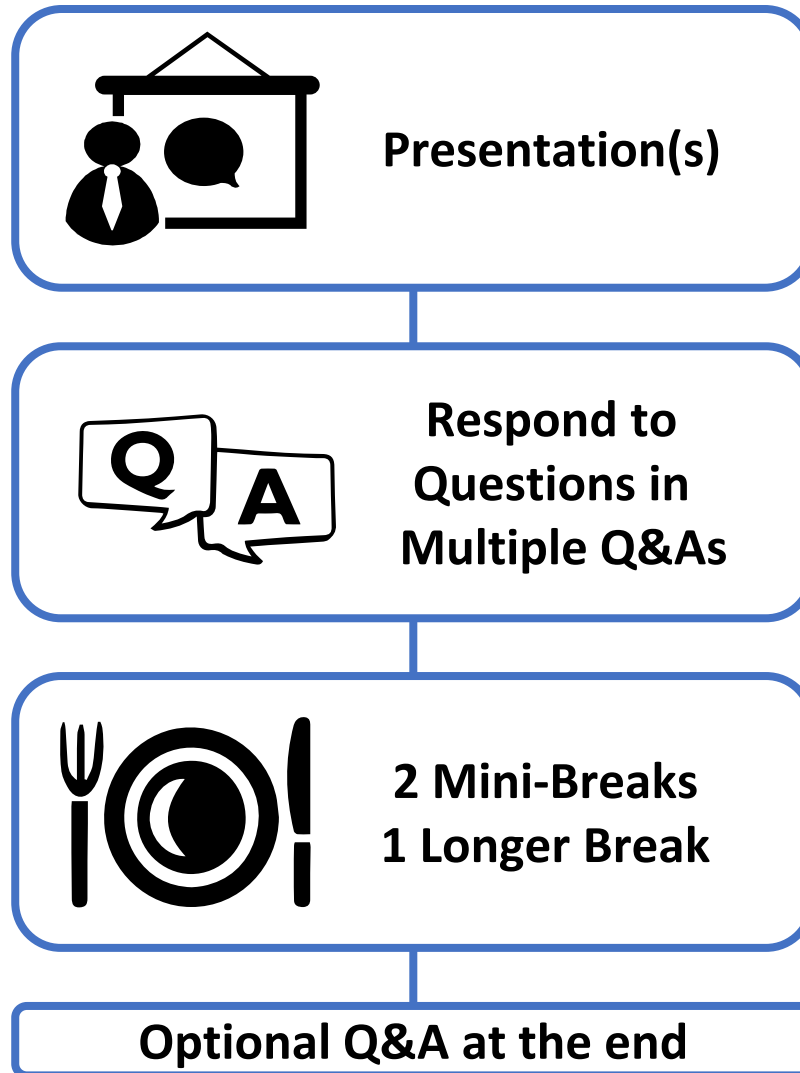
The tools here are intended to predict regions of proteins that are likely to be recognized as epitopes in the context of a B cell response.

Analysis Tools

The epitope analysis tools are intended for the detailed analysis of a known epitope sequence or group of sequences.

Analysis Resource

User Workshop Structure



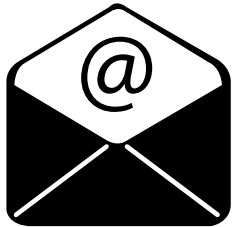
Agenda – Day 1

Start Time	End Time	Topic	Speaker
08:00	08:15	Welcome	Nina Blazeska <i>IEDB Project Manager</i>
08:15	08:35	Database Overview	Alessandro Sette <i>IEDB Principal Investigator</i>
08:35	09:05	How Data are Retrieved, Entered, and Organized	Randi Vita <i>Lead Ontology and Quality Manager</i>
09:05	09:15	<u>Section 1</u> : Q&A	
09:15	09:30	Break	
09:30	10:30	Accessing the Data: Query, Reporting and Examples	Randi Vita <i>Lead Ontology and Quality Manager</i>
10:30	10:40	<u>Section 2</u> : Q&A	
10:40	11:10	NIH Resources for Researchers: COVID Pipeline	Bette Korber & Will Fischer <i>Los Alamos National Laboratory</i>
11:10	11:20	<u>Section 3</u> : Q&A	
11:20	11:45	Break	

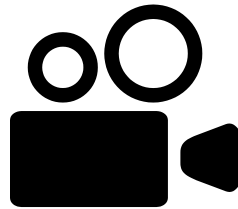
Agenda – Day 1

Start Time	End Time	Topic	Speaker
11:20	11:45	Break	
11:45	12:15	Analysis Resource Overview	Bjoern Peters <i>IEDB Co-Principal Investigator</i>
12:15	12:45	Analysis Tools	Alessandro Sette <i>IEDB Principal Investigator</i>
12:45	13:00	Using the IEDB and Analysis Resource for Identifying Candidates in SARS-CoV-2	Alba Grifoni <i>LJI Research Faculty/Instructor</i>
13:00	13:15	<u>Section 4</u> : Q&A	
13:15	13:30	Closing Remarks & Feedback Survey	Nina Blazeska <i>IEDB Project Manager</i>
13:30	14:00	<u>Optional</u> Q&A Session This will be to answer any remaining questions from the day	

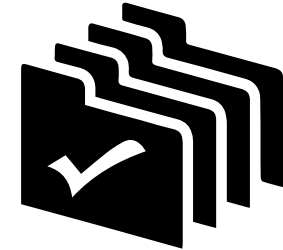
Other Event Logistics



You will receive a post-event email next week



Workshop recording will be shared with you



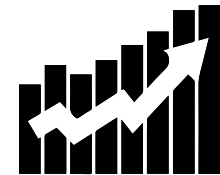
All presentations will be shared with you



Participation certificates will be provided



Daily and post-event feedback survey



Be aware of IEDB slowness due to increased traffic

Overview of the IEDB



WELCOME

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

[Learn More](#)

UPCOMING EVENTS

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

SUMMARY METRICS

Peptidic Epitopes	971,177
Non-Peptidic Epitopes	3,035
T Cell Assays	382,759
B Cell Assays	548,640
MHC Ligand Assays	2,927,251
Epitope Source Organisms	3,969
Restricting MHC Alleles	859
References	21,517

START YOUR SEARCH HERE

Epitope

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

Exact Match: Ex: SIINFEKL

Assay

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

Ex: neutralization

Antigen

Organism: Ex: influenza, peanut

Antigen Name: Ex: core, capsid, myosin

MHC Restriction

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

Ex: HLA-A*02:01

Host

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

Ex: dog, camel

Disease

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

Ex: asthma, diabetes

Epitope Analysis Resource

T Cell Epitope Prediction

Scan an antigen sequence for amino acid patterns indicative of:

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

B Cell Epitope Prediction

Predict linear B cell epitopes using:

- Antigen Sequence Properties

Predict discontinuous B cell epitopes using antigen structure via:

- DiscoTope
- ElliPro

Epitope Analysis Tools

Analyze epitope sets of:

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

0:14 / 3:41

Supported by a contract from the National Institute of Allergy and Infectious Diseases, a component of the National Institutes of Health in the Department of Health and Human Services.

Overview of the Immune Epitope Database (IEDB)

38 views • 16 Oct 2020

2 0 SHARE SAVE ...

<https://youtu.be/JRoWhD3I8ko>

Without further ado...



Dr. Alessandro Sette
Principal Investigator

Database Overview