Biomedical & Comparative Immunology Symposium

Florida International University

15th Annual Biomedical & Comparative Immunology Symposium

March 7\textsuperscript{th} - 8\textsuperscript{th}, 2013

Modesto Maidique Campus

http://bci2013.eventbrite.com
Dear Conference Participant,

On behalf of the symposium organizing committee, I would like to invite you to participate in the 15th Biomedical and Comparative Immunology Symposium in Miami, at Florida International University. This annual symposium will address recent advances in our understanding of diverse biological systems and phenomena. It will focus on cellular and molecular mechanisms of fundamental processes that govern organismal development, reproduction, cellular differentiation, disease, growth and survival. We anticipate that biologists and biomedical scientists working with a variety of vertebrate (including human and other mammals) and invertebrate organisms will find the plenary sessions and other scientific presentations informative and stimulating.

We look forward to welcoming you to South Florida where we hope you will also enjoy the weather and the wealth of cultural opportunities.

Sincerely,

Charles H. Bigger, Ph.D.
Florida International University
Symposium Chair
2013 Biomedical & Comparative Immunology Symposium
“Role of the JAK/STAT Signaling Pathway in Neuroinflammation”

Etty (Tika) Benveniste, Ph.D., is Professor and Chairman of the Department of Cell, Developmental and Integrative Biology. She received her Ph.D. in 1983 from UCLA in the field of immunology. During her postdoctoral studies in the Department of Neurology at UCLA, she initiated research which has continued up to this time, on elucidating the mechanisms underlying cytokine/chemokine production by glial cells, and the effects of cytokines/chemokines on glial cell function. Dr. Benveniste has served as the Director, Graduate Program in Cell Biology (1995-2000) and as Founding Associate Dean, Office of Postdoctoral Education (1999-2001). She became Chairman of the Cell Biology Department in 2000, Associate Director, Basic Science Research, Comprehensive Cancer Center, in 2006, and the Founding Chair of the Department of Cell, Developmental and Integrative Biology in 2012. Dr. Benveniste was elected as a Fellow of the AAAS in 2009, and appointed as the Inaugural Holder of the Alma B. Maxwell - UAHSF Endowed Chair in Biomedical Research in 2008. The Benveniste laboratory is studying the interactions between cells of the immune system and the central nervous system, with a particular focus on the role of soluble mediators such as interferons, cytokines and chemokines. These studies have implications for a number of autoimmune/neurodegenerative diseases such as Multiple Sclerosis (MS) and Parkinson’s Disease. Furthermore, her research group is interested in elucidating the mechanisms by which two signaling pathways, JAK/STAT and NF-kB, modulate gliomagenesis, contributing to the pathogenesis of brain tumors. They seek to elucidate the mechanisms that lead to aberrant activation of the JAK/STAT-3 pathway in Glioblastoma, and the use of a specific JAK inhibitor to block this pathway. A particular focus is on the role of SOCS proteins in modulating neuro-inflammatory responses in the CNS.

“Determinants of Defense and Disease during Toxoplasma gondii Infection”

Dr. Eric Y. Denkers is a Professor of Immunology at the Ithaca campus of Cornell University. He received his PhD from the University of Wisconsin-Madison in 1990 studying molecular biology and immunoparasitology. After spending 5 years as a postdoctoral fellow and then as a Senior Staff Fellow at the NIH, Dr. Denkers moved his program to the Department of Microbiology and Immunology at Cornell University College of Veterinary Medicine. The focus of Dr. Denkers' research is host-parasite interactions during the immune response to the protozoan pathogen Toxoplasma gondii. Using cellular and molecular approaches, his lab investigates initiation of immunity in the intestinal mucosa and emergence of immunopathology during Toxoplasma infection. On the parasitic side, Dr. Denkers investigates how Toxoplasma secretory proteins are involved in manipulating host immune signaling pathways in macrophages and dendritic cells. Dr. Denkers is a member of the Faculty of 1000 and he currently serves on the Editorial Board of several journals including Infection and Immunity, Microbes and Infection, and Parasite Immunology.
PLENARY SPEAKERS


