

SWINE IN BIOMEDICAL RESEARCH CONFERENCE 2022

June 10–14, 2022

University of Wisconsin - Madison
Memorial Union



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CONFERENCE PROGRAM



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CONFERENCE CHAIRS

Dr. Dhanansayan Shanmuganayagam, Ph.D.

Co-Director | Center for Biomedical Swine Research & Innovation
Assistant Professor | Department of Animal and Dairy Sciences
Assistant Professor | Department of Surgery
University of Wisconsin-Madison, USA

Dr. Kyle Schachtschneider, Ph.D.

Research Assistant Professor | Department of Radiology
University of Illinois at Chicago, USA

Dr. Lawrence B. Schook, Ph.D.

Edward William and Jane Marr Gutgsell
Professor Emeritus | Dept. of Animal Science and Radiology
University of Illinois, USA

ORGANIZING COMMITTEE

Dhanansayan Shanmuganayagam, Ph.D. | University of Wisconsin-Madison, USA
Charles Konsitzke, BS | University of Wisconsin-Madison, USA
Lawrence B. Schook, Ph.D. | University of Illinois Urbana-Champaign, USA
Sharon M. Donovan, Ph.D. | University of Illinois Urbana-Champaign, USA
Kyle Schachtschneider, Ph.D. | University of Illinois at Chicago, USA
Ron C. Gaba, MD | University of Illinois at Chicago, USA
Randall S. Prather, Ph.D. | University of Missouri, USA
Kevin D. Wells, Ph.D. | University of Missouri, USA
Lars Friis Mikkelsen, DVM, MLAS, EMBA | Ellegaard Göttingen Minipigs A/S, Denmark

PROGRAM COMMITTEE

Sen Wu, Ph.D. | China Agricultural University, China
Eckhard Wolf, DVM | Ludwig Maximilian University of Munich, Germany
Mark Carlson, MD | University of Nebraska Medical Center, USA
Lars Bolund, Ph.D. | Aarhus University, Denmark
Jorge Piedrahita, Ph.D. | North Carolina State University, USA
Fabiana Kömmling Seixas, Ph.D. | Federal University of Pelotas, Brazil

SCIENTIFIC ADVISORY COMMITTEE

Franklin D. West, Ph.D. | University of Georgia, USA
Ryan N. Dilger, Ph.D. | University of Illinois Urbana-Champaign, USA
Matthew B. Wheeler, Ph.D. | University of Illinois Urbana-Champaign, USA
Harry Dawson, Ph.D. | Agricultural Research Service, USDA, USA



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ABOUT THE CONFERENCE

The Swine in Biomedical Research Conference 2022 (SBR 2022), hosted at the lakeside University of Wisconsin-Madison, is the seventh in the quintessential conference series. Since its inception in 1995, advances from the sequencing of the pig genome to the recent evolution of gene editing technologies have dramatically changed the landscape of porcine models. SBR 2022 marks the coming era of translational research in pigs, that promises to accelerate the discovery and development of clinically relevant therapies and technologies. It aims to foster collaborations between clinicians, biomedical researchers, and animal scientists, and spark partnerships with the biomedical industry.

The planned sessions will:

- Identify unmet clinical needs and existing gaps in research.
- Showcase porcine models and reveal their strengths and limitations.
- Highlight innovative use of models for tackling clinical problems.
- Discuss novel tools for advancing biomedical swine research.
- Explore the need for biomedical swine research facilities, resources, and expertise (Special Panel Session).

If you need assistance, please contact:

CONFERENCE MANAGEMENT:
Email: SBR2022@union.wisc.edu
Phone: 1-(608) 890-1077

Wisconsin Union
Conference Management
800 Langdon St.
Madison, WI 53706, USA.



Wisconsin Union

Experiences for a lifetime



SWINE IN BIOMEDICAL RESEARCH CONFERENCE 2022

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CODE OF CONDUCT

The Swine in Biomedical Research Conference is committed to providing a friendly, safe, and welcoming environment for all, regardless of gender, sexual orientation, disability, race, ethnicity, religion, national origin, or other protected characteristics. We expect all attendees, media, speakers, volunteers, organizers, venue staff, guests, and exhibitors to help us ensure a safe and positive conference experience in which participants can discover, examine critically, preserve, and transmit knowledge, wisdom, and values that will improve the quality of life for all.

If you witness or experience conduct that violates the code of conduct, the conference staff will be happy to help participants contact hotel/venue security or local law enforcement, and otherwise assist those experiencing harassment, to enable them to feel safe for the duration of the conference. We value your attendance and want to make your experience as productive and professionally stimulating as possible.

SOCIAL MEDIA POLICY

The Swine in Biomedical Research Conference encourages the use of social media during the meeting as a way of connecting with other attendees and communicating the science presented. If you plan on using social media to discuss the meeting, please use the official hashtag (#SBR2022). Note: Sharing of specific research presentations, posters, or slides is prohibited without the express permission of the presenter (see below).

INFORMATION SHARING

The Swine in Biomedical Research Conference organizers capture photos and video at the event which may be used in future promotions or for historical records. We may capture activities, including portions of the symposium, poster sessions, meals, and symposium attendees. By taking part in this event, you grant the conference organizers full rights to use the images resulting from the photography and video filming, and any reproductions or adaptations of the images, for the promotion of the conference, publicity, or for historical records.

All information presented at this meeting is considered personal communication. Attendees may not record or take pictures of presentations (oral and poster), or refer to these presentations or abstracts found in this abstract book in any published document without express written consent by the presenter.

CONFERENCE PROGRAM

	June 10, 2022	June 11, 2022			June 12, 2022			June 13, 2022			June 14, 2022
	FRIDAY	SATURDAY			SUNDAY			MONDAY			TUESDAY
8:15 AM		Oinkology: Techniques for Biomedical Swine Research			Model Validation: Defining Phenotyping & Pathology Standards			Biomedical Minipigs			Regulatory Requirements for Building Domestic & Global Collaborations
9:15 AM		Break			Break			Break			Break
10:15 - 10:45 AM		Cell Therapies & Regenerative Medicine	Orthopedics	Neurology & Neurosciences	Xenotransplantation	Drugs & Devices	Pig Models of Pediatric Development 1	Immunology / Immunotherapy	Pain	Rare Diseases	White Paper Session: State of the Field & Future Direction
10:45 AM											
11:45 AM											
12:30 PM		Lunch			Lunch			Lunch			Lunch
1:30 PM		Obesity & Metabolic Disorders	Oncology 1	Infectious Diseases	Surgical Innovation	Medical Imaging	Pig Models of Pediatric Development 2	Oncology 2	Cardiovascular Diseases		Panel Session: Consortium of Research Centers
2:30 PM											
3:15 - 3:45 PM		Break			Break			Break			
3:45 PM		Identifying Unmet Clinical Needs & Gaps in Research			Developing New Porcine Tools			Genetic Engineering & Embryology			
4:45 PM		Early Stage Researchers & Trainees Mixer			Reception & Poster Session						
5:30 PM											
6:30 PM	Opening Dinner Reception										
7:00 PM											
7:30 PM											
8:30 PM											



- Breakfast Session
- Concurrent Session
- Plenary Session



OPENING DINNER RECEPTION



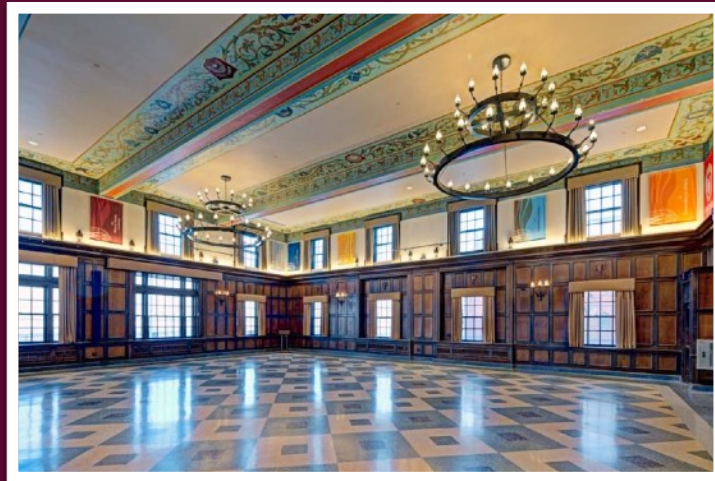
FRIDAY | 6:30 – 8:30 PM

In “Tripp Commons”
2nd Floor, Memorial Union

FOOD & DRINKS PROVIDED

Welcome remarks by

Dr. Lawrence Schook,
Dr. Angelika Schnieke, and
Dr. Dhanu Shanmuganayagam



Custom beers, the “Wild Hog Ale” and “The Belgian Boar,” were specially craft-brewed for the conference by The Lone Girl Brewing Company (Wauakee, WI).

