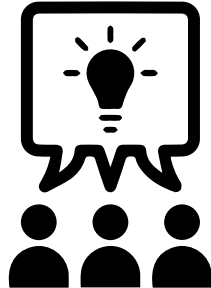


Closing Remarks & Survey

2022 IEDB Virtual User Workshop – Day 3

Friday, October 28, 2022

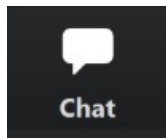
We want to hear from you!



Improve our resources
through user feedback



Daily and post-event
feedback survey



<https://www.surveymonkey.com/r/BYQV6VK>



**Please take some time to
complete the survey now**



#iedbuw2022

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Recap of Day 2

IEDB-3D 2.0: Visualizing Structures in the IEDB

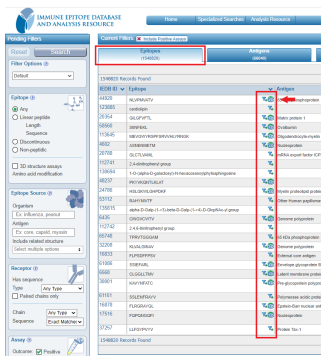


Dr. Marcus Mendes
Bioinformatics Postdoctoral Researcher

Structure Tools: LYRA & SCEptRe



Dr. Paolo Marcatili
DTU Associate Professor



Structure Tools

- LYRA (Lymphocyte Receptor Automated Modelling):**
The LYRA server predicts structures for either T-Cell Receptors (TCR) or B-Cell Receptors (BCR). Framework templates are selected based on BLOSUM score, and complementary determining regions are needed based on a canonical structure model and grafted onto the framework templates.
- SCEptRe: Structural Complexes of Epitope Receptor**
SCEptRe provides weekly updated, non-redundant, user customized benchmark datasets with rich features for receptor-specific epitope predictions. This tool extracts weekly updated 3D complex and MHC-ligand from the Immune Epitope Database (IEDB) and clusters them based on antigen generate benchmark datasets. Users can customize structural quality and clustering parameters (antigen or epitope sequence identity) to generate these datasets based on their need.

Recap of Day 2

IEDB Query API (IQ-API)



Dr. Jason Greenbaum
Bioinformatics Core Director



The screenshot shows the Swagger UI for the IEDB Query API (IQ-API) 0.1. The interface includes a Swagger logo, a search bar with the URL `https://query-api.iedb.org/docs/swagger/iedb_api.json`, and an "Explore" button. The main content area displays the API title "IEDB Query API (IQ-API) 0.1" and provides the base URL `query-api.iedb.org/`. It notes that the API is PostgREST-based and provides a link to detailed documentation. A "Schemas" dropdown menu is set to "HTTPS". Two API endpoints are visible: "Introspection" (GET / OpenAPI description) and "antigen_search" (GET /antigen_search). The "antigen_search" endpoint description includes a list of supported search parameters: `parent_source_antigen_id`, `epitope_search_on_structure_ids`, `boell_search_on_boell_ids`, `boell_search_on_boell_ids`, `mhc_search_on_mhc_ids`, `bcr_search_on_bcr_receptor_group_ids`, `for_search_on_for_receptor_group_ids`, and `reference_search_on_reference_ids`.

Recap of Day 3

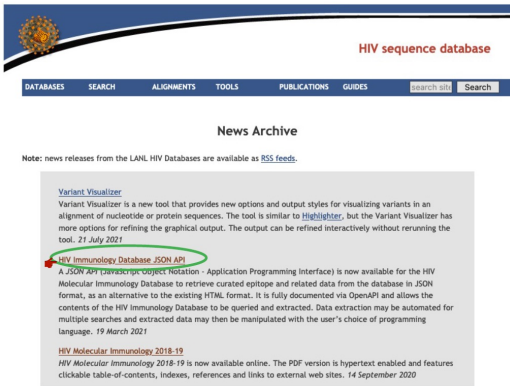
NIH Resources for Researchers: The LANL HIV Databases



Dr. Elizabeth-Sharon Fung
Annotator, Editor



Jennifer Macke
Research Technologist



HIV sequence database

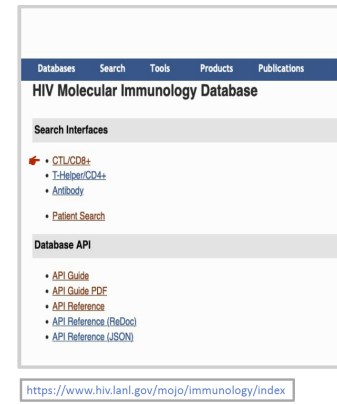
News Archive

Note: news releases from the LANL HIV Databases are available as [RSS feeds](#).