Dr. Anthony W. De Tomaso

Dr. De Tomaso is an Associate Professor in the Department of Molecular, Cellular and Developmental Biology at the University of California Santa Barbara. He received his BS degree in Biology from Stanford University and his PhD in Cellular and Molecular Biology at Washington University School of Medicine in St. Louis. His doctoral thesis focused on understanding the mechanisms of multi-subunit protein assembly and targeting, using the rodent Na,K-ATPase. Following completion of his PhD, Dr. De Tomaso was a NIH fellow in the laboratory of Irv Weissman at Stanford University, where he worked on both delineating the molecular mechanisms which underlie allorecognition in the primitive chordate, Botryllus schlosseri, as well as understanding the cellular and molecular basis of regeneration in this organism, subjects that remain the focus of his research. This allorecognition reaction links a number of disparate fields, including immunology, stem cell, developmental, and evolutionary biology, and also has ecological consequences. Several unique aspects of the Botryllus life history make it a novel, experimentally accessible model organism to ask pertinent questions in these distinct disciplines.

http://www.mcdb.ucsb.edu/people/faculty/detomaso

“Too Wonderful to be True: The Story of Wound Healing in the Bottlenose Dolphin”

Dr. Michael Zasloff

Over the past 25 years Dr. Zasloff's scientific interests have centered on the innate immune systems of animals. Dr. Zasloff received his M.D.-Ph.D. in the Medical Scientist training program at New York University School of Medicine. In the 1980's, Dr. Zasloff was Chief, Human Genetics Branch, National Institutes of Child Health and Human Development, at the National Institutes of Health. In 1988 Dr Zasloff founded Magainin Pharmaceuticals, Inc. a publicly traded biotechnology company. In the same year he joined the faculty of the University of Pennsylvania School of Medicine as the Charles E. H. Upham Professor of Pediatrics and Genetics, and assumed the position of Director of the Division of Human Genetics of the Children's Hospital of Philadelphia. In July 1992 Dr. Zasloff left Penn and joined Magainin on a full time basis, and served as Executive Vice President and President of the Magainin Research Institute, a basic research division of the Company. From July 1996 through November 2000 Dr. Zasloff was Vice Chairman of the Board of Magainin Pharmaceuticals. In 2002, Dr. Zasloff was named Dean of Research and Translational Science at Georgetown, tasked with the integration of the basic science conducted at Georgetown with the clinical environment of the Medical Center. Since 2004, Dr. Zasloff has been actively engaged in studies of innate immunity within the Transplant Institute of the Department of Surgery. His research interests remain focused on the role of antimicrobial peptides and aminosterols in health and disease, and application to the prevention and treatment of disease.

http://explore.georgetown.edu/people/maz5?ection=viewgeneral&PageTemplateID=360
BIOMEDICAL AND COMPARATIVE IMMUNOLOGY SYMPOSIUM
Florida International University, Modesto Maidique Campus
MARC Pavilion

PROGRAM

THURSDAY, MARCH 7th

8:00 – 9:00 am  On-site Registration and Continental Breakfast

9:00 – 9:15 am  Welcome Remarks
Dr. Kenneth Furton, Dean, College of Arts & Sciences
Dr. Charles H. Bigger, Professor, Biological Sciences &
FIU FSRTA Executive Director & MBRS Program Director

9:15 – 10:15 am  Plenary Session I
Determinants of Defense and Disease During *Toxoplasma gondii* Infection
Dr. Eric Y. Denkers
Department of Microbiology and Immunology, Cornell University College of Veterinary Medicine, Ithaca, NY

10:20 – 10:35 am
Proliferation of Immune Cells in the Purple Sea Urchin
Preethi Golconda and L. Courtney Smith
Department of Biological Sciences, The George Washington University, Washington, DC

10:45 – 11:00 am
Aggregation of sea urchin phagocytes is augmented by lipopolysaccharide in short-term cultures
Audrey Majeske and L. Courtney Smith
Department of Biological Sciences, The George Washington University, Washington, DC

11:05 – 11:25 am
Gene expression and lymphocyte proliferation responses are affected in peripheral blood leukocytes of the Florida manatee following *in vitro* exposure to brevetoxin (PbTx-2)
Catherine J. Walsh¹, Jennifer E. Yordy¹, Katarina English¹, and Robert K. Bonde²
¹Marine Immunology Program, Mote Marine Laboratory, Sarasota, FL; ²Sirenia Project, Southeast Ecological Science Center, United States Geological Survey, Gainesville, FL

11:30 – 11:45 am
The transcription factors *Ets1* and *Sox10* interact in the development of the melanocyte lineage
Amy Saldana-Caboverde and Lidia Kos
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL
11:50 – 12:05 pm
Nucleotide Excision Repair pathway deficiency and Endothelin 3 over-expression promotes melanomagenesis in a UV radiation-induced mouse model
Ana Paula Benaduce, Deannys Batista, Gabriel Grilo, Karen Jorge, and Lidia Kos
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