OINKOLOGY™: TECHNIQUES FOR BIOMEDICAL SWINE RESEARCH

BREAKFAST SESSION

Saturday | June 11 | 8:15 AM – 10:15 AM | Great Hall

SESSION CO-CHAIRS:

- **Lawrence B. Schook, Ph.D.** | Edward William and Jane Marr Gutgsell Professor Emeritus | Departments of Animal Sciences and Radiology, University of Illinois, USA
- **Fabiana Kömmling Seixas, Ph.D.** | Professor, Molecular and Cellular Oncology Research Group, Laboratory of Cancer Biotechnology | Technology Development Center | Federal University of Pelotas, Brazil

08:15 AM – 08:45 AM	Current best practices for sedation and anesthesia for pigs Rebecca Johnson, DVM, Ph.D., DACVAA Clinical Professor of Anesthesia and Pain Management • Chair, School of Veterinary Medicine Animal Care and Use Committee University of Wisconsin School of Veterinary Medicine, USA
08:45 AM – 09:15 AM	Approaches to blood sampling in pigs Jennifer J. Meudt, MS Laboratory Director and Senior Research Specialist, Biomedical & Genomic Research Group Department of Animal & Dairy Sciences University of Wisconsin-Madison, USA
09:15 AM – 09:45 AM	Neonatal care of cloned piglets Luis M. Queiroz, DVM, MSc Chief Scientific Officer ICB, an eGenesis company
09:45 AM – 10:15 AM	Health and biosecurity for scientific robustness Jamie L. Reichert, BS Program Research Manager Department of Animal & Dairy Sciences University of Wisconsin-Madison, USA

MORNING BREAK | 10:15 – 10:45 AM**CELL THERAPIES AND REGENERATIVE MEDICINE**

CONCURRENT AM SESSION

Saturday | June 11 | 10:45 AM – 12:30 PM | Great Hall

SESSION CO-CHAIRS:

- **Jacques Galipeau, MD** | Associate Dean for Therapeutics Development, University of Wisconsin School of Medicine and Public Health, USA
- **Jorge Piedrahita, Ph.D.** | Randall B. Terry, Jr. Distinguished Professor of Translational Medicine, North Carolina State University, USA

10:45 AM – 11:00 AM	Introduction Jorge Piedrahita, Ph.D. Randall B. Terry, Jr. Distinguished Professor of Translational Medicine • Director, Comparative Medicine Institute College of Veterinary Medicine North Carolina State University, USA
11:00 AM – 11:30 AM	Cancer immune privilege paradigm informs a novel gene engineering strategy for islet xenotransplant immune evasiveness Jacques Galipeau, MD Don and Marilyn Anderson Professor in Oncology • Associate Dean for Therapeutics Development University of Wisconsin School of Medicine and Public Health, USA
11:30 AM – 12:00 PM	Gene edited LGR5-H2B-GFP pig and its role in elucidating the function of LGR5-stem cells in homeostasis, injury and regeneration Jorge Piedrahita, Ph.D. Randall B. Terry, Jr. Distinguished Professor of Translational Medicine • Director, Comparative Medicine Institute College of Veterinary Medicine North Carolina State University, USA
12:00 PM – 12:30 PM	Articular cartilage regeneration by autologous fibroblast-derived iPSCs in miniature swine model Wan-Ju Li, Ph.D. Associate Professor Department of Orthopedics and Rehabilitation, Department of Biomedical Engineering University of Wisconsin-Madison, USA

ORTHOPEDICS**CONCURRENT AM SESSION**

Saturday | June 11 | 10:45 AM – 12:30 PM | Multicultural Greek Council Room

SESSION CO-CHAIRS:

- **Matthew A. Halanski, MD** | Division Chief, Pediatric Orthopedics and Sports Medicine | University of Nebraska Medical Center, USA
- **Matthew B. Fisher, Ph.D.** | Director, Translational Orthopedic Research Lab | Department of Biomedical Engineering | North Carolina State University, USA

10:45 AM – 10:55 AM	Microwave ablation of the porcine growth plate: The future of epiphysiodesis? Samuel Noonan, MS Medical Assistant Frisco Clinic, USA
10:55 AM – 11:15 AM	The pig as a model in pediatric orthopedic conditions: insights from the multiple investigations Matthew A. Halanski, MD Division Chief, Pediatric Orthopedics and Sports Medicine University of Nebraska Medical Center, USA
11:15 AM – 11:35 AM	Pig models to study musculoskeletal fibrous soft tissues Matthew B. Fisher, Ph.D. Director, Translational Orthopedic Research Lab • Associate Professor Joint Department of Biomedical Engineering North Carolina State University, USA
11:35 AM – 11:55 AM	A swine model of femoral head osteonecrosis: Clinical relevance, challenges, and opportunities Harry Kim, MD Professor, Department of Orthopedic Surgery • Director, Center for Excellence in Hip at Texas Scottish Rite Hospital for Children University of Texas Southwestern Medical Center, USA
11:55 AM – 12:15 PM	The hypovitaminosis-D swine model for kyphosis and osteochondrosis – insights into the uncoupling of endochondral ossification Laura Amundson, Ph.D. Assistant Research Scientist Department of Animal & Dairy Sciences University of Wisconsin-Madison, USA
12:15 PM – 12:25 PM	Comparative assessments of X-ray, computed tomography, and magnetic resonance images for diagnosis of early-stage osteochondrosis-like lesions in distal femurs of hypovitaminosis-D pigs Brittney Kokinos, MS Department of Animal & Dairy Sciences University of Wisconsin-Madison, USA

NEUROLOGY AND NEUROSCIENCES**CONCURRENT AM SESSION**

Saturday | June 11 | 10:45 AM – 12:30 PM | Old Madison

SESSION CO-CHAIRS:

- **Maxwell Boakye, MD, MPH, MBA, FACS, FAANS** | Chief of Spinal Neurosurgery | University of Louisville School of Medicine, USA
- **Franklin D. West, Ph.D.** | Associate Professor of Regenerative Medicine | Department of Animal and Dairy Science | University of Georgia, USA

10:45 AM – 10:50 AM	Introduction Session Co-Chairs
10:50 AM – 11:10 AM	Developing a high-throughput multimodal neuroimaging pipeline for the domestic pig Ryan N. Dilger, Ph.D. Associate Professor Department of Animal Sciences University of Illinois Urbana-Champaign, USA
11:10 AM – 11:30 AM	Back-translation of quantitative sensory testing for measuring neuropathic pain in porcine models Candace L. Floyd, Ph.D. Associate Professor Department of Physical Medicine and Rehabilitation University of Utah School of Medicine, USA
11:30 AM – 11:50 AM	Translational porcine models for spinal cord neuromodulation and regenerative research Igor Lavrov, MD, Ph.D. Assistant Professor of Biomedical Engineering • Assistant Professor of Neurosurgery Department of Neurology Mayo Clinic, USA

- 11:50 AM – 12:10 PM **A stereopure oligonucleotide-based editing strategy to treat autosomal dominant retinitis pigmentosa**
Maureen McCall, Ph.D. | Professor | Department of Ophthalmology and Visual Sciences | University of Louisville, USA
- 12:10 PM – 12:30 PM **Endovascular stroke model in swine: ischemia induction and therapeutic intervention guided by interventional MRI**
Piotr Walczak, MD, Ph.D. | Professor | Department of Diagnostic Radiology and Nuclear Medicine | University of Maryland School of Medicine, USA

LUNCH | 12:30 – 1:30 PM

OBESITY AND METABOLIC DISORDERS

CONCURRENT PM SESSION

Saturday | June 11 | 1:30 PM – 3:15 PM | Multicultural Greek Council Room

SESSION CO-CHAIRS:

- **Michael Sturek, Ph.D.** | Professor of Anatomy, Cell Biology & Physiology | Indiana University School of Medicine, USA
- **Mouhamad Alloosh MS, MD** | Research Associate Professor of Anatomy, Cell Biology & Physiology | Indiana University School of Medicine, USA

