

ANIMAL MOLECULAR AND CELLULAR BIOLOGY GRADUATE PROGRAM

TWENTY FIRST ANNUAL RESEARCH SYMPOSIUM



Sheraton Lake Buena Vista Resort
Orlando Florida

May 12-13, 2023



ANIMAL MOLECULAR
AND CELLULAR BIOLOGY

WELCOME

On behalf of all the faculty of the AMCB welcome to the 21st Annual Research Symposium of the AMCB.

This year's symposium is held at the Sheraton Lake Buena Vista Resort in Orlando Florida. Located just a five-minute drive from Walt Disney World Resort, Lake Buena Vista Resort is in the heart of Florida's theme park capital of the world.

When the native Seminole were evicted from Florida by the US government, Orlando was originally known as Jernigan, named for the cattleman Issac and Aaron Jernigan. When the Jernigan name fell out of favor due to various crimes committed by Aaron Jernigan and his militia, the name Orlando was selected. While history cannot confirm why the name Orlando was chosen, it is said that in a committee meeting someone argued *"This place is often spoken of as 'Orlando's Grave.' Let's drop the word 'grave' and let the county seat be Orlando."*

We are 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 efforts of Jasmine Corbit, Tracy Cawley and Debra Nagy – thank you for all your hard work. A hearty 'thank you' is also given to the Deans Office and the financial support of Dr Elaine Turner for making the AMCB symposium possible.

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 Bromfield, Director
Geoff Dahl, Co-Director

AMCB 2023 DISTINGUISHED LECTURER



Pascale Chavatte-Palmer, DVM PhD

*Université Paris-Saclay, UVSQ, INRAE, BREED, Jouy-en-Josas,
France*

Dr Chavatte-Palmer graduated with a DVM from École Nationale Vétérinaire d'Alfort in France. Dr Chavatte-Palmer specialized in animal reproduction in the United Kingdom, France and at the University of Florida College of Veterinary Medicine. Dr Chavatte-Palmer completed a PhD at the University of Cambridge studying steroid metabolism of the fetoplacental unit in the horse. Dr Chavatte-Palmer's research program has focused primarily on placental and perinatal development in horses. Dr Chavatte-Palmer joined the Biology of Development and Reproduction (BDR) research unit at INRA in France and studied fetoplacental and postnatal consequences of cloning and embryo technologies in cattle. Dr Chavatte-Palmer developed biomedical and veterinary models for studying the developmental origins of health and disease (DOHaD) with an emphasis on placental function. Dr Chavatte-Palmer's research group studied the programming effects of nutritional challenges, metabolic imbalance, embryo

technologies and exposure to airborne and/or food pollutants in various species, including the horse. In 2020 Dr Chavatte-Palmer became the director of the new Biology of Reproduction, Environment, Epigenetics and Development (BREED) research unit at INRAE, that gathers expertise in animal and human reproduction and development.

Dr Chavatte-Palmer is a founding member of the French speaking society for DOHAD (SF-DOHAD) and prior president of the International Society for Embryo Technologies. Dr Chavatte-Palmer is currently president of the International Federation of Placental Associations (IFPA), the European Placenta Group (EPG) and of the Société Française pour l'Etude de la Fertilité (SFEF). In recognition of Dr Chavatte-Palmer contribution to science she has received the Médaille d'or from the Académie d'agriculture de France, the Distinguished Service Award from the International Society of Embryo Technology and is a member of the French Academy of Veterinary Surgeons. Dr Chavatte-Palmer is also involved in the breeding of show-jumping horses with her husband Dr Eric Palmer.