12:05 – 1:15 pm LUNCH

1:15 – 2:15 pm Plenary Session II
Role of the JAK/STAT/SOCS3 Axis in Neuroinflammation
Yudong Liu, Hongwei Qin and Etty (Tika) Benveniste
Department of Cell, Developmental and Integrative Biology, University of Alabama at Birmingham, Birmingham, AL

2:20 – 2:35 pm
Activation mechanism of the small GTPase Ras in response to Reactive Oxygen Species in vivo
Boris Castillo, Bohye Kim, and Lou W. Kim
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

2:40 – 2:50 pm Break

2:50 – 3:10 pm
Aedes aegypti aldehyde dehydrogenase is a rate-limiting enzyme in the regulation of juvenile hormone synthesis
Crisalejandra Rivera-Perez*, Marcella Nouzova*, Mark E. Clifton, E. Martin Garcia, Elizabeth LeBlanc, and Fernando G. Noriega
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL
* These authors contributed equally to this work

3:15 – 3:35 pm
A comparative analysis of the role of Ig cell adhesion molecules in early development and neurogenesis
Heidi D Morales-Diaz and William Smith
Department of Molecular, Cellular and Developmental Biology, University of California Santa Barbara, Santa Barbara, CA
3:40 – 4:00 pm
Regulation of Leishmania aquaglyceroporin AQP1 through post-translational pathways
Goutam Mandal¹, Mansi Sharma¹, Martin Kruse³, Claudia Sander-Juelch³, Laura A. Munro⁴, Yong Wang⁵, Jenny Veide Vilg⁶, Markus J. Tamás⁶, Hiranmoy Bhattacharjee², Martin Wiese⁴, and Rita Mukhopadhyay¹
¹Department of Molecular Microbiology and Infectious Diseases,  
²Department of Cellular Biology and Pharmacology, Florida International University, Herbert Wertheim College of Medicine, Miami, FL;  
³Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany;  
⁴Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow, UK;  
⁵Department of Biochemistry and Molecular Biology, Wayne State University, School of Medicine, Detroit, MI;  
⁶Department of Chemistry and Molecular Biology, University of Gothenburg, Gothenburg, Sweden

4:05 – 4:20 pm
Impact of the Disulfide Bond on Conformational Dynamics in Cytoglobin
Luisana Astudillo and Jaroslava Miksovska
Department of Chemistry and Biochemistry, College of Arts and Sciences, Florida International University, Miami, FL

4:25 – 4:40 pm
Effect of Proteasome Inhibitor in Initial Stages of Intestinal Regeneration in Holothuria glaberrima
Marcos Ayala-Rivera, Raul Ríos, and José García-Arrarás
Department of Biology, University of Puerto Rico, Rio Piedras Campus, San Juan, Puerto Rico

4:45 – 5:00 pm
Endothelin 3 and the angiogenic tumor response in a novel melanoma mouse model
Nikeisha Chin, Juan Carlos Gallegos, Rosy Cruz, Ruslan Garcia, Andrea Gonzalez, Manuel Borobia, and Lidia Kos
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

5:00 – 6:30 pm Poster Presentations

Poster 1.
Nicotinamide Riboside Analogs: Probes for Cell Biology, Metabolism and Malignancy
Isaual Hernandez¹, ²*, Steven Dominguez Jr.²*, Lori Manzel², Rebecca L. Fagan², Marie Migaud³, and Charles Brenner²
¹Department of Biology, University of Puerto Rico at Arecibo, Arecibo, PR;  
²Department of Biochemistry, University of Iowa, Iowa City, IA;  
³School of Pharmacy, Queen’s University, Belfast, Northern Ireland.  
*Equal contribution to project
Poster 2.
Synthesis and Study of Ratiometric Dyes for Selective Nitric Oxide (NO) Sensing and Imaging
Lissette I. Lozano-Lewis¹, Nikolaos M. Tsoukias², and Konstantinos Kavallieratos¹
¹Department of Chemistry and Biochemistry, College of Arts and Sciences
²Department of Biomedical Engineering, College of Engineering, Florida International University, Miami, FL

Poster 3.
Regulation of Superoxide Production and their Effect on Basal Ras activity in Dictyostelium discoideum
Mujataba Sharief and Lou W. Kim
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

Poster 4.
Immunological Memory Transfer by Autograft in the Gorgonian Coral, Swiftia exserta
Daniel J. Tapanes and Charles H. Bigger
Department of Biological Sciences, College of Arts & Sciences, Florida International University, Miami, FL

