

Research Resources for the Scientific Community

Alison Deckhut Augustine, PhD
Basic Immunology Branch
Division of Allergy, Immunology, and
Transplantation (DAIT)
NIAID
augustine@niaid.nih.gov



NIAID Research Resources

- Immunological
- Pathogen (except HIV)
- HIV
- Website for complete listing:
<http://www3.niaid.nih.gov/research/resources/>

Immunology Related Resources

Highlights

NIH Tetramer Facility

- Production and distribution of antigen-specific T cell detection reagents based on peptide/MHC molecules
 - Class I and Class II MHC alleles
 - mCD1d, hCD1d containing a novel CD1d ligand (PBS-57)
 - CD1a
- Supported by NIAID and NCI
- <http://www.niaid.nih.gov/reposit/tetramer/index.html>

The Immune Epitope Database and Analysis Resource (IEDB)

- Catalog and organize an ever growing body of immunological information
 - Antibody and T cell epitopes from infectious pathogens, experimental and self antigens
 - Priority on NIAID Category A-C priority pathogens and emerging infectious diseases
 - Human, non-human primate, rodent, and other species for which detailed epitope information is available
- Host existing epitope prediction algorithms and develop new methods to predict and model antibody and T cell epitopes
- <http://www.immuneEpitope.org>