- 01:30 PM – 01:55 PM **Ossabaw miniature swine model of obesity and comorbidities: naturally evolving and gene edited**
Michael Sturek, MS, Ph.D. | Professor of Anatomy, Cell Biology & Physiology | Indiana University School of Medicine, USA
- 01:55 PM – 02:20 PM **Effects of perivascular adipose tissue on coronary atherogenesis**
Mouhamad Alloosh, MS, MD | Research Associate Professor of Anatomy, Cell Biology & Physiology | Indiana University School of Medicine, USA
- 02:20 PM – 02:45 PM **Retinopathy in obese Ossabaw miniature swine**
Shyam S. Chaurasia, Ph.D. | Associate Professor | Department of Ophthalmology and Visual Sciences | Medical College of Wisconsin, USA
- 02:45 PM – 03:05 PM **Adipose browning as a therapy for obesity**
Farrokh Sharifi, Ph.D. | Postdoctoral Research Associate | Weldon School of Biomedical Engineering | Purdue University, USA
- 03:05 PM – 03:15 PM **Regulation of gene expression and serum concentration of α 1-acid glycoprotein in Ossabaw pigs during obesity**
Catarina Ventura, MS | Research Assistant | Department of Health Technology | Technical University of Denmark

ONCOLOGY (SESSION 1)

CONCURRENT PM SESSION

Saturday | June 11 | 1:30 PM – 3:15 PM | Great Hall

SESSION CO-CHAIRS:

- **Ron Gaba, MD** | Associate Professor and Vice Chair for Research, Departments of Radiology and Pathology | University of Illinois at Chicago, USA
- **Tatiana Flisikowska, Ph.D.** | Section Head, Disease Models, Livestock Biotechnology | Technical University of Munich, Germany

- 01:30 PM – 01:35 PM **Introduction**
 Session Co-Chairs

- 01:35 PM – 01:55 PM **Spontaneous myeloid leukemias and viral-induced lymphomas in MHC-defined and histocompatible miniature swine: Towards the development of a large animal tumor model.**
Raimon Duran-Struuck, DVM, Ph.D., DACLAM | Associate Professor, Pathobiology | University of Pennsylvania School of Veterinary Medicine, USA
- 01:55 PM – 02:15 PM **Unravelling tumor microenvironments with scIso-Seq in porcine models**
Dalton McLean, Ph.D. | Postdoctoral Fellow | University of Wisconsin Biotechnology Center, USA
- 02:15 PM – 02:35 PM **Bringing precision medicine to glioblastoma patients by modeling molecular tumor subtypes in immunocompetent swine for therapeutic and biomarker development**
Adrienne Watson, Ph.D. | Vice President of Research & Development | Recombinetics, Inc., USA
- 02:35 PM – 02:55 PM **Towards development of a porcine lung adenocarcinoma model**
Kyle Schachtschneider, Ph.D. | Research Assistant Professor | Department of Radiology | University of Illinois at Chicago, USA
- 02:55 PM – 03:15 PM **Why do we need large animal models for translational cancer research?**
Dieter Saur, MD, Ph.D. | Director, Institute of Translational Cancer Research and Experimental Cancer Therapy | TUM School of Medicine, Munich, Germany

INFECTIOUS DISEASES

CONCURRENT PM SESSION

Saturday | June 11 | 1:30 PM – 3:15 PM | Old Madison

SESSION CO-CHAIRS:

- **Jeniell Nett, MD, Ph.D.** | Associate Professor, Division of Infectious Disease, Department of Medicine | University of Wisconsin School of Medicine and Public Health, USA
- **Luis G. Gimenez-Lirola, Ph.D.** | Associate Professor, College of Veterinary Medicine | Iowa State University, USA

- 01:30 PM – 01:45 PM **Introduction**
Session Co-Chairs
- 01:45 PM – 02:05 PM **Pigs and Ebola: More than just human surrogates**
Charles Lewis, DVM, MPH, MS | Doctoral Candidate / Research Fellow | Iowa State University, USA
- 02:05 PM – 02:25 PM **Using the pig as a model for human infectious diseases**
Volker Gerdtts, DVM, Ph.D. | Professor | Vaccine and Infectious Disease Organization | University of Saskatchewan, Canada
- 02:25 PM – 02:45 PM **Developing *Chlamydia trachomatis* vaccines in outbred *Chlamydia suis* pre-exposed pigs**
Tobias Kaeser, Ph.D. | Assistant Professor | North Carolina State University, USA
- 02:45 PM – 03:05 PM **Harness swine organoids for virological studies**
Luis Gimenez-Lirola, Ph.D. | Associate Professor | Department of Veterinary Diagnostic & Production Animal Medicine | College of Veterinary Medicine, Iowa State University, USA
- 03:05 PM – 03:15 PM **Ex vivo porcine skin to model fungal skin colonization**
Jeniell Nett, MD, Ph.D. | Associate Professor, Division of Infectious Disease | Department of Medicine | University of Wisconsin School of Medicine and Public Health, USA

AFTERNOON BREAK | 3:15 – 3:45 PM

IDENTIFYING UNMET CLINICAL NEEDS AND GAPS IN RESEARCH**PLENARY SESSION**

Saturday | June 11 | 3:45 PM – 5:30 PM | Great Hall

SESSION CO-CHAIRS:

- **Angelika Schnieke, Ph.D.** | Chair, Livestock Biotechnology | TUM School of Life Sciences, Germany
- **Dhanansayan Shanmuganayagam, Ph.D.** | Co-Director, Center for Biomedical Swine Research & Innovation • Assistant Professor, Department of Animal and Dairy Sciences • Assistant Professor, Department of Surgery | University of Wisconsin-Madison, USA

03:45 PM – 04:00 PM **Introduction****Session Co-Chairs**04:00 PM – 04:20 PM **Pigs in biomedicine, from disease models to organ transplantation****Beate Rieblinger, Ph.D.** | Postdoctoral Researcher | Chair of Livestock Biotechnology | TUM School of Life Sciences, Munich, Germany04:20 PM – 04:40 PM **Porcine models in co-clinical research****Kathryn E. Mittauer, Ph.D., DABR** | Medical Physicist & Assistant Professor | Department of Radiation Oncology | Miami Cancer Institute, USA04:40 PM – 05:00 PM **Development of swine reporter models for testing somatic cell genome editing tools****Jarryd Campbell, Ph.D.** | Research Scientist | Recombinetics, Inc., USA05:00 PM – 05:20 PM **Porcine models of Neurofibromatosis Type 1 recapitulate complex pathological features of the human disorder****Dhanansayan Shanmuganayagam, Ph.D.** | Co-Director, Center for Biomedical Swine Research & Innovation • Assistant Professor, Department of Animal and Dairy Sciences • Assistant Professor, Department of Surgery | University of Wisconsin-Madison, USA05:20 PM – 05:30 PM **Molecular imaging of pigs in pre-clinical development****Philip G. J. Pedersen, Ph.D.** | Department Manager and Head of Translational Model Development | Minerva Imaging, Denmark**EARLY-STAGE RESEARCHERS & TRAINEES MIXER**

5:30 – 7:30PM | TRIPP COMMONS



MODEL VALIDATION: DEFINING PHENOTYPING AND PATHOLOGY STANDARDS

BREAKFAST SESSION

Sunday | June 12 | 9:00 AM – 10:15 AM | Great Hall

SESSION CO-CHAIRS:

- **Lawrence B. Schook, Ph.D.** | Edward William and Jane Marr Gutgsell Professor Emeritus | Departments of Animal Sciences and Radiology, University of Illinois, USA
- **Fabiana Kömmling Seixas, Ph.D.** | Professor, Molecular and Cellular Oncology Research Group, Laboratory of Cancer Biotechnology | Technology Development Center | Federal University of Pelotas, Brazil

09:00 AM – 09:25 AM **Framework for phenotyping: Lessons from rodent models****Paul Grippo, Ph.D.** | Associate Professor | College of Medicine | University of Illinois at Chicago, USA09:25 AM – 09:50 AM **Gross pathology: Documentation for discovery****Laura Lee, MA, DVM, Dipl. ACVP** | Veterinary Anatomic Pathologist | Comparative Pathology Laboratory, Research Animal Resources and Compliance | University of Wisconsin-Madison, USA09:50 AM – 10:15 AM **Discussion: Considerations for porcine phenotyping**

MORNING BREAK | 10:15 – 10:45 AM

XENOTRANSPLANTATION

CONCURRENT AM SESSION

Sunday | June 12 | 10:45 AM – 12:30 PM | Great Hall

SESSION CO-CHAIRS:

