

NIMML



**Nutritional Immunology &
Molecular Medicine Laboratory**

The Nutritional Immunology and Molecular Medicine Laboratory

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Barbara Kronsteiner, PhD

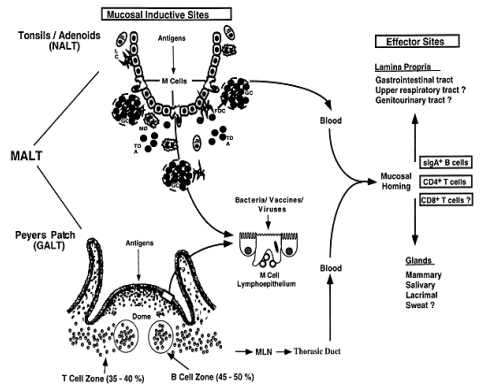
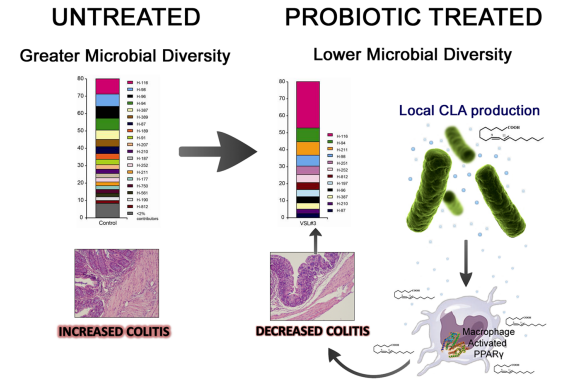
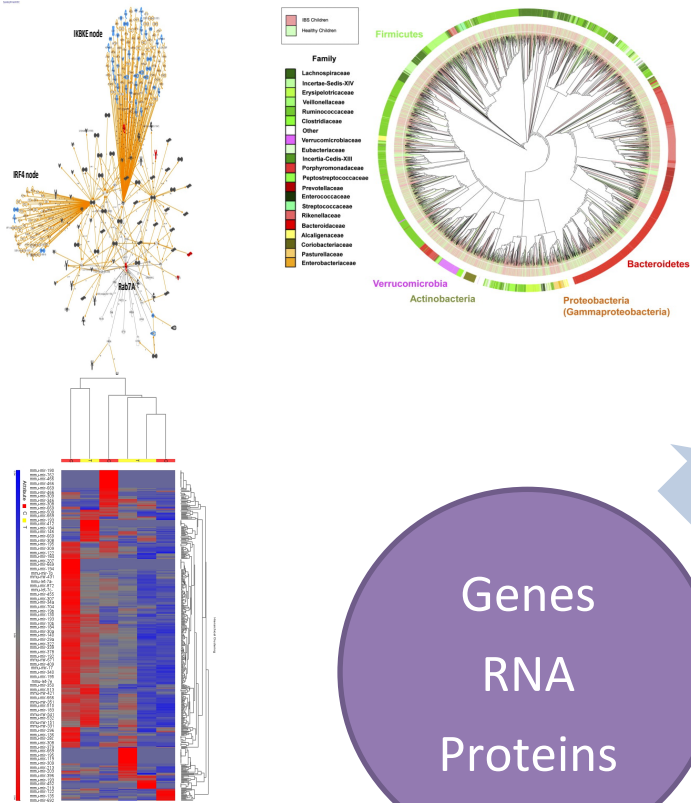
Stefan Hoops PhD