Poster 5.
Development of a Vaccinia Virus-Free DNA Vaccine against Smallpox
Eric Miranda¹,³, Tomás Sánchez², Carlos Rivera², Luis Vázquez², Osmarie Martínez¹, Mayté Ramírez¹, Eddy Ríos-Olivares² and Miguel Otero¹
¹Department of Microbiology, University of Puerto Rico-MSC, San Juan PR,
²Department of Biology, University of Puerto Rico-RP, San Juan PR ³Department of Microbiology, Universidad Central del Caribe, Bayamón, PR

Poster 6.
Overweight/Obesity, FTO Gene, and HIV Disease Progression in HIV+ Adults in Botswana
Sabrina Sales Martinez¹, Mehmet T Dorak², Marianna K Baum¹, and Adriana Campa¹
¹ Department of Dietetics and Nutrition,
²Department of Environmental and Occupational Health, R. Stempel College of Public Health and Social Work, Florida International University, Miami, FL

Poster 7.
DDX3X Gene Polymorphisms and Genetic Susceptibility to Childhood Leukemia
Sandeep K. Singh, Amy E. Kennedy, and Mehmet T. Dorak
Department of Environmental and Occupational Health, Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL
Poster 8.
Microstructure and Surface Analysis of Ti-Mo-Zr-Fe and Ti-Mo-Nb-Fe alloys for Orthopedic Implants
Vishal Musaramthota, Sushma Amruthaluri, and Norman Munroe
Department of Mechanical and Materials Engineering, Florida International University, Miami, FL

Poster 9.
Inhibition of p38 prevents oncogenic metabolism and induces cell death in human neuroblastoma cells
Gilda M. Portalatin³, Richard Barrios³, Tara P. Chambers², and Jeremy W. Chambers¹
¹Department of Cellular Biology and Pharmacology,
²Department of Human and Molecular Genetics, Herbert Wertheim College of Medicine,
³Department of Biology, College of Arts and Sciences, Florida International University, Miami, FL

Poster 10.
Mitochondrial signaling on the scaffold Sab Influences lactate transport facilitated by Monocarboxylase Tranporter 1 (MCT-1)
Richard Barrios² and Jeremy W. Chambers¹
¹Department of Cellular Biology and Pharmacology, Herbert Wertheim College of Medicine,
²Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

Poster 11.
Evaluation of hepatotoxicity and neurotoxicity of the anti-nerve agent novel therapeutic oxime, K-027
Adriana M. Prado² and Jeremy W. Chambers¹
¹Department of Cellular Biology and Pharmacology, Herbert Wertheim College of Medicine,
²Department of Biology, College of Arts and Sciences, Florida International University, Miami, FL

Poster 12.
Sab-mediated signaling initiates mitochondrial dysfunction in an in vitro model of adipocyte aging
Ashley A. Diaz¹ and Jeremy W. Chambers²
¹Department of Biological Science, College of Arts and Sciences,
²Department of Cellular Biology and Pharmacology, Herbert Wertheim College of Medicine.
Florida International University, Miami, FL

Poster 13.
Antibacterial peptides from Swiftia exserta, a Caribbean octocoral
Lorenzo P. Menzel and Charles H. Bigger
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

6:30 pm Shuttle Departs for Mutiny Hotel (Pick-up at MARC Building)
FRIDAY, MARCH 8th

8:00 – 9:00 am  On-site registration and Continental Breakfast

9:00 – 9:15 am  Welcoming Remarks by Dr. Charles H. Bigger, Professor, Biological Sciences & FIU FSRTA Executive Director & MBRS Program Director

9:15 – 10:15 am  Plenary Session III
Too wonderful to be true: the story of wound healing in the bottlenose dolphin
Michael Zasloff, M.D., Ph.D.
*Georgetown Transplant Institute, Georgetown University School of Medicine, Washington, DC*

Elena Shersher and Xiaotang Wang
*Department of Chemistry and Biochemistry, College of Arts and Sciences, Florida International University, Miami, FL*

10:45 – 11:00 am  Ecdysis Triggering Hormone plays a role in maturation of Corpora Allata for Juvenile Hormone Synthesis in the mosquito, *Aedes aegypti*
Maria Areiza, Marcela Nouzova, Crisalejandra Rivera-Perez, and Fernando G. Noriega
*Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL*

