

ANIMAL MOLECULAR AND CELLULAR BIOLOGY GRADUATE PROGRAM

NINETHEETH ANNUAL RESEARCH SYMPOSIUM



**ANIMAL MOLECULAR
AND CELLULAR BIOLOGY**

UNIVERSITY OF FLORIDA

Austin Cary Forest Campus
Gainesville, Florida
August 13, 2021

WELCOME

On behalf of all the faculty of the AMCB welcome to the 19th Annual Research Symposium of the AMCB.

This year's symposium is unique. The 2020 symposium was cancelled due to the global pandemic and this year will be the first meeting of the AMCB faculty and students since the 17th AMCB symposium in 2019. Our location this year aptly utilizes the meeting space of Austin Cary Forest Campus. In 2011 the Austin Cary Forest was destroyed by fire, but determination and enthusiasm saw the Austin Cary Forest complex rebuilt and opened in 2013. After a tumultuous time during the global pandemic, it is fitting to have our reunion symposium in a place that has seen devastation and bounced back with vigor – we hope the AMCB will do the same with this first post-pandemic symposium.

In recognition of our location, the sessions are named for important Florida trees represented in the Austin Cary Forest. We are pleased to have Dr. Liang Zhou as the AMCB Distinguished Lecturer. We are also grateful for those who support the AMCB during the year including the College of Agricultural and Life Sciences, and the University of Florida Office of Research. Thank you to Renee Parks-James who continues to work hard for the AMCB program. In addition, the symposium would not have been possible without the tireless efforts of Sadie Clements of the Dept. of Animal Sciences – please thank Sadie when you see her.

The AMCB is all about intellectual, professional, and personal connections – we encourage all to engage fellow faculty and students during the breaks to build new insights and foster collaboration.

John Driver, Director
John Bromfield, Co-Director

AMCB 2021 DISTINGUISHED LECTURE



Liang Zhou, M.D., Ph.D.

Department of Infectious Diseases & Immunology, University of Florida

Liang Zhou, MD, PhD, is a Professor in the Department of Infectious Diseases and Immunology, College of Veterinary Medicine, at the University of Florida. Dr. Zhou received his MD from Nanjing Medical University, China, in 1996 and his PhD from the University of California, Los Angeles, Department of Microbiology, Immunology, and Molecular Genetics in 2004.

Dr. Zhou is a molecular immunologist with specialization in two major areas: mucosal immunity and lymphocyte development/differentiation. His research focuses on environmental impact (e.g., microbes and dietary components) on host immunity, especially in mucosal tissues. Most of his research utilizes mouse genetic models, molecular and cellular immunological approaches, and genome-based technologies.

AMCB FACULTY

Mario Binelli, Department of Animal Sciences
Rafael S. Bisinotto, Department of Large Animal Clinical Sciences
John J. Bromfield, Department of Animal Sciences
Samantha A. Brooks, Department of Animal Sciences
Mary B. Brown, Department of Infectious Diseases and Pathology
Geoffrey E. Dahl, Department of Animal Sciences
Brad Daigneault, Department of Animal Sciences
John Driver, Department of Animal Sciences
Antonio Faciola, Department of Animal Sciences
Klibs Galvão, Department of Large Animal Clinical Sciences
Peter J. Hansen, Department of Animal Sciences
Kwang Cheol (KC) Jeong, Department of Animal Sciences
Maureen Keller-Wood, Department of Pharmacodynamics
Raluca Mateescu, Department of Animal Sciences
Corwin Nelson, Department of Animal Sciences
David W. Pascual, Department of Infectious Diseases & Immunology
José E.P. Santos, Department of Animal Sciences
Charles E. Wood, Department of Physiology and Functional Genomics

Emeritus Faculty

Lokenga Badinga, Department of Animal Sciences
William C. Buhi, Departments of Obstetrics & Gynecology, Animal Sciences
Kenneth C. Drury, Department of Obstetrics & Gynecology
Michael J. Fields, Department of Animal Sciences
Daniel C. Sharp, Department of Animal Sciences
William W. Thatcher, Department of Animal Sciences