Yongguo Mei PhD

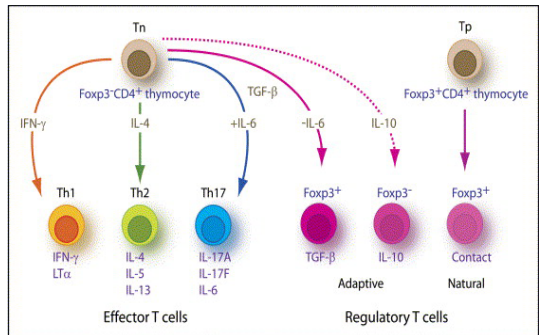


The *NIMML* Overview

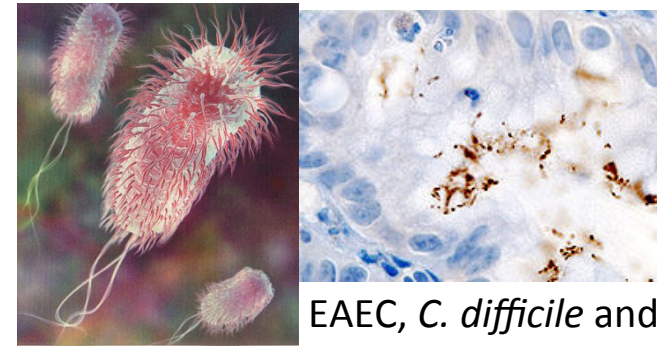
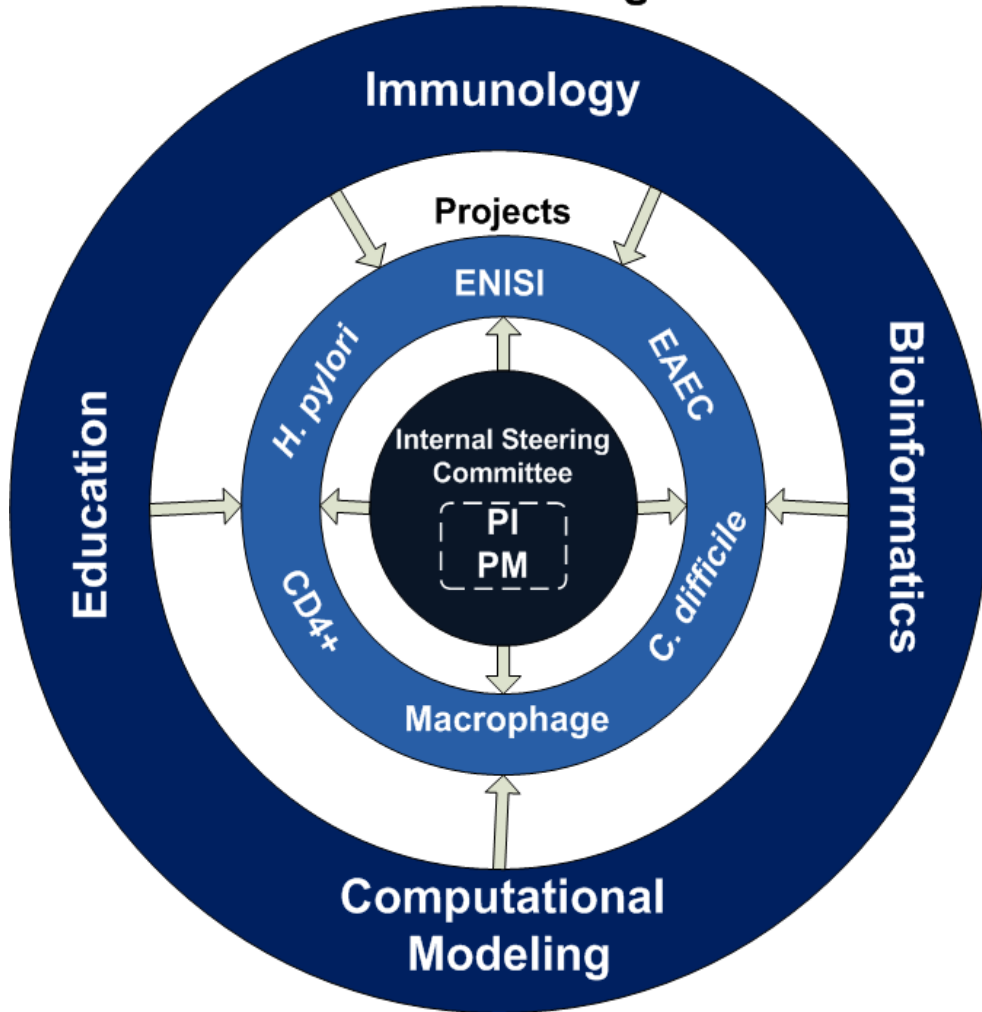
- Established at VBI in 2008
- Leading over 12 million in NIH funding (*\$2.5M year*)
- Over \$2 million in overhead generated since 2008
- Over 600k of initial VBI investment in 2008
- 3 senior researchers (grant-funded)
- 17 Staff (students, postdocs, technicians)
- 80 Publications
- 15 Patents and applications
- Startup company created (Biotherapeutics Inc)
- Additional institutional investment needed to grow into a \$100M operation