- **Dixon Kaufman, MD, Ph.D., FACS** | Ray D. Owen Professor • Director, UW Health Transplant Center | Division of Transplantation, Department of Surgery | University of Wisconsin School of Medicine and Public Health, USA
- **Eckhard Wolf, DVM** | Professor and Director, Center for Innovative Medical Models | Ludwig Maximilian University of Munich, Germany

10:45 AM – 11:00 AM **Introduction****Session Co-Chairs**11:00 AM – 11:20 AM **Race to the starting line****David Aufhauser, MD** | Assistant Professor | University of Wisconsin School of Medicine and Public Health, USA11:20 AM – 11:40 AM **Development of human cardiac xenotransplantation****Muhammad M. Mohiuddin, MBBS** | Professor of Surgery • Director, Cardiac Xenotransplantation Program | University of Maryland School of Medicine, USA11:40 AM – 12:00 PM **Advances in renal xenotransplantation toward a cure for end stage renal disease****James F. Markmann, MD, Ph.D.** | Professor and Chief, Division of Transplantation • Clinical Director | Massachusetts General Hospital Transplant Center, USA12:00 PM – 12:20 PM **Islet xenotransplantation as curative therapy for diabetes****Bernhard J. Hering, MD** | Professor and Vice Chair of Translational Medicine • Executive Director, Schulze Diabetes Institute | Department of Surgery | University of Minnesota, USA12:20 PM – 12:30 PM **Multi-modified pigs for organ xenotransplantation****Beate Rieblinger, Ph.D.** | Postdoctoral Researcher | TUM School of Life Sciences, Munich, Germany

DRUGS AND DEVICES**CONCURRENT AM SESSION**

Sunday | June 12 | 10:45 AM – 12:30 PM | Multicultural Greek Council Room

SESSION CO-CHAIRS:

- **Ron Gaba, MD** | Associate Professor and Vice Chair for Research | Departments of Radiology and Pathology | University of Illinois at Chicago, USA
- **Steven Van Cruchten DVM, Ph.D., MSc** | Professor, Comparative Perinatal Development | Department of Veterinary Sciences | University of Antwerp, Belgium

10:45 AM – 11:00 AM	Introduction Session Co-Chairs
11:00 AM – 11:20 AM	Human relevant safety assessment in Gottingen Minipig: a pharmaceutical industry perspective Susanne Mohr, Ph.D. Senior Toxicology Project Leader Roche Pharmaceutical Research and Early Development Roche Innovation Center, Basel, Switzerland
11:20 AM – 11:40 AM	The juvenile Gottingen minipig as translational model for pediatric drug development Steven Van Cruchten, DVM, Ph.D., MSc Professor, Comparative Perinatal Development Vice President of the European Teratology Society Department of Veterinary Sciences University of Antwerp, Wilrijk, Belgium
11:40 AM – 12:00 PM	Local immunotherapy and pancreatic artery embolization in the Oncopig F. Edward Boas, MD, Ph.D. Associate Professor, Interventional Radiology City of Hope Cancer Center, USA
12:00 PM – 12:10 PM	Magnetic resonance elastography for staging of liver fibrosis in a transgenic porcine tumorigenic model Ron Gaba, MD Associate Professor and Vice Chair for Research Departments of Radiology and Pathology University of Illinois at Chicago, USA
12:10 PM – 12:20 PM	Percutaneous liver biopsy generation of porcine hepatocellular carcinoma cell lines Luke Jordan, Ph.D. Senior Research Specialist Department of Radiology University of Illinois at Chicago, USA
12:20 PM – 12:30 PM	Concluding thoughts Session Co-Chairs

PIG MODELS OF PEDIATRIC DEVELOPMENT (SESSION 1)**CONCURRENT AM SESSION**

Sunday | June 12 | 10:45 AM – 12:30 PM | Old Madison

SESSION CO-CHAIRS:

- **Sharon Donovan, Ph.D., RD** | Professor and Melissa M. Noel Endowed Chair in Nutrition and Health • Director of the Personalized Nutrition Initiative | University of Illinois Urbana-Champaign, USA
- **Teresa A. Davis, Ph.D.** | Professor, Pediatrics-Nutrition | Baylor College of Medicine / USDA Children's Nutrition Research Center, USA

10:45 AM – 10:50 AM	Introduction Sharon Donovan, Ph.D., RD Professor and Melissa M. Noel Endowed Chair in Nutrition and Health • Director of the Personalized Nutrition Initiative University of Illinois Urbana-Champaign, USA
10:50 AM – 11:15 AM	How early life adversity and biological sex shape lifetime gastrointestinal disease risk Adam Moeser, DVM, Ph.D. Associate Professor and Matilda R. Wilson Endowed Research Chair Department of Large Animal Clinical Sciences Michigan State University, USA
11:15 AM – 11:40 AM	Dysregulation of gut-liver-brain axis in a novel pig model of pediatric NAFLD Rodrigo Manjarin, DVM, Ph.D. Assistant Professor Animal Science Department California Polytechnic State University, USA
11:40 AM – 12:05 PM	Prematurity induces anabolic resistance to nutrition in a piglet model Teresa A. Davis, Ph.D. Professor, Pediatrics-Nutrition Baylor College of Medicine / USDA Children's Nutrition Research Center, USA

- 12:05 PM – 12:15 PM **Preterm cesarean versus vaginal birth blunts bile acid-FGF19 signaling in neonatal pigs**
Caitlin Vonderohe, Ph.D. | Postdoctoral Associate, Pediatrics-Nutrition |
 Baylor College of Medicine/USDA Children's Nutrition Research Center
- 12:15 PM – 12:25 PM **Vitamin D influences growth in swine on the background of vitamin A deficiency and hypervitaminosis**
Cacious Phiri, Ph.D. | Department of Nutritional Sciences | University of Wisconsin-Madison, USA

LUNCH | 12:30 – 1:30 PM

SURGICAL INNOVATION

CONCURRENT PM SESSION

Sunday | June 12 | 1:30 PM – 3:15 PM | Multicultural Greek Council Room

SESSION CO-CHAIRS:

- **Mark A. Carlson, MD, FACS** | Professor, Department of Surgery • Professor, Department of Genetics • Director, Center for Advanced Surgical Technology | University of Nebraska Medical Center, USA
- **Jason N. MacTaggart, MD, FACS** | Associate Professor | Department of Surgery, Division of Vascular Surgery | University of Nebraska Medical Center, USA

01:30 PM – 01:35 PM **Introduction**
Session Co-Chairs

01:35 PM – 02:00 PM **A porcine model of hindlimb ischemia**
Iraklis I. Pipinos, MD, FACS | Professor | Department of Surgery, Division of Vascular Surgery |
 University of Nebraska Medical Center, USA

02:00 PM – 02:25 PM **Development of novel arterial grafts in swine**
Jason N. MacTaggart, MD, FACS | Associate Professor | Department of Surgery, Division of Vascular Surgery |
 University of Nebraska Medical Center, USA

02:25 PM – 02:50 PM **Porcine models for advancing surgical robotics**
Liaohai L. Chen, Ph.D. | Research Professor • Administrative Director, UIC Surgical Skills Laboratory |
 University of Illinois at Chicago, USA

02:50 PM – 03:15 PM **Porcine models of pancreatic cancer**
Mark A. Carlson, MD, FACS | Professor, Department of Surgery • Professor, Department of Genetics • Director,
 Center for Advanced Surgical Technology | University of Nebraska Medical Center, USA

MEDICAL IMAGING

CONCURRENT PM SESSION

Sunday | June 12 | 1:30 PM – 3:15 PM | Great Hall

SESSION CO-CHAIRS:

- **Ali Pirasteh, MD** | Associate Chief, MRI • Clinical Director, PET/MRI | Department of Radiology |
 University of Wisconsin School of Medicine and Public Health, USA
- **Ryan N. Dilger, Ph.D.** | Associate Professor | Department of Animal Sciences | University of Illinois Urbana-Champaign, USA

