

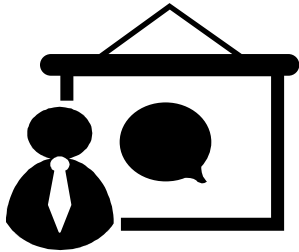
Welcome to the

**2022 IEDB Virtual User
Workshop – Day 2**

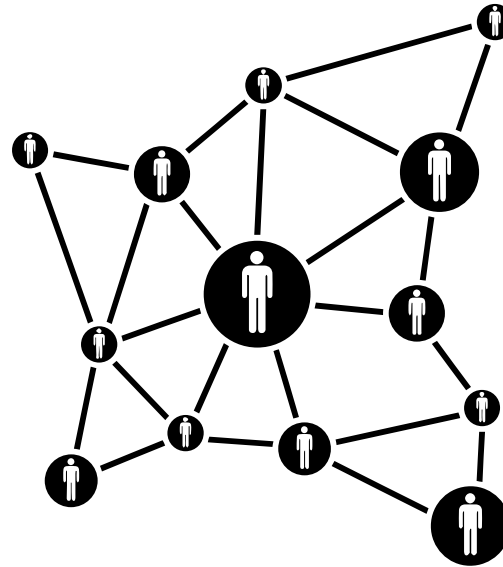
Thursday, October 27, 2022

Annual IEDB User Workshop – Why?

3 Day Event



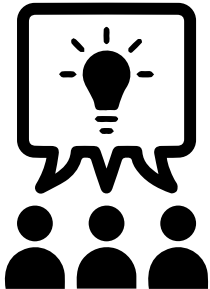
IEDB and tools overview with research examples and specialized topics



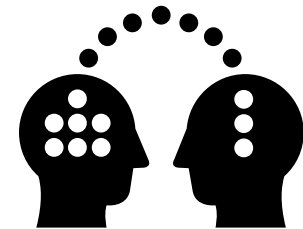
Engage with global user community



Answer user questions to facilitate learning



Improve our resources through user feedback



Share ideas to further scientific research

User Workshop Structure

Day 1

START YOUR SEARCH HERE

Epitope ⓘ

Any
 Linear peptide
Exact N ▾ Ex: SIINFSEKL
 Discontinuous
 Non-peptidic

Assay ⓘ

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

Epitope Source ⓘ

Organism
Ex: influenza, peanut Find
Antigen
Ex: core, capsid, myo Find

MHC Restriction ⓘ

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

Host ⓘ

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

Disease ⓘ

Any
 Infectious
 Allergic
 Autoimmune
Ex: asthma Find

Reset Search

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

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B Cell Epitope Prediction Tools

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Analysis Tools

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Analysis Resource – Processing & Prediction Tools