**HEALTH
VS
DISEASE**



Center for Modeling Immunity to Enteric Pathogens



EAEC, *C. difficile* and *H. pylori*

\$10.6M, 30 researchers, 3 Institutions

Virginia Bioinformatics Institute

- Nutritional Immunology & Molecular Medicine Lab
- Network Dynamics and Simulation Science Lab

University of Virginia

- Center for Global Health

Caprion Proteomics

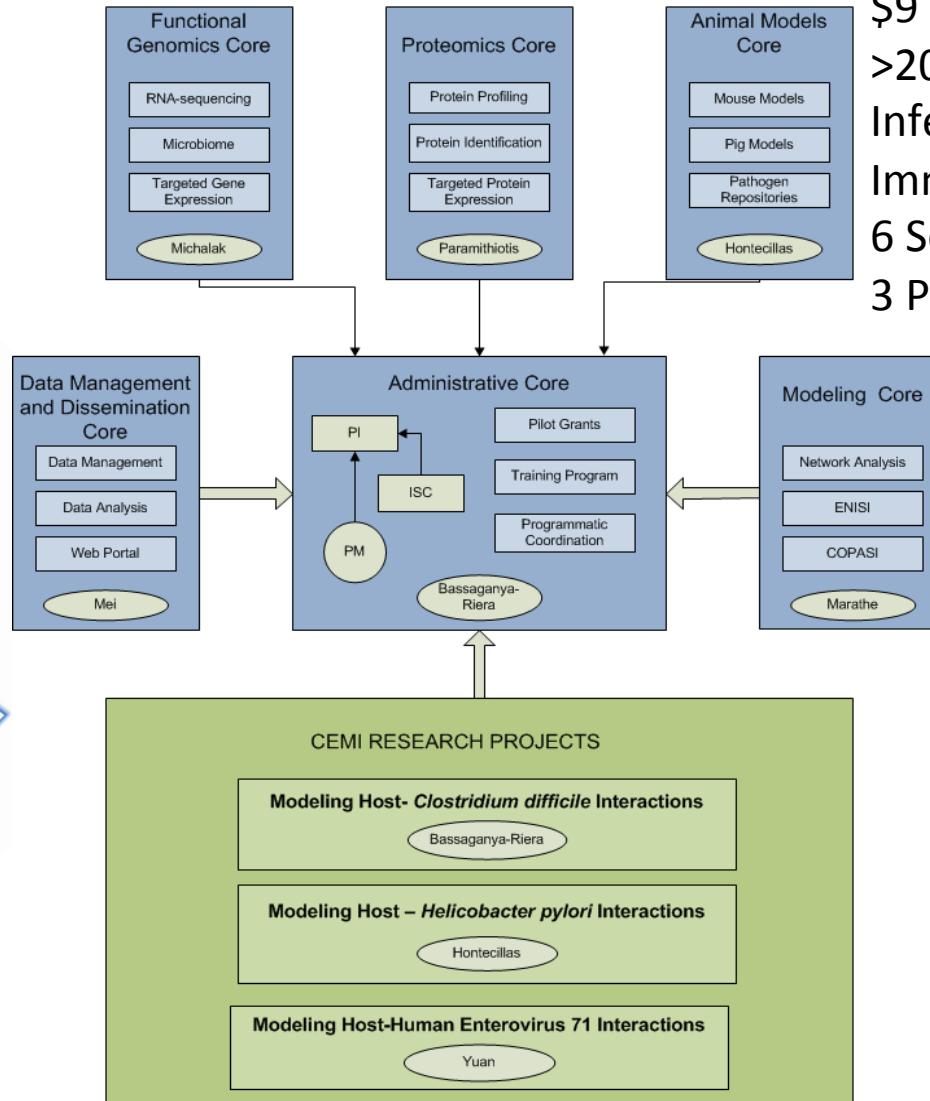
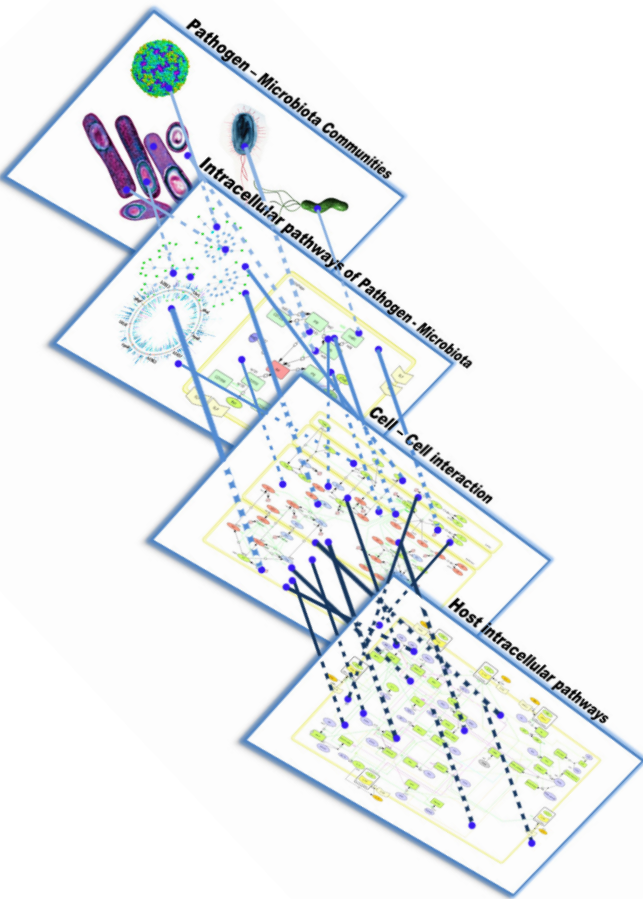
www.modelingimmunity.org