CURRENT AMCB STUDENTS

PhD Students

Thiago Amaral (Advisor: Hansen)
Usman Arshad (Advisor: Santos)
Eliab Estrada Cortes (Advisor: Hansen)
Federico Cunha (Advisors: Brown & Galvão)
Weihong Gu (Advisor: Driver)
McKenzie (Lane) Haimon (Advisor: Peter Hansen)
Froylan Sosa Hernandez (Advisor: Hansen)
Ali Husnain (Advisor: Santos)
Richard Lobo (Advisor: Faciola)
Melany De Carvalho Madrid (Advisor: Driver)
Paula Cardoso Molinari (Advisor: Bromfield)
Phillip Martins Peixoto (Advisor: Bisinotto)
Michael B. Poindexter (Advisor: Nelson and Santos)
Firmansyah Tri Saputra (Advisor: Nelson)
Efsthios Sarmikasoglou (Advisor: Faciola)
Daniel Stanton (Advisor: Driver)
Yuhan Wen (Advisor: Driver)
Yuting Zhai (Advisor: Jeong)
Roney Zimpel (Advisor: Santos)

MS Students

Segundo Casaro (Advisor: Galvão)
Sadie Clements (Advisor: Driver)
Camila Jose Cuellar (Advisor: Hansen)
Mesfin Mamo Gobena (Advisor: Mateescu)
Laura May Jensen (Advisor: Hansen)
Surawich Jeensuk (Advisor: Hansen)
Maura McGraw (Advisor: Daigneault)

GRADUATES OF THE AMCB, 2019-2021

Samantha Bohm, MS (Advisor: Nelson)

Currently a Yield Analyst for JBS in Green Bay WI

Mackenzie Dickson, PhD (Advisor: Bromfield)

Currently a postdoctoral fellow at the National Institute of Environmental Health Sciences, Reproductive & Developmental Biology Laboratory

Sena Field, MS (Advisor: Laporta)

Currently a PhD candidate at the University of Wisconsin-Madison, Dept of Animal and Dairy Sciences

Courtney McCourt, MS (Advisor: Hackmann)

Currently a Registered Sanitarian at Texas Health and Human Services in Austin TX

Achilles Vieira Neto, PhD (Advisor: Santos)

Currently an Assistant Professor at Kansas State University, Dept of Animal Sciences and Industry

Zaira Estrada Reyes, PhD (Advisor: Mateescu)

Currently a postdoctoral fellow at the University of California-Davis

Cheng Ye, PhD (Advisor: Driver)

Currently a postdoctoral fellow at the University of Pittsburgh, Dept of Immunology

HISTORY OF THE AMCB RESEARCH SYMPOSIUM

YEAR	LOCATION	DISTINGUISHED LECTURER
2003	Whitney Laboratory St. Augustine, Florida	Randy Prather University of Missouri
2004	Chinsegut Hill Brooksville, Florida	John Dobrinsky USDA-ARS Beltsville, MD
2005	Chinsegut Hill Brooksville, Florida	Doug Stocco Texas Tech University
2006	Lake Wauburg Gainesville, Florida	Ina Dobrinski University of Pennsylvania
2007	Whitney Laboratory St. Augustine, Florida	Doug Bannerman USDA-ARS, Beltsville, MD
2008	Cedar Cove Beach & Yacht Club Cedar Key, Florida	Eckhard Wolf LMU Munich, Germany
2009	Plantation Golf Resort and Spa Crystal River, Florida	Dean Betts University of Western Ontario
2010	Whitney Laboratory St. Augustine, Florida	Marc-Andre Sirard Laval University
2011	Steinhatchee Landing Resort Steinhatchee, Florida	Kimberly Vonnahme North Dakota State Univ.
2012	Holiday Isle Oceanfront Resort St. Augustine, Florida	Rocío Rivera University of Missouri
2013	Harbor Front Hampton Inn Fernandina Beach, Florida	Martin Sheldon Swansea University
2014	Lakeside Inn Mount Dora, Florida	Cynthia Baldwin University of Massachusetts
2015	Jekyll Island Club Hotel Jekyll Island, Georgia	Pat Lonergan & Trudee Fair University College Dublin
2016	Chinsegut Hill Retreat Brooksville, Florida	Shawn Donkin Purdue University
2017	Safety Harbor Resort and Spa Safety Harbor, Florida	Kieran Meade Teagasc, Co. Meath, Ireland
2018	Plantation on Crystal River Crystal River Florida	Christopher Geyer East Carolina University
2019	International Palms Resort & Conf. Center Cocoa Beach, Florida	Brian O'Neill University of Iowa
2020	Postponed – Covid19	Fuller Bazer Texas A & M
2021	Austin Cary Forest Gainesville, Florida	Liang Zhou University of Florida