Day 3



Specialized Topics – 3D Structures, Cancer, HIV

Who You'll Hear From



Dr. Raphael Trevizani
*Bioinformatics Postdoctoral
Researcher*



Dr. Bjoern Peters
Co-Principal Investigator



Daniel Marrama
*Associate Bioinformatics
Specialist*

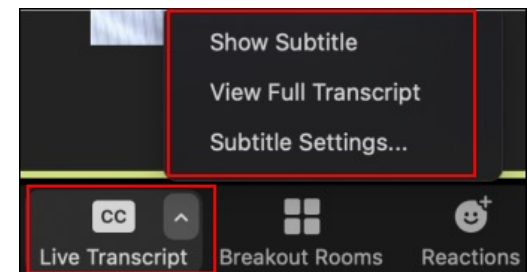
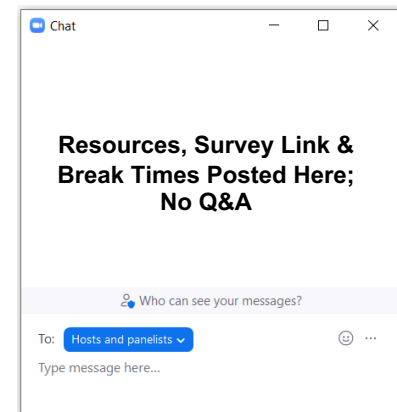
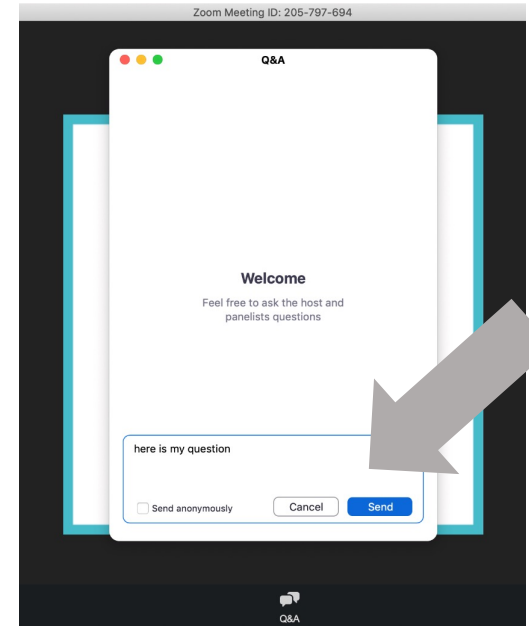
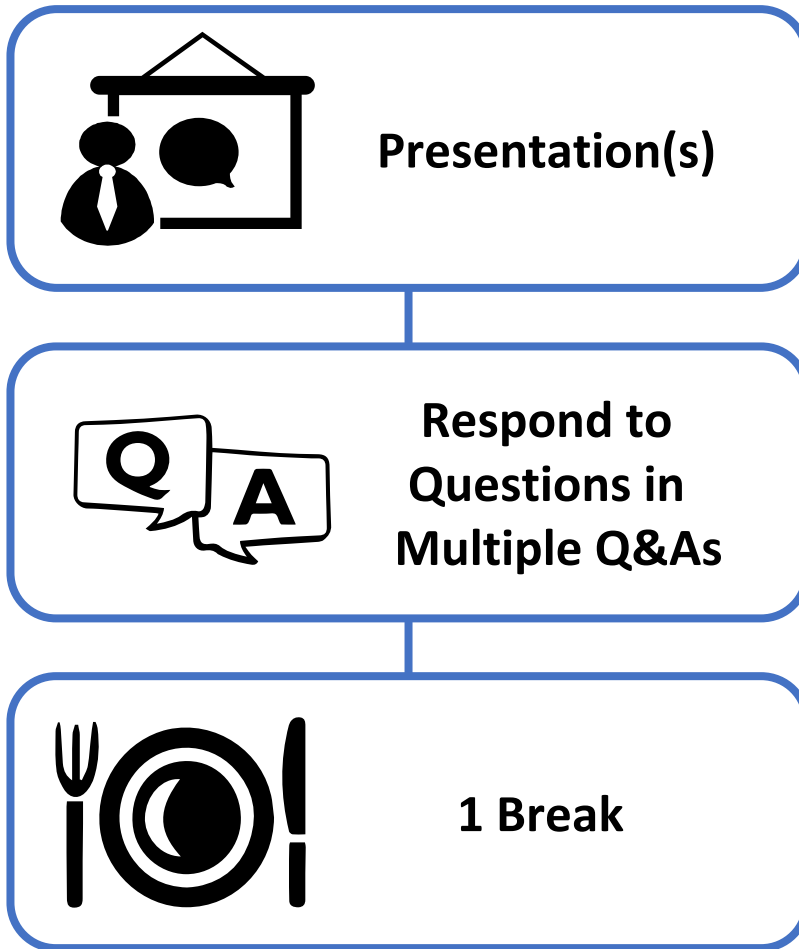


Dr. Mahita Jarjapu
*Bioinformatics Postdoctoral
Researcher*



Dr. Jason Greenbaum
Bioinformatics Core Director

User Workshop Structure



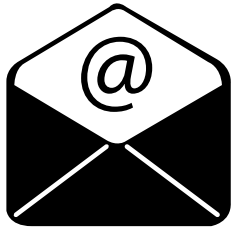
Agenda – Day 2

Start Time	End Time	Topic	Speaker
08:00	08:15	Welcome & Analysis Resource Overview	Nina Blazeska <i>IEDB Project Manager</i>
08:15	08:45	MHC Binding Predictions	Raphael Trevizani <i>Bioinformatics Postdoctoral Researcher</i>
08:45	09:05	T Cell Processing & Immunogenicity Predictions	Bjoern Peters <i>IEDB Co-Principal Investigator</i>
09:05	09:20	<u>Section 1</u> : Q&A with Drs. Trevizani and Peters	
09:20	09:40	PEPMatch	Daniel Marrama <i>Associate Bioinformatics Specialist</i>
09:40	10:00	TCRMatch	Raphael Trevizani <i>Bioinformatics Postdoctoral Researcher</i>
10:00	10:10	<u>Section 2</u> : Q&A with Drs. Peters (in lieu of Daniel Marrama) and Trevizani	
10:10	10:35	Break	

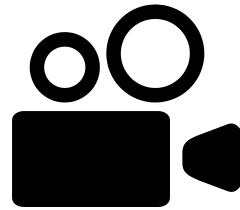
Agenda – Day 2

Start Time	End Time	Topic	Speaker
10:35	11:05	B Cell Epitope Prediction	Mahita Jarjapu <i>Bioinformatics Postdoctoral Researcher</i>
11:05	11:35	IEDB Tools 3.0: Future of Tools	Jason Greenbaum <i>Bioinformatics Core Director</i>
11:35	11:50	<u>Section 3</u> : Q&A with Drs. Jarjapu and Greenbaum	
11:50	12:00	Closing Remarks & Feedback Survey	Nina Blazeska <i>IEDB Project Manager</i>
	12:00	End of Session	