01:30 PM – 01:45 PM **Introduction**
Session Co-Chairs

02:05 PM – 02:25 PM	Tanshinone IIA-loaded nanoparticle and neural stem cell therapy enhances recovery in a pig ischemic stroke model Franklin West, Ph.D. Associate Professor of Regenerative Medicine Department of Animal and Dairy Science University of Georgia, USA
01:45 PM – 02:05 PM	Multiscale molecular imaging of the brain using magnetic resonance spectroscopic imaging Fan Lam, Ph.D. Assistant Professor Department of Bioengineering University of Illinois at Urbana-Champaign, USA
02:25 PM – 02:45 PM	Visualizing radiation induced changes in active bone marrow through CT, MR, and PET imaging Michael Lawless, Ph.D. Assistant Professor Department of Human Oncology University of Wisconsin School of Medicine and Public Health, USA
02:45 PM – 03:05 PM	Pet/MRI of swine liver Ali Pirasteh, MD Associate Chief, MRI • Clinical Director, PET/MRI Department of Radiology University of Wisconsin School of Medicine and Public Health, USA
03:05 PM – 03:15 PM	Automated brain segmentation from MRI images using convolutional neural networks for the domestic pig Pradeep Senthil, BS Graduate Research Assistant Department of Animal Sciences University of Illinois Urbana-Champaign, USA

PIG MODELS OF PEDIATRIC DEVELOPMENT (SESSION 2)

CONCURRENT PM SESSION

Sunday | June 12 | 1:30 PM – 3:15 PM | Old Madison

SESSION CO-CHAIRS:

- **Sharon Donovan, Ph.D., RD** | Professor and Melissa M. Noel Endowed Chair in Nutrition and Health • Director of the Personalized Nutrition Initiative | University of Illinois Urbana-Champaign, USA
- **Teresa A. Davis, Ph.D.** | Professor, Pediatrics-Nutrition | Baylor College of Medicine / USDA Children's Nutrition Research Center, USA

01:30 PM – 01:35 PM	Introduction Teresa A. Davis, Ph.D. Professor, Pediatrics-Nutrition Baylor College of Medicine, USA
01:35 PM – 02:00 PM	Priming during pregnancy? How pathogens, microbes, and microglia mediate prenatal brain development Adrienne M. Antonson, Ph.D. Assistant Professor Department of Animal Sciences University of Illinois at Urbana-Champaign, USA
02:00 PM – 02:25 PM	Development of a plant-based vaccine against coronaviruses in pigs Magdalena Maj, Ph.D. Research Scientist Department of Biological Sciences California Polytechnic State University, USA
02:25 PM – 02:50 PM	Gut microbial transplant therapy significantly decreases injury in a piglet traumatic brain injury model Franklin West, Ph.D. Associate Professor of Regenerative Medicine Department of Animal and Dairy Science University of Georgia, USA
02:50 PM – 03:00 PM	Variability in and limitations of the novel object recognition paradigm in pre-wean pigs Rebecca Golden, B.S. Graduate Research Assistant Neuroscience Program University of Illinois Urbana-Champaign, USA

AFTERNOON BREAK | 3:15 – 3:45 PM

DEVELOPING NEW PORCINE TOOLS**PLENARY SESSION**

Sunday | June 12 | 3:45 PM – 5:30 PM | Great Hall

SESSION CO-CHAIRS:

- **Kevin Wells, Ph.D.** | Co-Director, National Swine Research and Resource Center • Associate Professor | Animal Science Research Center, Division of Animal Sciences | University of Missouri, USA
- **Kyle M. Schachtschneider, Ph.D.** | Research Assistant Professor | Department of Radiology | University of Illinois at Chicago, USA

03:45 PM – 03:55 PM	Leveling the playing field for porcine biomedical researchers Kyle M. Schachtschneider, Ph.D. Research Assistant Professor Department of Radiology University of Illinois at Chicago, USA
03:55 PM – 04:10 PM	Status and challenges of genetically engineered biomedical swine models Kevin Wells, Ph.D. Co-Director, National Swine Research and Resource Center • Associate Professor Animal Science Research Center, Division of Animal Sciences University of Missouri, USA
04:10 PM – 04:30 PM	Toward a harmonized porcine genome: Manual assembly and analysis of porcine genes reveal extensive systematic errors Harry Dawson, Ph.D. Research Chemist Diet, Genomics and Immunology Laboratory Agricultural Research Service, United States Department of Agriculture, USA
04:30 PM – 04:50 PM	Porcine epigenetic clocks: Tools for investigating the epigenetics of aging and disease Joseph A. Zoller, MS Doctoral Candidate Department of Biostatistics University of California-Los Angeles, USA
04:50 PM – 05:10 PM	A porcine replacement for fetal bovine serum: Porcine platelet lysate Nathan J. Chesmore, BS Scientific Director Agulos Biotech, USA
05:10 PM – 05:30 PM	Progress and challenges in developing swine immune reagents Joan K. Lunney, Ph.D. Research Chemist Animal Parasitic Diseases Laboratory Agricultural Research Service, United States Department of Agriculture, USA

**RECEPTION & POSTER SESSION**

5:30 – 7:30PM | GREAT HALL



BIOMEDICAL MINIPIGS**BREAKFAST SESSION**

Monday | June 13 | 8:30 AM – 10:10 AM | Great Hall

SESSION CO-CHAIRS:

- **Lawrence B. Schook, Ph.D.** | Edward William and Jane Marr Gutgsell Professor Emeritus | Departments of Animal Sciences and Radiology, University of Illinois, USA
- **Fabiana Kömmling Seixas, Ph.D.** | Professor, Molecular and Cellular Oncology Research Group, Laboratory of Cancer Biotechnology | Technology Development Center | Federal University of Pelotas, Brazil

08:55 AM – 09:15 AM	Ossabaw miniature swine as a biomedical model Michael Sturek, MS, Ph.D. Professor of Anatomy, Cell Biology & Physiology Indiana University School of Medicine, USA
09:15 AM – 09:35 AM	Downsizing the Sinclair Miniature Swine: Selective breeding and nutritional management Derek Brocksmith, BS General Manger Sinclair Bio Resources, USA
09:35 AM – 09:55 AM	The use of Gottingen Minipigs for vaccine testing Jeffrey Fernandez, BS Scientist Infectious Diseases and Vaccines Research Johnson & Johnson, USA
09:55 AM – 10:15 AM	The Wisconsin Miniature Swine™ in biomedical research Dhanansayan Shanmuganayagam, Ph.D. Co-Director, Center for Biomedical Swine Research & Innovation • Assistant Professor, Department of Animal and Dairy Sciences • Assistant Professor, Department of Surgery University of Wisconsin-Madison, USA

MORNING BREAK | 10:15 – 10:45 AM**IMMUNOLOGY / IMMUNOTHERAPY****CONCURRENT AM SESSION**

Monday | June 13 | 10:45 AM – 12:30 PM | Great Hall

SESSION CO-CHAIRS:

- **Christian M. Capitini, MD** | Associate Professor | Department of Pediatrics | University of Wisconsin School of Medicine and Public Health, USA.
- **Harry Dawson, Ph.D.** | Diet, Genomics and Immunology Laboratory | Agricultural Research Service, United States Department of Agriculture, USA

10:45 AM – 11:00 AM	Introduction Session Co-Chairs
11:00 AM – 11:20 AM	Studying food allergy in pigs: An interdisciplinary approach Tobias Kaeser, Ph.D. Assistant Professor in Swine Immunology Department of Population Health and Pathobiology, College of Veterinary Medicine North Carolina State University, USA
11:20 AM – 11:40 AM	Defining pig immunity with single-cell transcriptomics: A case study in innate lymphoid cells (ILCs) Crystal Loving, Ph.D. Research Microbiologist National Animal Disease Center Agricultural Research Service, United States Department of Agriculture, USA
11:40 AM – 12:00 PM	Improved human immune cell differentiation across multiple SCID pig genetic lines Christopher K. Tuggle, Ph.D. Professor Department of Animal Science Iowa State University, USA
12:00 PM – 12:20 PM	A porcine model of inflammatory bowel disease Thomas Winogrodzki, MS Doctoral Candidate Livestock Biotechnology TUM School of Life Sciences, Munich, Germany

12:20 PM – 12:30 PM

Current research for developing swine immune reagents

Joan K. Lunney, Ph.D. | Research Chemist | Animal Parasitic Diseases Laboratory | Agricultural Research Service, United States Department of Agriculture, USA

PAIN**CONCURRENT AM SESSION**

Monday | June 13 | 10:45 AM – 12:30 PM | Multicultural Greek Council Room

SESSION CO-CHAIRS:

- **Cynthia L. Renn, Ph.D., RN, FAAN** | Associate Professor, Pain and Translational Symptom Science | University of Maryland School of Nursing, USA
- **Rajesh Khanna, Ph.D.** | Professor, Molecular Pathobiology • Director, NYU Pain Center | New York University College of Dentistry, USA