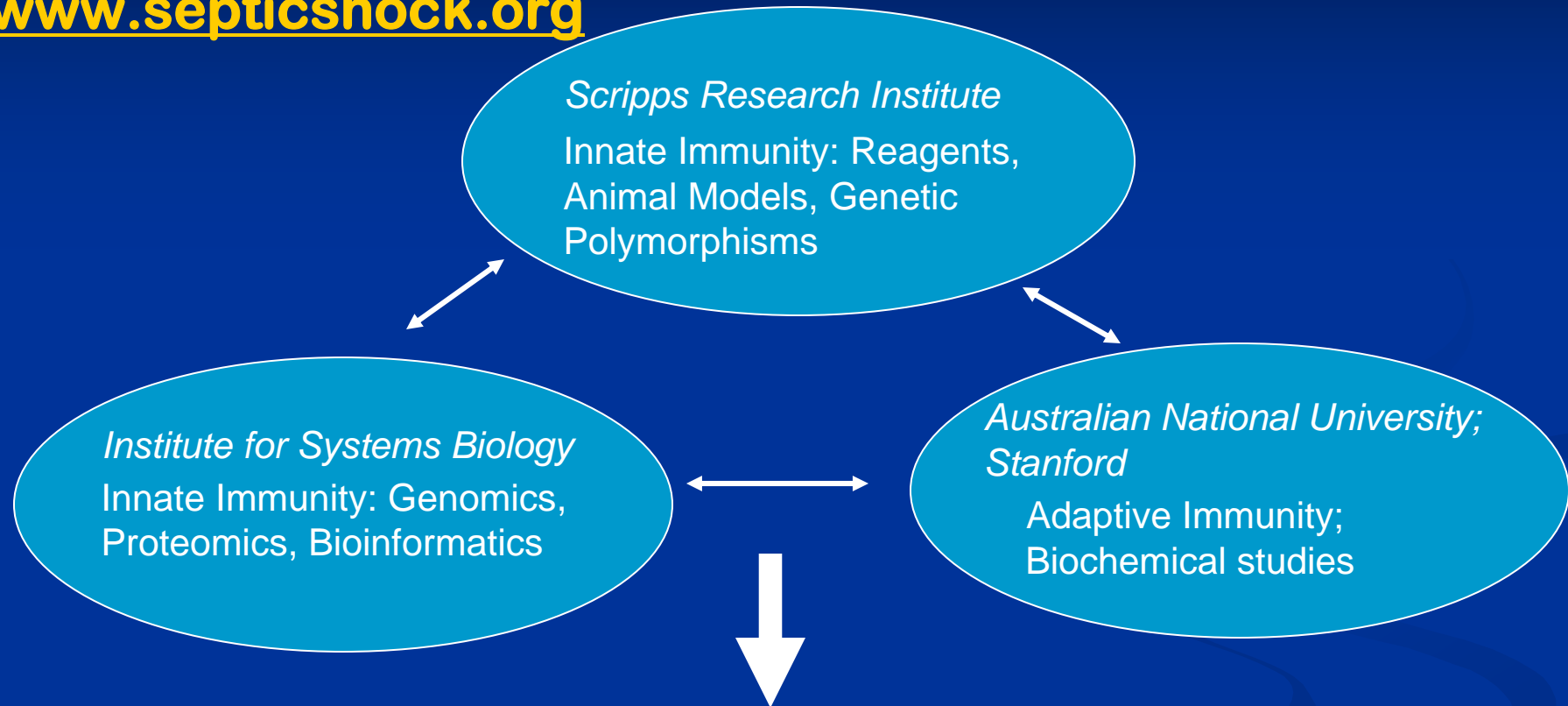
Result Summary

The following records matched your search criteria. Click a link to view the record list.

| Record Type | Count |
|--|----------------------|
| References | 554 |
| Records | 6675 |
| Distinct Epitopes | |
| Peptide | 2754 |
| DNA, RNA | 0 |
| Lipid, Carbohydrate, Glycolipid, Other | 9 |
| Distinct Structures | |
| Peptide | 5532 |
| DNA, RNA | 0 |
| Lipid, Carbohydrate, Glycolipid, Other | 9 |
| Reported Measurements | |
| MHC Binding Assays | 3961 |
| MHC Ligand Elution Assays | 28 |
| T Cell Assays | 4725 |
| B Cell Assays | 5823 |

Mining the Innate Immune System to Develop Novel Defenses against Infections

www.septicshock.org



- Define innate and adaptive immune system gene and protein expression after microbial infection
- Meld mathematics, genomics, proteomics, computer modeling into “systems biology” approach

Mouse Models

- NIAID-Taconic Exchange (Emerging Models):
 - Supports importation, verification, cryopreservation of immunology-related mouse models; partially defrays distribution costs
 - <http://www.taconic.com/emerging/listing.htm>
- KOMP (trans NIH support):
 - Generate and distribute ES cell lines, knockout mice, and phenotypic data for every gene in the mouse genome.
 - <http://www.nih.gov/science/models/mouse/knockout/komp.html>
 - Research Community Input:
 - Nominate genes:
<http://www.informatics.jax.org/mgihome/KOMP/nominationForm.shtml>
 - “Repatriation” of existing KOs: Contact –Alison Deckhut Augustine (augustine@niaid.nih.gov)
- MMRRC (supported by NCRR):
 - Mouse stocks and ES cell line collections. Accepts mice, embryos, and ES cell lines for public distribution
 - <http://www.mmrrc.org/>

NIH Nonhuman Primate Reagent Resource

- Distribution of new reagents: antibodies for *in vitro* diagnostics or *in vivo* administration; recombinant NHP proteins; NHP cells, immortalized cell lines, and transforming viruses; immunoglobulin reference reagents.
- Reports on reactivity of commercial antibodies and other reagents in different primate species.
- Documented SOPs for reagent use and for selected nonhuman primate-specific assays and techniques.
- Supported by NIAID and NCRR.
- <http://nhpreagents.bidmc.harvard.edu/NHP/default.aspx>

Pathogen Related Resources

Highlights

Reagents

■ BEI Resources

- Reagents and information for studying Category A, B, and C priority pathogens and emerging infectious disease agents (e.g., pathogens, toxins, proteins and peptides, antigens, antibodies, etc). Registration required.
- <http://www.beiresources.org/>

■ TB Vaccine Testing and Research Materials

- Reagents and services to facilitate basic, translational and applied research. (e.g., TB bacterial strains; TB genomic DNA; antigens, proteins, lipids; antibodies; validate or optimize existing small animal models of TB infection and disease and test experimental agents in the models.)
- <http://www.cvmb.colostate.edu/microbiology/tb/top.htm>

