



DIGESTIVE PHYSIOLOGY OF PIGS – NORTH AMERICA: 16TH INTERNATIONAL SYMPOSIUM ON DIGESTIVE PHYSIOLOGY OF PIGS



From Discovery
to Development



Welcome

On behalf of the Organizing Committee, we are happy to welcome you to Lake Geneva, WI , USA for the 16th International Symposium on Digestive Physiology of Pigs. This event has grown to become the premiere event where discussions focus specifically on various aspects of digestive physiology.

The first Symposium was held in Shinfield, Reading (UK) in 1979. Subsequently there have been symposia held triennially in France, Denmark, Poland, The Netherlands, Germany, France, Sweden, Canada, Denmark, Spain, United States of America, Poland, and Australia. This is the second time it will be held in the U.S., and the committee is committed to ensuring the Symposium lives up to the very high standard established by our predecessors.

Our Vision: To serve as the platform for creative dialog and transnational collaboration for promoting innovation in the science of the digestive physiology of the pig.

Our Mission: Maintain a premier international digestive physiology networking opportunity for global subject matter experts, allied industry members, and stakeholders to facilitate innovation, productivity, and sustainability within the pork industry.

The cutting edge scientific program will focus on the digestive tract of the pig, emphasizing physiology, immunology and microbiology. Additionally, this Symposium will review the latest advances in the field of digestive physiology of pigs, providing the basis for future research.

Thomas Burkey (University of Nebraska, Co-Chair)

Ruurd Zijlstra (University of Alberta, Co-Chair)

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IRTA, Spain

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Warsaw University of Life Sciences, Poland

Keynote Speakers

Our distinguished keynote speakers will address our overall theme (“From discovery to development”) within five thematic areas, showcasing the latest research and advancements in the field:

Theme I: Functionality of the Intestinal Microbiome and Host Response

- Benjamin Willing, Professor; University of Alberta, Canada
- Hervé M. Blottière, PhD; Research Director, Research Director at INRAE, France

Theme II: Advances in Understanding of Nutrient Digestion and Absorption

- Sonja de Vries, PhD; Wageningen University & Research, The Netherlands

Theme III: Functional Ingredients and Utilization of Feed Resources for Improved Digestive Function and Nutrient Efficiency

- Marie-Pierre Létourneau Montminy, PhD; University of Laval, Canada

Theme IV: Development of Digestive and Absorptive Capacity in the Neonate and Impact of Weaning on Intestinal Function

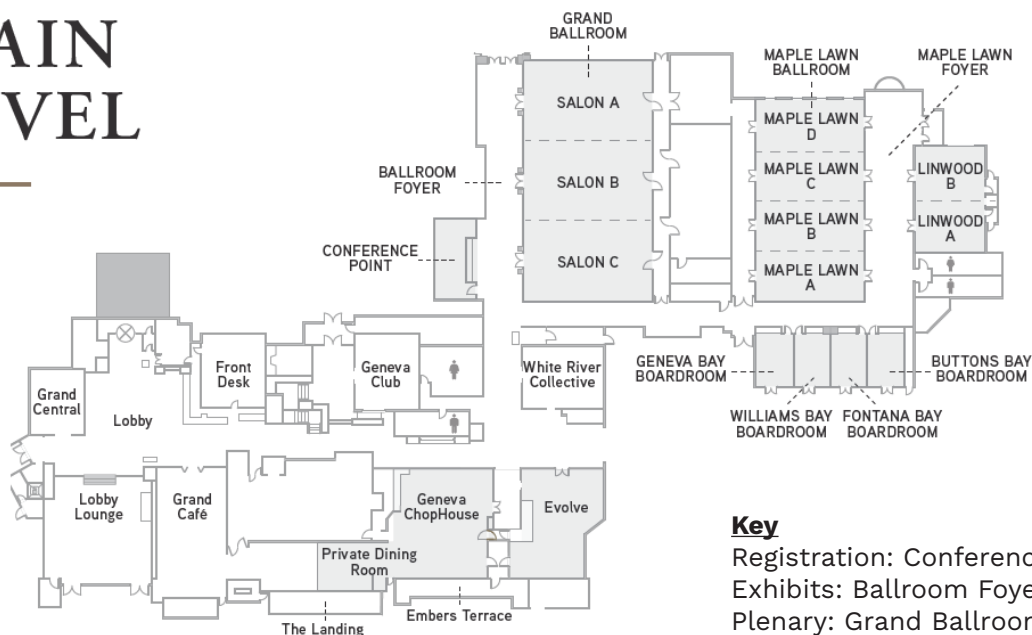
- Martin Beaumont, PhD; INRAE, France
- Huansheng Yang, Professor, Hunan Normal University, China