11:05 – 11:20 am  A Novel Endogenous Bile Acid in Bittersweet Poison Frog Skin may Explain Dietary Alkaloid Sequestration
Valerie C. Clark¹, Liva R. Harinantenaina², Martin Zeller³, William Ronto⁴, James Rocca⁵, Aaron Dossey⁶, Daniel Rakotondravony⁴, David G. I. Kingston², and Chris Shaw¹
¹School of Pharmacy, Queen’s University Belfast, Belfast BT9 7BL, Northern Ireland, UK;
²Department of Chemistry, Virginia Polytechnic Institute & State University, Blacksburg, VA;
³Thermo Fisher Scientific, Bremen, Germany;
⁴Department of Animal Biology, University of Antananarivo (101), Madagascar;
⁵AMRIS Facility, McKnight Brain Institute, University of Florida, Gainesville, FL;
⁶Department of Biochemistry and Molecular Biology, University of Florida, Gainesville, FL

11:25 – 11:45 am  Development of reverse genetic loss of function approach by transgenesis and RNAi technology for developmental and comparative studies of immunity in *Xenopus*
Jacques Robert, Nikesha Haynes, Hristina Nedelkovska, and Eva-Stina Edholm
*Department of Microbiology & Immunology, University of Rochester Medical Center, Rochester, NY*
11:50 – 12:05 pm
Investigation of Molecular Mechanism of Diverse Disease Associations with HLA-DRB4 Lineage
Karina Villalba¹, Amy E. Kennedy², Sandeep K. Singh², and Mehmet T. Dorak²
¹Department of Health Promotion and Disease Prevention,
²Department of Environmental and Occupational Health, Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL

12:05 – 1:15 pm  LUNCH

1:15 – 2:15 pm  Plenary Session IV
Education matters- evolution of allorecognition specificity and the adaptive immune system
Anthony W. De Tomaso
Department of Molecular, Cellular and Developmental Biology, University of California Santa Barbara, Santa Barbara, CA

2:20 – 2:40 pm
Evidence for a core gut microbiome in the filter-feeding marine invertebrate, Ciona intestinalis
Larry J. Dishaw
Department of Pediatrics, Division of Molecular Genetics, University of South Florida, Tampa, FL

2:40 – 2:50 pm  Break

2:50 – 3:05 pm
Do Cnidarians remember previous foe attacks?
Tanya Brown and Mauricio Rodriguez-Lanetty
Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL

3:10 – 3:25 pm
The Sp185/333 proteins from the California purple sea urchin opsonize microbes and augment phagocytosis
Hung-Yen (Peter) Chou and L. Courtney Smith
Department of Biological Sciences, The George Washington University, Washington, DC

3:30 – 3:45 pm
Identification of galectin transcripts in the light organ of the squid Euprymna scolopes
Elisa Sanchez, Kayla Minser, Brigham Dunn, and Maria G. Castillo
Biology Department, New Mexico State University, Las Cruces, NM

3:50 – 4:10 pm
Remarkable conservation of natural killer receptor, NKp30
Yuko Ota and Martin F. Flajnik
Department of Microbiology and Immunology, University of Maryland, Baltimore, MD
4:15 – 4:30 pm
Enzyme histochemical identification of the potential “immunocytes” in the octocoral *Swiftia exserta*.
**Lorenzo P. Menzel and Charles H. Bigger**
*Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL*

4:35 – 4:50 pm
Diversity of nickel-isolated native Sp185/333 immune response proteins among and within individual purple sea urchins
**Lauren S. Sherman¹, Kristy J. Brown², and L. Courtney Smith¹**
¹*Department of Biological Sciences, George Washington University, Washington, DC*
²*Center for Genetic Medicine Research, Children’s National Medical Center, Washington, DC*

4:55 – 5:15 pm
Adaptive Immunity in a Coral: a Question of Memory?
**Charles H. Bigger¹, Gabriel J. Correa¹, and I. Lucy Spence²**
¹*Department of Biological Sciences, College of Arts and Sciences, Florida International University, Miami, FL*
²*Department of Biological Sciences, Miami Dade College, Miami, FL*

5:20 – 5:30 pm
Announcement of Student Awards & Final Address by Dr. Andres Gil, FIU Vice-President for Research, Division of Research and Dr. Charles H. Bigger, Professor, Biological Sciences & FIU FSRTA Executive Director & MBRS Program Director

5:30 – 7:00 pm
RECEPTION in MARC Building Lobby

7:00 pm
Shuttle Departs for Mutiny Hotel (Pick-up at MARC Building)