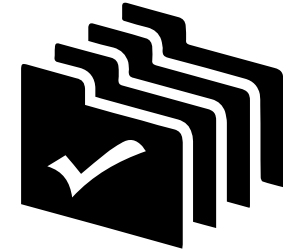
Other Event Logistics



You will receive a post-event email next week



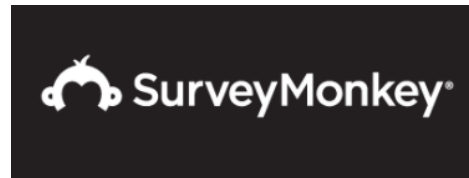
Workshop recording will be shared with you



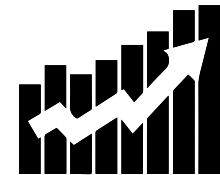
All presentations will be shared with you



Participation certificates will be provided upon request



Daily and post-event feedback survey



Be aware of IEDB slowness due to increased traffic



#iedbuw2022

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Brief Analysis Resource Overview

tools.iedb.org

Accessing the Analysis Resource



Epitope Prediction and Analysis

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

The tools contained fall into the following categories:

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B Cell Epitope Prediction Tools
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Analysis Tools
The epitope analysis tools are intended for the analysis of an epitope sequence or group of sequences.

START YOUR SEARCH HERE

Epitope

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

Exact Mz: Ex: SIIINFEKL

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:

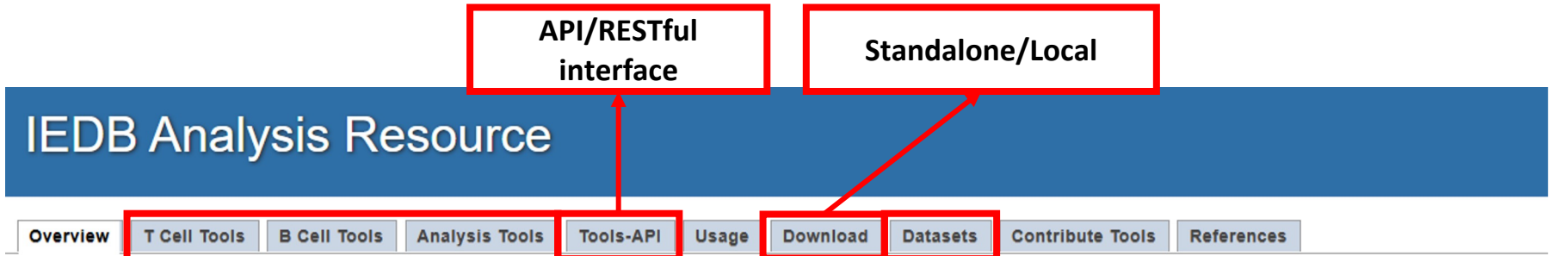
- Discotope
- ElliPro

Epitope Analysis Tools

Analyze epitope sets of:

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

Available Resources



Epitope Prediction and Analysis Tools

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IEDB-AR News

• We're Hiring

[Bioinformatician for the Immune Epitope Analysis Resource](#)

• Python 3 availability

As of 2 July 2020, all code has been ported to Python 3, including the standalone tools. Thanks for your patience and be sure to [inform us](#) of any issues that arise.

IEDB-AR Release Notes

[IEDB Analysis Resource v2.24 release notes \(1 Oct 2020\)](#)

2020-1

NEW: I

web, A

BA)...

[IEDB Analysis Resource v2.23 release notes](#)

[IEDB Analysis Resource v2.22 release notes](#)

**Solutions Center:
Tutorials, FAQ**

help@iedb.org

IEDB [Help](#) [Contact](#)

This site is best viewed with current versions of [Mozilla Firefox](#) or [Google Chrome](#).

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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.

IEDB Analysis Resource

tools.iedb.org

T cell tools

MHC binding prediction

- MHC I binding prediction
- MHC II binding prediction
- TepiTool

MHC ligand prediction

- NetChop/NetCTL/NetCTLpan
- MHC-NP, MHCII-NP
- AXEL-F

Immunogenicity prediction

- CD4 & CD8 T cell immunogenicity prediction tools

Other

- Deimmunization tool
- TCRMatch

B cell tools

Linear epitope prediction

- BepiPred
- Other methods

Discontinuous epitope prediction

- DiscoTope
- ElliPro

Antibody and TCR structure prediction

- LYRA
- SCEptRe

Analysis tools

Population coverage of epitope set

- Population coverage tool

Degree of conservation

- Conservancy analysis tool

Group peptides based on sequence identity

- Cluster 2.0

Infer restriction in HLA typed subjects

- RATE

Aggregate heterogeneous immune response

- Immunome Browser

Without further ado...



Dr. Raphael Trevizani
*Bioinformatics Postdoctoral
Researcher*

MHC Binding Predictions