■ Malaria Research and Reference Reagent Resource Center

- Central source of quality controlled malaria-related reagents and information to facilitate malaria research worldwide. Qualified, registered users can obtain: parasites, mosquito vectors, antibodies, antigens, gene libraries, molecular probes, and constructs.
- <http://www.malaria.mr4.org/>

Services

- **Bacterial Respiratory Pathogen Reference Laboratory**
 - Reference materials, assay protocols, and additional vaccine-related information
 - <http://www.vaccine.uab.edu/>
- **Tuberculosis Antimicrobial Acquisition and Coordinating Facility**
 - Advanced in vivo testing of promising anti-tubercular compounds. Priority status given to compounds with activity on drug resistant strains, and with the potential to shorten therapy by being active on non-replicating persistent organisms.
 - <http://www.taacf.org/>
- **NIAID Antiviral Testing Program**
 - Evaluate compounds for antiviral activity: In vitro and in vivo testing (free, confidential, proprietary rights maintained)

Genomics Resources

- **Pathogen Functional Genomics Resource Center**
 - Genomic reagents, resources and technologies such as DNA microarrays, protein expression clones, genotyping/genome analysis, data analysis tools, and training in the latest techniques in functional genomics and emerging genomic technologies.
 - <http://www.niaid.nih.gov/dmid/genomes/pfgrc/default.htm>
- **Microbial Sequencing Centers**
 - Rapid production of high-quality genome sequences of human pathogens and invertebrate vectors of disease. Services include sequencing, assembly, manual and automated genome annotation. White paper sequencing request process.
 - <http://www.niaid.nih.gov/dmid/genomes/mscs/default.htm>

Genomics Resources

- **Bioinformatics Resource Centers**
 - Annotated data on NIAID Category A-C priority pathogens and emerging and re-emerging infectious diseases. Data types include: genome sequences, comparative genomics, genome polymorphisms, gene expression, proteomics, host/pathogen interactions, and pathways.
 - http://www.brc-central.org/cgi-bin/brc-central/brc_central.cgi

HIV Related Resources

Highlights

Reagents/Services

- **NIH AIDS Research and Reference Reagent Program**
 - Offers over 8,400 reagents for public distribution (e.g., viruses, expression vectors, antibodies, proteins and peptides, anti-virals).
 - <https://www.aidsreagent.org/Index.cfm>
- **HIV/AIDS Specimen Repository**
 - Access to biological specimens from well-characterized individuals or cohorts stored in centralized and local repositories.
 - <http://www3.niaid.nih.gov/research/resources/reposit/default.htm>
- **Simian Vaccine Evaluation Units**
 - evaluates promising SIV and HIV vaccines in nonhuman primates in support of HIV vaccine development.
 - <http://www3.niaid.nih.gov/research/topics/HIV/vaccines/resou>

Databases

■ HIV Immunology Database

- Annotated, searchable collection of HIV-1 cytotoxic and helper T-cell epitopes and antibody binding sites
- <http://www.hiv.lanl.gov/content/immunology/index.html/index.html>

■ HIV Sequence Database

- Curated and annotated HIV and SIV sequence data (all sequences since 1987); software for sequence data analysis and pre-computed analysis of HIV and related sequences
- <http://www.hiv.lanl.gov/content/hiv-db/mainpage.html/>

Databases

■ HIV Drug Resistance Database

- Compilation of mutations in HIV genes that confer resistance to anti-HIV drugs.
- http://resdb.lanl.gov/Resist_DB/default.htm

■ Nonhuman Primate HIV/SIV Vaccine Trials Database

- Information about vaccine studies using SIV and HIV in nonhuman primates
- <http://www.hiv.lanl.gov/content/vaccine/home.html>

NIAID Research Resources

- Immunological
- Pathogen (except HIV)
- HIV
- Website for complete listing:
<http://www3.niaid.nih.gov/research/resources/>