Variant Visualizer
Variant Visualizer is a new tool that provides new options and output styles for visualizing variants in an alignment of nucleotide or protein sequences. The tool is similar to [HigAligner](#), but the Variant Visualizer has more options for refining the graphical output. The output can be refined interactively without rerunning the tool. 21 July 2021

HIV Immunology Database JSON API
A JSON API (JavaScript Object Notation - Application Programming Interface) is now available for the HIV Molecular Immunology Database to retrieve curated epitope and related data from the database in JSON format, as an alternative to the existing HTML format. It is fully documented via OpenAPI and allows the contents of the HIV Immunology Database to be queried and extracted. Data extraction may be automated for multiple searches and extracted data may then be manipulated with the user's choice of programming language. 19 March 2021

HIV Molecular Immunology 2018-19
HIV Molecular Immunology 2018-19 is now available online. The PDF version is hypertext enabled and features clickable table-of-contents, indexes, references and links to external web sites. 14 September 2020



HIV Molecular Immunology Database

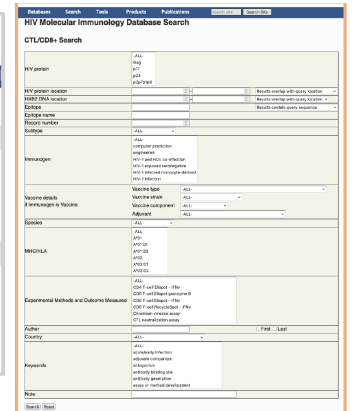
Search Interfaces

- CTL/CDB+
- T-Heliox/CD4+
- Antibody
- Patient Search

Database API

- API Guide
- API Guide PDF
- API Reference
- API Reference (RxDoc)
- API Reference (JSON)

<https://www.hiv.lanl.gov/mojo/immunology/index>



HIV Molecular Immunology Database Search

CTL/CDB+ Search

HIV primer location: [input] [button: Search using HIV primer location]

IGRP/EPITOP location: [input] [button: Search using HIV primer location]

Epitope name: [input] [button: Search using epitope name]

Protein number: [input] [button: Search using protein number]

Antibody: [input]

Immunogen: [input]

Vaccine status: [input]

Reference in Vaccine: [input]

Species: [input]

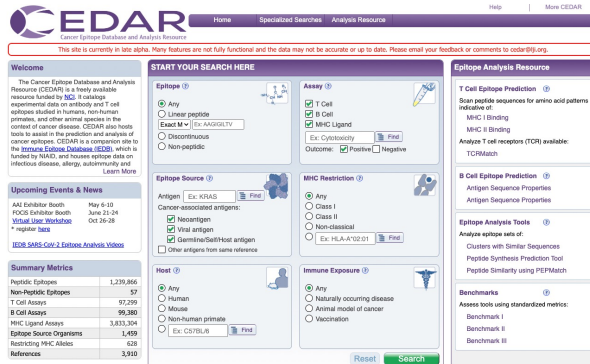
SEARCH

Recap of Day 2

The Cancer Epitope Database and Analysis Resource (CEDAR)



Dr. Alessandro Sette
Principal Investigator



The screenshot shows the CEDAR website search interface. The header includes the CEDAR logo and navigation links. A welcome message states: "The site is currently in beta alpha. Many features are not fully functional and the data may not be accurate or up to date. Please email your feedback or comments to cedar@i2d.org." Below this is a "START YOUR SEARCH HERE" section with various filters for Epitope Source, MHC Restriction, Host, and Immune Exposure. A "Summary Metrics" table is also visible.

| Category | Count |
|--------------------------|-----------|
| Peptide Epitopes | 1,239,866 |
| Non-peptide Epitopes | 97 |
| T Cell Assays | 97,299 |
| B Cell Assays | 99,380 |
| MHC Ligand Assays | 3,833,324 |
| Epitope Source Organisms | 1,459 |
| Restricting MHC Alleles | 628 |
| References | 3,910 |