10:45 AM – 11:00 AM

Introduction: The pain landscape

Session Co-Chairs

11:00 AM – 11:20 AM

Overview of pain processing and translational methods of pain research using large animal models

Cynthia L. Renn, Ph.D., RN, FAAN | Associate Professor | Center to Advance Chronic Pain Research | University of Maryland School of Nursing, USA

11:20 AM – 11:40 AM

Oink or ouch?! How to recognize and treat pain in research swine

Rebecca Johnson, DVM, Ph.D., DACVAA | Clinical Professor of Anesthesia and Pain Management • Chair, School of Veterinary Medicine Animal Care and Use Committee | University of Wisconsin School of Veterinary Medicine, USA

11:40 AM – 12:00 PM

Assessment of nociception and related quality-of-life measures in a porcine model of neurofibromatosis type 1 (NF1)

Rajesh Khanna, Ph.D. | Professor, Molecular Pathobiology • Director, NYU Pain Center | New York University College of Dentistry, USA

12:00 PM – 12:20 PM

Nociceptive and transcriptomic responses in a swine diabetic wound model treated with a topical AT1R antagonist

Miriam N. Weiss, BS | Ph.D. Student | Department of Pain & Translational Symptom Science | University of Maryland, USA

RARE DISEASES**CONCURRENT AM SESSION**

Monday | June 13 | 10:45 AM – 12:30 PM | Old Madison

SESSION CO-CHAIRS:

- **Jill Weimer, Ph.D.** | Scientist, Pediatrics and Rare Diseases Group, Senior Director of Therapeutic Development, Sanford Research, USA
- **Denia Ramirez-Montealegre, MD, MPH, Ph.D.** | Child Neurologist | Cole Neuroscience Center | University of Tennessee Medical Center, USA

10:45 AM – 11:00 AM

Introduction

Denia Ramirez-Montealegre, MD, MPH, Ph.D. | Child Neurologist | Cole Neuroscience Center | University of Tennessee Medical Center, USA

11:00 AM – 11:20 AM

Modeling facioscapulohumeral muscular dystrophy (FSHD) in Göttingen minipigs

Christopher Rogers, Ph.D. | Chief Executive Officer / Chief Scientific Officer | Precigen Exemplar, USA

11:20 AM – 11:40 AM

Characterizing novel miniswine models of Batten disease: challenges, successes, and revelations

Vicki J. Swier, Ph.D. | Staff Scientist | Sanford Health, USA

- 11:40 AM – 12:00 PM **Mapping changes in CNS function in a porcine model of Neurofibromatosis type 1**
Jill Weimer, Ph.D. | Scientist, Pediatrics and Rare Diseases Group
 Senior Director of Therapeutic Development | Sanford Research, USA
- 12:00 PM – 12:20 PM **Using the FAH KO pig model in development of a gene therapy for Hereditary Tyrosinemia Type I**
 Robert Kaiser, Ph.D., DABT | Vice President, Preclinical Development | Castle Creek Biosciences, Inc., USA
- 12:20 PM – 12:30 PM **Increased insulin sensitivity in spite of obesity in a pig model for growth hormone receptor deficiency**
Arne Hinrichs, DVM | Postdoctoral Researcher | Department of Veterinary Sciences |
 Ludwig-Maximilians-University Munich

LUNCH | 12:30 – 1:30 PM

ONCOLOGY (SESSION 2)

CONCURRENT PM SESSION

Monday | June 13 | 1:30 PM – 3:15 PM | Great Hall

SESSION CO-CHAIRS:

- **Zachary Morris, MD, Ph.D.** | Vice Chair, Human Oncology, University of Wisconsin School of Medicine and Public Health, USA
- **Tatiana Flisikowska, Ph.D.** | Section Head, Disease Models, Livestock Biotechnology | Technical University of Munich, Germany

- 01:30 PM – 01:45 PM **Introduction**
 Session Co-Chairs
- 01:45 PM – 02:05 PM **Design and preclinical evaluation of optical imaging agents for colorectal adenomas**
Stefan Harmsen, Ph.D. | Research Assistant Professor of Radiology |
 Perelman School of Medicine, University of Pennsylvania, USA
- 02:05 PM – 02:25 PM **Establishing the gastroduodenal maximum tolerated dose for ablative 5-fraction stereotactic MR-guided online adaptive radiation therapy (SMART) in a novel swine model**
Kathryn E. Mittauer, Ph.D., DABR | Medical Physicist & Assistant Professor | Department of Radiation Oncology |
 Miami Cancer Institute, USA
- 02:25 PM – 02:45 PM **The origin of solid tumors: Big Bang or Big Gang?**
Richard Halberg, Ph.D. | Associate Professor | Division of Gastroenterology and Hepatology, Department of
 Medicine | University of Wisconsin School of Medicine and Public Health, USA
- 02:45 PM – 03:05 PM **Porcine models of human cancers: A tool for discovery**
Tatiana Flisikowska, Ph.D. | Section Head, Disease Models | Livestock Biotechnology |
 TUM School of Life Sciences, Munich, Germany
- 03:05 PM – 03:15 PM **Development of precision porcine models of hepatocellular carcinoma by CRISPR knockout of tumor suppressor genes**
Lobna Elkhadragey, Ph.D. | Postdoctoral Research Associate | Department of Radiology |
 University of Illinois at Chicago, USA

CARDIOVASCULAR DISEASES

CONCURRENT PM SESSION

Monday | June 13 | 1:30 PM – 3:15 PM | Old Madison

SESSION CO-CHAIRS:

- **Timothy A. Hacker, Ph.D.** | Director, Cardiovascular Physiology Core Facility | Department of Medicine | University of Wisconsin School of Medicine and Public Health, USA
- **Eric Schmuck, Ph.D.** | Associate Scientist and Director of Translational Research | Department of Medicine | University of Wisconsin School of Medicine and Public Health, USA

01:30 PM – 01:45 PM	Introduction Session Co-Chairs
01:45 PM – 02:05 PM	Pediatric swine models of cardiac arrest: Refining resuscitation monitoring and delivery Awni M. Al Subu, MD Associate Professor of Pediatrics • Medical Director, Pediatric Intensive Care Unit University of Wisconsin School of Medicine and Public Health, USA
02:05 PM – 02:25 PM	Cardiac tissue engineering in minipigs Patrick C. Hsieh, MD, Ph.D. Visiting Professor Stem Cell and Regenerative Medicine Center University of Wisconsin School of Medicine and Public Health, USA
02:25 PM – 02:45 PM	Long-term in vivo operation of implanted cardiac nanogenerators in swine Jun Li, Ph.D. Postdoctoral Research Associate Department of Materials Science and Engineering University of Wisconsin-Madison, USA
02:45 PM – 03:05 PM	Compensating for the caveats of cardiovascular swine models Allison C. Rodgers, BA Associate Researcher Cardiovascular Research Center University of Wisconsin School of Medicine and Public Health, USA
03:05 PM – 03:15 PM	Transcriptome profiling of atherosclerotic lesions in abdominal aortic tissues using Wisconsin Miniature Swine of familial hypercholesterolemia Hadjer Namous, MS Doctoral Candidate Department of Animal & Dairy Sciences University of Wisconsin-Madison, USA

AFTERNOON BREAK | 3:15 – 3:45 PM

GENETIC ENGINEERING AND EMBRYOLOGY

PLENARY SESSION

Monday | June 13 | 3:45 PM – 5:30 PM | Great Hall

SESSION CO-CHAIRS:

- **Matthew B. Wheeler, Ph.D.** | Professor | Department of Animal Sciences | University of Illinois, USA
- **C. Dustin Rubinstein, Ph.D.** | Director of Genome Editing & Animal Models | University of Wisconsin Biotechnology Center, USA.