Future NIMML Growth

- Translational Research
 - Pre-clinical (mouse and pig)
 - Clinical (healthy and patient populations)
- Computational Immunology
 - MIEP/MIB, NDSSL, NIMML, Yale, Mount Sinai, Duke/BU and Rochester
- Center of Excellence in GI diseases
- Center for Predictive Modeling of Host-Pathogen Interactions

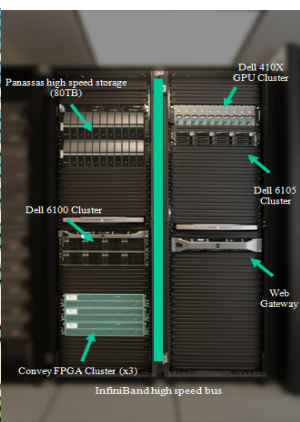
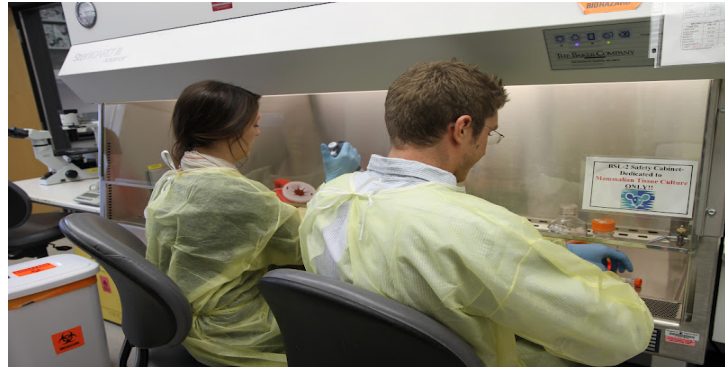
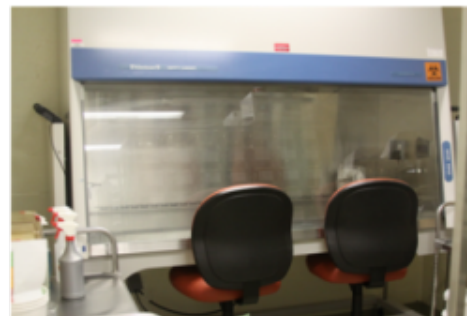
Center for Predictive Modeling of Host Pathogen Interactions (CEMI)