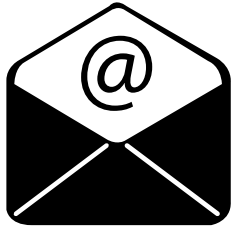
CEDAR Prostate Cancer Meta-analysis



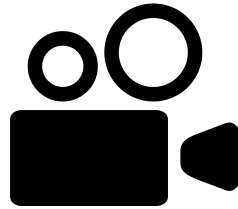
Dr. Alessandro Sette
Principal Investigator

| Protein | Abbreviation | Species | Protein Accession | References | Protein Length | Epitopes ¹ | | | | | | | Epitopes | | | |
|--|--------------|-------------------|----------------------------|------------|----------------|-----------------------|------------|------------|------------|------------|----------------|-----------------|-------------|-------------|-------------|----|
| | | | | | | Total | Host Human | Host Mouse | 8 Cell | T Cell | T Cell Class I | T Cell Class II | MHC Binding | MHC Elution | Grand Total | |
| Prostatic acid phosphatase | PAP/PACP | human, mouse, rat | P15309, Q8CE08, A0A0G2K4B4 | 30 | 386 | 381 | 67 | 35 | 34 | 11 | 64 | 31 | 33 | 20 | 2 | 73 |
| Prostate-specific antigen | PSA, KLK3 | human | P07288 | 44 | 261 | 78 | 39 | 47 | 52 | 51 | 33 | 18 | 22 | 1 | 82 | |
| Prostate-specific membrane antigen | PSMA | human, mouse | Q04609, Q35409 | 32 | 750 | 752 | 51 | 39 | 17 | 34 | 34 | 27 | 6 | 23 | 1 | 60 |
| Protein (solute carrier family 45 member 3) | PROS1 | human, mouse, rat | Q96172, Q8KH7, D3ZP95 | 5 | 553 | 553 | 42 | 42 | 0 | 38 | 4 | 4 | 0 | 6 | 2 | 48 |
| Prostate stem cell antigen | PSCA | human | O43653 | 6 | 114 | 18 | 18 | 1 | 7 | 17 | 17 | 0 | 12 | 2 | 20 | |
| Metalloenductase STEAP1 | STEAP | human, mouse | Q9UH68, Q9CWR7 | 8 | 339 | 339 | 15 | 7 | 10 | 0 | 15 | 13 | 2 | 2 | 5 | 19 |
| Transient receptor potential cation channel subfamily M member 8 | TRP-8 | human, mouse | Q722W7, Q8R4D5 | 2 | 1104 | 1104 | 2 | 1 | 1 | 0 | 2 | 2 | 0 | 5 | 9 | 14 |
| TCR gamma alternate reading frame protein | TARP | human | A2JGV3.1 | 5 | 58 | 5 | 6 | 0 | 0 | 5 | 3 | 2 | 3 | 1 | 6 | |
| Total | | | | | 132 | 278 | 187 | 110 | 142 | 192 | 130 | 61 | 93 | 21 | 322 | |

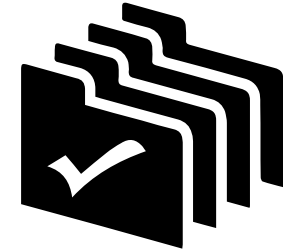
Post-Event Details



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




Post-event feedback survey


User Workshop Structure

Day 1


START YOUR SEARCH HERE

Epitope 


Any
 Linear peptide
Exact
 Discontinuous
 Non-peptidic

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

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

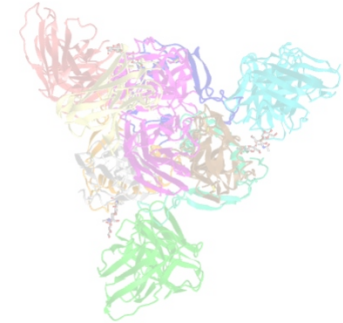
The tools here are intended to predict regions of proteins that are likely to be recognized as epitopes in the context of a B cell response.

Analysis Tools

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

Analysis Resource – Processing & Prediction Tools

Day 3



Specialized Topics – 3D Structures, Cancer, HIV



Additional Questions?

Email us at help@iedb.org



Thank you!

We appreciate your time and interest in the IEDB!