SCHEDULE OF EVENTS

- 9:00 AM John Driver, AMCB Director
Welcome and introduction
- 9:15 AM Dr Scott Angle, VP for Agriculture and Natural Resources
Opening remarks

Session 1: Magnolia

Melany Madrid and Firmansyah Saputra, Chairs

- 9:30 AM Thiago Amaral, Dept of Animal Sciences
“Signaling mechanisms for actions of DKK1 on cell numbers in the preimplantation bovine embryo.”
- 9:45 AM Usman Arshad, Dept of Animal Sciences
“Hepatic triacylglycerol associations with production and health in dairy cows.”
- 10:00 AM Sadie Clements, Dept of Animal Sciences
“Using GWAS and CRISPR/Cas9 to screen for genes linked to genetic diseases.”
- 10:15 AM Camilla Cuéllar, Dept of Animal Sciences
“Difference between *Bos Taurus* and *Bos Indicus* linked to the mutation in the *HELB* gene.”
- 10:30 AM Federico Cunha, Dept of Large Animal Clinical Sciences
“Assessment of dairy heifer uterine microbiota at birth and at 60 days of life.”
- 10:45 AM Weihong Gu, Dept of Animal Sciences
“A single cell analysis of thymic iNKT cell development in pigs.”
- 11:00 AM BREAK

Session 2: 2021 AMCB Distinguished Lecture

11:15 AM Professor Liang Zhou, Department of Infectious Diseases &
Immunology, University of Florida

12:15 PM LUNCH

Session 3: Cedar

Federico Cunha and Zhai Yuting, Chairs

1:45 PM Ali Husnain, Dept of Animal Sciences
“Effect of induced uterine inflammation on production and
reproduction performance in dairy cows.”

2:00 PM Surawich Jeensuk, Dept of Animal Sciences
“Regulation of bovine embryonic development by WNT5A is
modified by the source of albumin and is independent of RAC1
signaling.”

2:15 PM Richard Lobo, Dept of Animal Sciences
“Effects of magnesium source and buffer inclusion on high
producing dairy cows' performance.”

2:30 PM Melany Madrid, Dept of Animal Sciences
“Efficacy of antiviral therapies against influenza infection and
transmission in pigs.”

2:45 PM Maura McGraw, Dept of Animal Sciences
“Functional characterization of PPAR γ in bovine blastocyst
development and early trophectoderm formation.”

3:00 PM Phillip Peixoto, Dept of Large Animal Clinical Sciences
“Conceptus length on day 17 of gestation is associated with
endometrium and conceptus transcriptome in dairy cows.”

3:15 PM BREAK

Session 3: Live Oak

Richard Lobo and Maura McGraw, Chairs

- 3:30 PM Firmansyah Saputra, Dept of Animal Sciences
 “Strategy to support immune defense of mammary gland
 against mastitis.”
- 3:45 PM Efstathios Sarmikasoglou, Dept of Animal Sciences
 “Effect of ruminal LPS on growth, lactate, NH₃ and VFAs of
 bacteria contributing to ruminal acidosis.”
- 4:00 PM Froylan Sosa, Dept of Animal Sciences
 “Effects of the SLICK1 mutation in the *PRLR* on core
 temperature and global gene expression in liver in Senepol and
 Holstein cattle.”
- 4:15 PM Yuhan Wen, Dept of Animal Sciences
 “Controlled release microparticles to enhance the long-term
 efficacy of single-dose vaccines.”
- 4:30 PM Zhai Yuting, Dept of Animal Sciences
 “Understanding genetic features of methicillin-resistant
 Staphylococcus aureus (MRSA) associated with host adaptation
 and dissemination in both human and food animals by a
 machine learning approach.”
- 4:45 PM John Bromfield, AMCB Co-Director
 Closing remarks
- 5:00 PM GROUP PHOTO
- 5:15 PM DINNER provided by 4 Rivers barbeque

NOTES