\$25.7 Million Total
 \$9 Million Overhead
 >20 FTEs
 Infectious Disease
 Immunology
 6 Service Cores
 3 Projects



The *NIMML* Summary

- Demonstrated expertise in large-scale biomedical research programs
- Fully integrated immunology wet lab and computational modeling capabilities
- Proven pre-clinical and clinical study capabilities
 - Translational research
 - Drug and natural product discovery
- From molecular to whole organism level
- Mechanistic and applied research



Parameters Tools

Simulation Parameters

Default Random Seed: 1,020,305,941

Number of T Cells: 10

Number of bacteria: 20

Number of dendritics: 10

Number of macrophages: 10

Add Parameter Remove Parameters Parameter Sweep

Run Options

Schedule Options

Pause At: 0

Stop At: 0

Schedule Tick Delay: 0 10 20 30 40 50 60 70 80 90 100

Sparkline Options

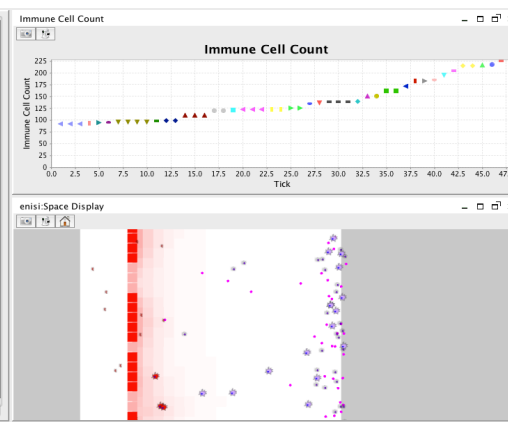
Sparkline Points: 50

Sparklines are Drawn as Line Graphs

Scenario Tree

- ensi
 - Charts
 - Bacteria Count
 - Immune Cell C
 - Data Loaders
 - EnsiLoader
 - Data Sets
 - Cell Count
 - Macrophage
 - Displays
 - A Display
 - Space Display
 - Miscellaneous Acts
 - Model Initialization
 - Schedule Initia
 - Outputters
 - File Outputter
 - Random Streams
 - User Panel
 - User Specified Act

Scenario Tree



The *NIMML* Team

Virginia Bioinformatics Institute

Josep Bassaganya-Riera - Principal Investigator
and Director

Raquel Hontecillas - Immunology Lead
Barbara Kronsteiner-Dobramysl –
Immunology and Lab Manager
Xiaoying Zhang – Immunology
Pinyi Lu - Bioinformatics and Modeling
Adria Carbo - Immunology and Modeling
Mireia Pedragosa - Immunology and
Modeling GRA
Monica Viladomiu- Immunology
Cassandra Washington – Immunology and
Modeling GRA
Patrick Heizer – Animal and Lab Assistant
Anne Buranich – Animal and Lab Assistant
Nicholas Kidd – Lab Assistant
Sunny Liu – Lab Assistant

Virginia Bioinformatics Institute (continued)

Jim Walke - Project Manager

Yongguo Mei - Modeling Lead
Adria Carbo – Modeling
Nikki Lewis – Modeling
Pinyi Lu – Modeling

Stefan Hoops - Bioinformatics Lead
Yongguo Mei - Research Software Engineer
Pinyi Lu – Bioinformatics

Carillion School of Medicine

Dario Sorrentino – Clinical Gastroenterologist
Paul Yeaton –Gastroenterology Division Chief



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