AMCB FACULTY

Fernanda Batistel, Department of Animal Sciences
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 & Immunology
Geoffrey E. Dahl, Department of Animal Sciences
Brad Daigneault, Department of Animal Sciences
Aria Eshaghi, Department of Infectious Diseases & Immunology
Antonio Faciola, Department of Animal Sciences
Angela Gonella-Diaza, 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
Zongliang (Carl) Jiang, 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
Fernanda M. Rezende, Department of Animal Sciences
José E.P. Santos, Department of Animal Sciences
Tracy Scheffler, Department of Animal Sciences
Feng Yue, Department of Animal Sciences

Emeritus Faculty

Lokenga Badinga, Department of Animal Sciences
William C. Buhi, Departments of 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
Charles E. Wood, Department of Physiology & Functional
Genomics

CURRENT AMCB STUDENTS

PhD Students

Federico Cunha♦ (Advisors: Brown & Galvão)
Ahmad Fraz♦ (Advisor: Nelson)
Lané Haimon (Advisor: Peter Hansen)
Yufen Li♦ (Advisor: Yue)
Richard Lobo (Advisor: Faciola)
Gabriela Macay* (Advisor: Bromfield)
Maura McGraw (Advisor: Daigneault)
Phillip Martins Peixoto (Advisor: Bisinotto)
Masroor Sagheer (Advisor: Hansen)
Firmansyah Tri Saputra (Advisor: Nelson)
Efsthathios Sarmikasoglou* (Advisor: Faciola)
Zaeem Sarwar (Advisor: Santos)
Muhammad Sohail Siddique (Advisor: Daigneault)
Daniel Stanton (Advisor: Hansen)
Arslan Tariq (Advisor: Bromfield)
Abdul Waheed* (Advisor: Binelli)
Yuhan Wen♦ (Advisor: Nelson/Driver)
Yuting Zhai (Advisor: Jeong)
Linkai Zhu (Advisor: Jiang)

MS Students

Leah Sheen-Yi Chu (Advisor: Yue)
Camila Jose Cuéllar (Advisor: Hansen)
Kelly Anne Forbes (Advisor: Dahl)
Quinn Hoorn (Advisor: Hansen)
Madison Newman (Advisor: Bisinotto)

♦ CALS Deans award recipient

* matching assistantship recipient

GRADUATES OF THE AMCB, 2022-2023

Thiago Amaral, PhD (Advisor: Hansen)

Postdoctoral Scientist, Zoetis Animal Health, Kalamazoo MI

Usman Arshad, PhD (Advisor: Santos)

Postdoctoral Fellow, University of Wisconsin-Madison WI

Eliab Estrada Cortes, PhD (Advisor: Hansen)

Researcher, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP), Mexico

Froylan Sosa Hernandez, PhD (Advisor: Hansen)

Postdoctoral Fellow, University of Kansas Medical Center KS

Ali Husnain, PhD (Advisor: Santos)

Lecturer, University of Veterinary and Animal Sciences, Lahore Pakistan

Huijia Liu, MS (Advisor: Jeong)

Graduate school in biomedical sciences

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	Cancelled – Covid19	Fuller Bazer Texas A&M
2021	Austin Cary Forest Gainesville, Florida	Liang Zhou University of Florida
2022	Hampton Inn & Suites, Fernandina Beach Amelia Island, Florida	Fuller Bazer Texas A&M

SCHEDULE OF EVENTS

Friday May 12, 2023

12:30 PM John Bromfield, AMCB Director
Welcome and introduction

Session 1 - Chairs: Masroor Sagheer & Firmansyah Saputra

12:45 PM Leah Chu, Dept of Animal Sciences (*Yue*)

“Mitochondrial regulation of adipocyte progenitor cell fate and thermogenesis.”

1:00 PM Camilla Cuéllar, Dept of Animal Sciences (*Hansen*)

“Consequences of gene editing of *PRLR* on thermotolerance, growth, and reproduction in cattle.”

1:15 PM Richard Lobo, Dept of Animal Sciences (*Faciola*)

“Does light affect microbial fermentation in in vitro rumen fermentation?”

1:30 PM Lané Haimon, Dept of Animal Sciences (*Hansen*)

“Culture of bovine preimplantation embryos with choline chloride increases weaning weight in resultant calves.”