03:45 PM – 04:05 PM	Using biomedical swine models to study reproductive biology Kristin M. Whitworth, Ph.D. Associate Director National Swine Resource and Research Center University of Missouri, USA
04:05 PM – 04:25 PM	Germline editing in livestock Bhanu Tellegu, Ph.D. Associate Professor Animal Sciences Research Center University of Missouri, USA
04:25 PM – 04:45 PM	Editing the porcine genome, safe and efficient Wenning Qin, Ph.D. Vice President, Genome Editing eGenesis, Inc., USA
04:45 PM – 05:05 PM	Identifying novel processes associated with reproductive function utilizing GnRH-II receptor knockdown swine Brett White, Ph.D. Associate Professor of Animal Science University of Nebraska-Lincoln, USA

- 05:05 PM – 05:25 PM **Two novel LGR5+ stem cell populations in human and porcine (but not murine!) lung development and homeostasis**
Kathryn Polkoff, MS | Doctoral Candidate | Comparative Biomedical Sciences | North Carolina State University, USA
- 05:25 PM – 05:30 PM **Session wrap-up**
Session Co-Chairs

REGULATORY REQUIREMENTS FOR BUILDING COLLABORATIONS: DOMESTIC AND GLOBAL

Tuesday | June 14 | 8:30 AM – 10:15 AM | Great Hall

BREAKFAST SESSION

SESSION CO-CHAIRS:

- **Lawrence B. Schook, Ph.D.** | Edward William and Jane Marr Gutgsell Professor Emeritus | Departments of Animal Sciences and Radiology, University of Illinois, USA
- **Fabiana Kömmling Seixas, Ph.D.** | Professor, Molecular and Cellular Oncology Research Group, Laboratory of Cancer Biotechnology | Technology Development Center | Federal University of Pelotas, Brazil
- **Kevin Wells, Ph.D.** | Co-Director, National Swine Research and Resource Center • Associate Professor | Animal Science Research Center, Division of Animal Sciences | University of Missouri, USA

08:30 AM – 08:45 AM **Introduction**

Session Co-Chairs

08:45 AM – 09:15 AM **FDA's Oversight of intentional genomic alterations in animals**

Adam Moyer, Ph.D. | Leader, Animal Biotechnology Team | U.S. Food and Drug Administration, USA

09:15 AM – 09:45 AM

The DTU Ossabaw facility: A European hub for research on obesity and lifestyle disease integrating a superior large animal model of obesity with large animal bio imaging facilities

Peter M.H. Heegaard, MSc, Ph.D. | Professor | Department of Health Technology | Technical University of Denmark

09:35 AM – 10:15 AM

Q&A / Open Mic to share experiences

MORNING BREAK | 10:15 – 10:45 AM

WHITE PAPER SESSION: STATE OF THE FIELD AND FUTURE DIRECTION

Tuesday | June 14 | 10:45 AM – 12:30 AM | Great Hall

PLENARY SESSION

SESSION CO-CHAIRS:

- **Dhanansayan Shanmuganayagam, Ph.D.** | Co-Director, Center for Biomedical Swine Research & Innovation • Assistant Professor, Department of Animal and Dairy Sciences • Assistant Professor, Department of Surgery | University of Wisconsin-Madison, USA
- **Kyle M. Schachtschneider, Ph.D.** | Research Assistant Professor | Department of Radiology | University of Illinois at Chicago, USA
- **Lawrence B. Schook, Ph.D.** | Edward William and Jane Marr Gutgsell Professor Emeritus | Departments of Animal Sciences and Radiology, University of Illinois, USA

LUNCH | 12:30 – 1:30 PM

PANEL SESSION: CONSORTIUM OF RESEARCH CENTERS

Tuesday | June 14 | 1:30 PM – 3:15 PM | Great Hall

PLENARY SESSION

SESSION CO-CHAIRS:

- **Lawrence B. Schook, Ph.D.** | Edward William and Jane Marr Gutgsell Professor Emeritus | Departments of Animal Sciences and Radiology, University of Illinois, USA
- **Dhanansayan Shanmuganayagam, Ph.D.** | Co-Director, Center for Biomedical Swine Research & Innovation • Assistant Professor, Department of Animal and Dairy Sciences • Assistant Professor, Department of Surgery | University of Wisconsin-Madison, USA
- **Kevin Wells, Ph.D.** | Co-Director, National Swine Research and Resource Center • Associate Professor | Animal Science Research Center, Division of Animal Sciences | University of Missouri, USA

POSTER PRESENTATIONS

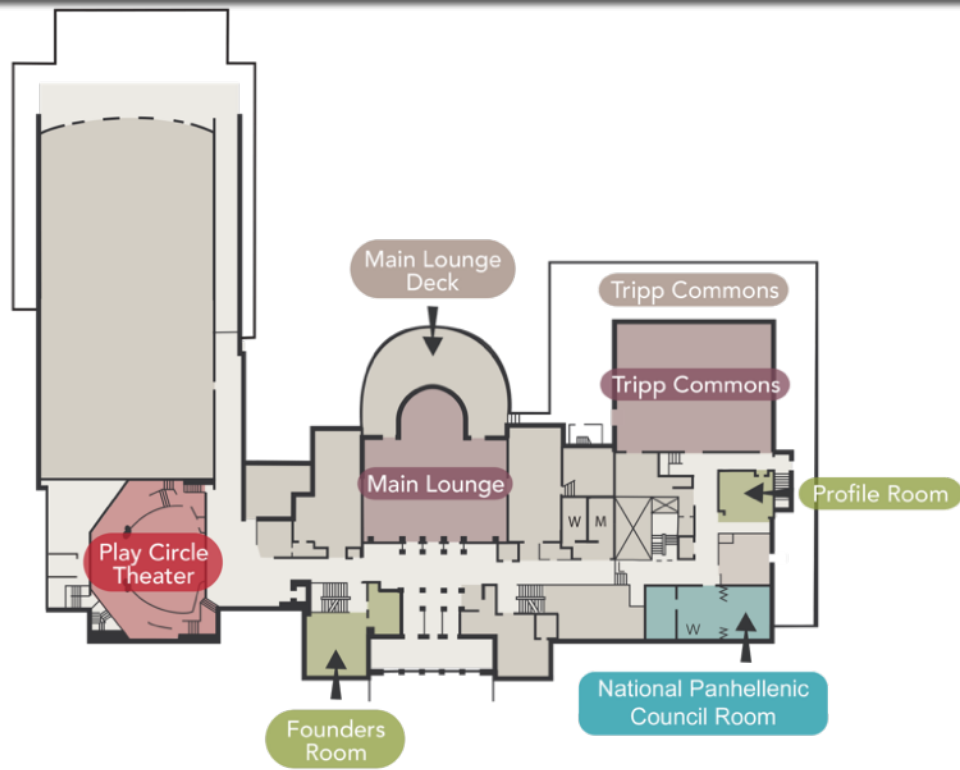
- 1 **Porcine models of Neurofibromatosis Type 1 recapitulate complex pathological features of the human disorder**
Presenter: **Irshad Ali, Ph.D.** | Cancer Biology Scientist | Biomedical & Genomic Research Group, Department of Animal & Dairy Sciences | University of Wisconsin-Madison, USA
- 2 **Chromosome-scale genome assembly of the Wisconsin Miniature Swine™ provides a powerful tool for biomedical research in porcine models**
Presenter: **Mark Berres, Ph.D.** | Bioinformatician | University of Wisconsin Biotechnology Center, USA
- 3 **Establishing an adult pig model for in vivo brain DNA methylation labeling and imaging**
Presenter: **Chang Cao, Ph.D.** | Postdoctoral Research Associate | Beckman Institute for Advanced Science and Technology | University of Illinois at Urbana-Champaign, USA
- 4 **A scRNAseq-based deep comparative annotation of porcine immune tissue cell types for translational biomedical research**
Presenter: **Lance Daharsh, Ph.D.** | Postdoctoral Research Associate | Iowa State University, USA
- 5 **Magnetic resonance elastography for staging of liver fibrosis in a transgenic porcine tumorigenic model**
Presenter: **Ron Gaba, MD** | Associate Professor and Vice Chair for Research | Departments of Radiology and Pathology | University of Illinois at Chicago, USA
- 6 **Variability in and limitations of the novel object recognition paradigm in pre-wean pigs**
Presenter: **Rebecca Golden, B.S.** | Graduate Research Assistant | Neuroscience Program | University of Illinois Urbana-Champaign, USA
- 7 **Whole-genome resequencing analysis of 49 Ossabaw pigs for the definition of thrifty genotype-associated gene loci**
Presenter: **Peter Heegaard, MSc, Ph.D.** | Professor | Department of Health Technology | Technical University of Denmark
- 8 **Increased insulin sensitivity in spite of obesity in a pig model for growth hormone receptor deficiency**
Presenter: **Arne Hinrichs, DVM** | Postdoctoral Researcher | Department of Veterinary Sciences | Ludwig-Maximilians-University Munich, Germany
- 9 **Rapid gene detection platform for porcine infectious diseases based on CRISPR/Cas system**
Presenter: **Jung-Taek Kang, Ph.D.** | MGENPLUS Biotechnology Research Institute, Republic of Korea
- 10 **CAG-iRFP transgenic pigs – a novel tool for non-invasive imaging of cell and tissue transplants**
Presenter: **Elisabeth Kemter, Ph.D.** | Postdoctoral Researcher | Molecular Animal Breeding and Biotechnology | Ludwig Maximilian University of Munich, Germany
- 11 **Comparative assessments of X-ray, computed tomography, and magnetic resonance images for diagnosis of early-stage osteochondrosis-like lesions in distal femurs of hypovitaminosis-D pigs**
Presenter: **Brittney P. Kokinos, M.S.** | Department of Animal & Dairy Sciences | University of Wisconsin-Madison, USA
- 12 **Bringing precision medicine to glioblastoma patients by modeling molecular tumor subtypes in immunocompetent swine for therapeutic and biomarker development**
Presenter: **Derek Korpela, DVM, Ph.D.** | Research Scientist | Recombinetics, Inc., USA
- 13 **High-throughput clonal nuclear donor pipeline for Wisconsin Miniature Swine™ somatic cell nuclear transfer**
Presenter: **Brent P. Lehman, M.S.** | Genome Editing Researcher | University of Wisconsin Biotechnology Center, USA
- 14 **BAF60A expression determines efficiency of iPSC generation from minipig fibroblasts**
Presenter: **Wan-Ju Li, Ph.D.** | Associate Professor | Department of Orthopedics and Rehabilitation
Department of Biomedical Engineering | University of Wisconsin-Madison, USA
- 15 **Evaluation of continuous glucose monitors in septic swine**
Presenter: **Macie L. Mackey, B.S.** | Research Assistant | Center for Translational Research in Aging & Longevity | Texas A&M University, USA