1:45 PM Jordan Bishman, Dept of Animal Sciences
(*Daigneault*)

“Multiple passaging of blastomere complementation as an alternative cloning strategy may drive trophoblast stem cell fate.”

2:00 PM Yufen Li, Dept of Animal Sciences (*Yue*)

“The role of double PHD fingers 2 (*Dpf2*) in regulating the development of muscle and adipose tissue.”

2:15 PM BREAK

Session 2 - Chairs: Muhammad Sohail Siddique & Linkai Zhu

- 2:30 PM Gabriela Macay, Dept of Animal Sciences (*Bromfield*)
“Effect of seminal plasma and sperm on bovine oviductal cells.”
- 2:45 PM Phillip Martins Gondim Peixoto, Dept of Large Animal Clinical Sciences (*Bisinotto*)
“Use of automated monitoring devices to characterize estrous cyclicity postpartum in lactating dairy cows.”
- 3:00 PM Maura McGraw, Dept of Animal Sciences (*Daigneault*)
“A CRISPR approach to determining roles of PPARG in embryonic origins of placental development.”
- 3:15 PM Quinn Hoorn, Dept of Animal Sciences (*Hansen*)
“Transcriptomic profiling of the bovine endosalpinx and endometrium at day 2 after ovulation to identify putative embryokines.”
- 3:30 PM BREAK

Session 3 - 2023 AMCB Distinguished Lecture

Chair: Professor Geoff Dahl

- 4:00 PM Pascale Chavatte-Palmer, Université Paris-Saclay, UVSQ, INRAE, BREED.
“Importance of the maternal periconceptual environment for offspring outcome: Insight from rabbit and horse studies.”
- 5:00 PM Group Photo.
- 6:00 PM Dinner.

Saturday May 13, 2023

7:00 – 8:00 AM Breakfast.

Session 4 - Chairs: Maura McGraw & Yufen Li

- 8:30 AM Arslan Tariq, Dept of Animal Sciences (*Bromfield*)
“Investigating the role of inflammation in female reproduction: Impacts on oocyte competence and embryo quality.”
- 8:45 AM Yuting Zhai, Dept of Animal Sciences (*Jeong*)
“Understanding genetic features associated with host specificity of bacterial pathogen using machine learning approaches.”
- 9:00 AM Linkai Zhu, Dept of Animal Sciences (*Jiang*)
“6mA – a new epigenetic regulator in bovine?”
- 9:15 AM Muhammad Sohail Siddique, Dept of Animal Sciences (*Daigneault*)
“Biological consequences of environmental stressors on post ejaculatory sperm function.”
- 9:30 AM Ahmad Fraz, Dept of Animal Sciences (*Nelson*)
“Effect of supplementing rumen-protected arginine on immunity and inflammation of dairy cows in transition period.”
- 9:45 AM BREAK

Session 5 - Chairs: Gabriela Macay & Leah Chu

- 10:15 AM Madison Newman, Dept of Large Animal Clinical Sciences (*Bisinotto*)
“Applying reproductive imaging and interferon-tau concentrations as a novel strategy for early pregnancy diagnosis in dairy cattle.”
- 10:30 AM Masroor Sagheer, Dept of Animal Sciences (*Hansen*)
“Consequences of variation in methionine concentration in culture medium on embryonic development, morphokinetics, and cell lineage differentiation.”
- 10:45 AM Firmansyah Saputra, Dept of Animal Sciences (*Nelson*)
“Effect of heat stress mitigation on mammary immunity.”
- 11:00 AM Efstathios Sarmikasoglou, Dept of Animal Sciences (*Faciola*)
“Effects of ruminal LPS exposure in primary bovine ruminal epithelial cells.”
- 11:15 AM Daniel Stanton, Dept of Animal Sciences (*Hansen*)
“Circadian control of egg laying in *Hofstenia*: A proposal.”
- 11:30 AM John Bromfield, AMCB Director
Closing remarks – adjourn.

NOTES