- 16 **Neurofibroma single-cell RNA sequencing from neurofibromatosis type 1 swine model reveals extensive fibroblast heterogeneity**
Presenter: **Dalton T. McLean, Ph.D.** | Postdoctoral Fellow | University of Wisconsin Biotechnology Center, USA
- 17 **Differential levels of circulating cytokines in pigs with severe combined immunodeficiency**
Presenter: **Kaylynn G. Monarch, B.S.** | Division of Animal Sciences | University of Missouri, USA
- 18 **Utilizing the Yucatan: Laboratory setup for using the Yucatan Minipig for spinal cord injury research**
Presenter: **Monique Morgan, B.S.** | University of Louisville, USA
- 19 **Transcriptome profiling of atherosclerotic lesions in abdominal aortic tissues using Wisconsin Miniature Swine™ of Familial Hypercholesterolemia**
Presenter: **Hadjer Namous, M.S.** | Doctoral Candidate | Department of Animal & Dairy Sciences | University of Wisconsin-Madison, USA
- 20 **An enhanced and rapid apoptotic mechanism that may protect pigs from SARS-CoV-2**
Presenter: **Rahul Nelli, Ph.D.** | Research Assistant Professor | Veterinary Diagnostic Laboratory | Iowa State University College of Veterinary Medicine, USA
- 21 **Molecular imaging of pigs in pre-clinical development**
Presenter: **Philip G. J. Pedersen, Ph.D.** | Department Manager and Head of Translational Model Development | Minerva Imaging, Denmark
- 22 **Vitamin D influences growth in swine on the background of vitamin A deficiency and hypervitaminosis**
Presenter: **Cacious Phiri, Ph.D.** | Department of Nutritional Sciences | University of Wisconsin-Madison, USA
- 23 **[68Ga]-DOTA-Exendin-4 PET/CT non-invasive imaging for detection of reduced β -cell volume in a diabetic pig model**
Presenter: **Johanna Pilz, M.S.** | Doctoral Researcher | Center for Innovative Medical Models | Ludwig Maximilian University of Munich, Germany
- 24 **Progressive decrease of the BIA phase angle in a *Pseudomonas aeruginosa* induced sepsis swine model. A marker of severity?**
Presenter: **Sarah Rice, Ph.D.** | Postdoctoral Research Associate | Center for Translational Research in Aging & Longevity | Texas A&M University, USA
- 25 **Multi-modified pigs for organ xenotransplantation**
Presenter: **Beate Rieblinger, Ph.D.** | Postdoctoral Researcher | Chair of Livestock Biotechnology | TUM School of Life Sciences, Munich, Germany
- 26 **Neurofibromin 1 alternative splicing in swine: Identification of splicing regulatory elements and profiling of tissue-, age- and sex- specific differences in splicing**
Presenter: **Dominic Schomberg, M.S.** | Ph.D. Candidate | Biomedical & Genomic Research Group, Department of Animal & Dairy Sciences | University of Wisconsin-Madison, USA
- 27 **Automated brain segmentation from MRI images using convolutional neural networks for the domestic pig**
Presenter: **Pradeep Senthil, B.S.** | Graduate Research Assistant | Department of Animal Sciences | University of Illinois Urbana-Champaign, USA
- 28 **Molecular profiling of samples from the Munich MIDY pig biobank provides novel insights into tissue-specific effects of insulin-deficient diabetes mellitus**
Presenter: **Bachuki Shashikadze, M.S.** | Doctoral Researcher | Gene Center - Laboratory for Functional Genome Analysis | Ludwig Maximilian University of Munich, Germany
- 29 **Peripheral blood vessel diameter and systolic blood velocity in the Yorkshire swine animal model : A report of normals data for size and age**
Presenter: **W. Andrew Spinks, B.S.** | Senior Scientist | BD Biosciences, USA

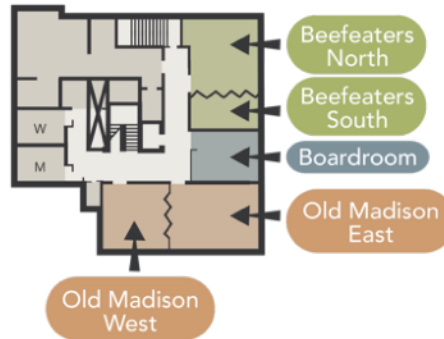
- 30 **DMDD51-52 pigs predict the best possible therapeutic outcome of exon 51 skipping in Duchenne muscular dystrophy patients with DMD exon 52 deletion**
Presenter: **Michael Stirm, M.S.** | Doctoral Researcher | Center for Innovative Medical Models | Ludwig Maximilian University of Munich, Germany
- 31 **Magnetic resonance imaging processing pipelines for the domestic pig**
Presenter: **Loretta T. Sutkus, B.S.** | Doctoral Candidate | Department of Neuroscience | University of Illinois at Urbana-Champaign, USA
- 32 **Comparative anatomy of the brachial plexus: swine vs human**
Presenter: **Jacob Sveum, B.A.** | Medical Student | Department of Neurological Surgery | University of Wisconsin School of Medicine and Public Health, USA
- 33 **Muscle fatigue measurements by percutaneous neural stimulation in the pig: Exploring a new fatigue protocol and data analysis**
Presenter: **Gabriella A. Ten Have, Ph.D.** | Director, Preclinical Studies | Center for Translational Research in Aging & Longevity | Texas A&M University, USA
- 34 **Maternal diabetes affects beta-cell health in offspring – lessons from a genetically diabetic pig model**
Presenter: **Libera Valla, M.S.** | Doctoral Researcher | Center for Innovative Medical Models | Ludwig Maximilian University of Munich, Germany
- 35 **Exploring cardiovascular disease in the domestic pig at RGD**
Presenter: **Mahima Vedi, Ph.D.** | Joint Department of Biomedical Engineering | Medical College of Wisconsin and Marquette University, USA
- 36 **Regulation of gene expression and serum concentration of α 1-acid glycoprotein in Ossabaw pigs during obesity**
Presenter: **Catarina Ventura, M.S.** | Research Assistant | Technical University of Denmark
- 37 **Preterm cesarean versus vaginal birth blunts bile acid-FGF19 signaling in neonatal pigs**
Presenter: **Caitlin Vonderohe, Ph.D.** | Postdoctoral Associate, Pediatrics-Nutrition | Baylor College of Medicine/USDA Children's Nutrition Research Center
- 38 **A porcine model of inflammatory bowel disease**
Presenter: **Thomas Winogrodzki, M.S.** | Doctoral Candidate | Livestock Biotechnology | TUM School of Life Sciences, Munich, Germany

MEMORIAL UNION

Second Floor



Third Floor



Fourth Floor