Theme V: Mucosal Immunity and Pathogenesis and the Role of the Digestive Tract in the Maintenance of Health

- Crystal L. Loving, PhD; Research Immunologist, USDA-ARS-NADC
- Jerrold Turner, MD, PhD; Harvard Medical School, USA

Symposium Floorplan

MAIN LEVEL



Key

Registration: Conference Point

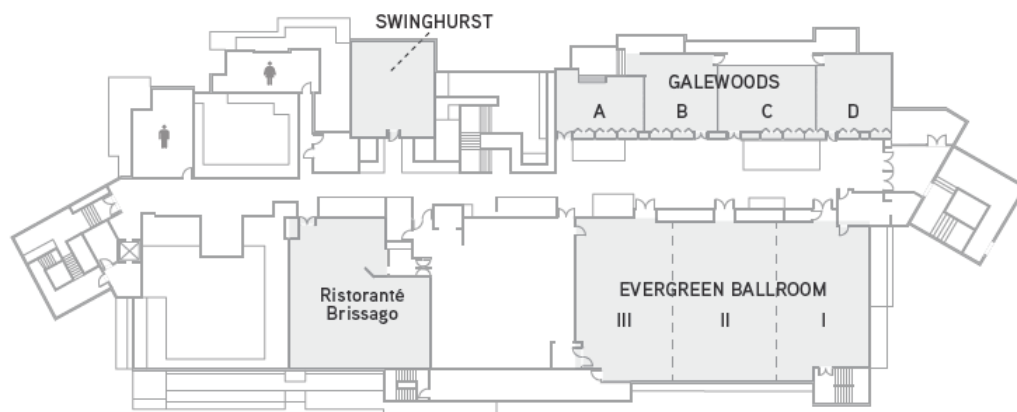
Exhibits: Ballroom Foyer

Plenary: Grand Ballroom

Maple Lawn Ballroom: Posters and Meals

Geneva Chophouse: Student Reception

UPPER LEVEL



Key

Satellite Symposiums:

Evergreen Ballroom I & II

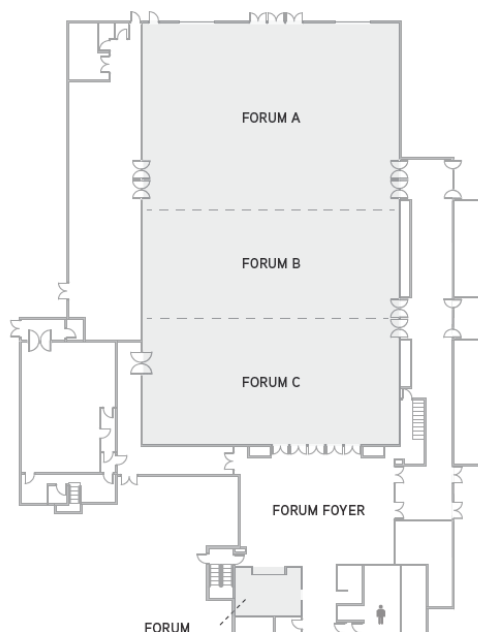
and Evergreen Ballroom III

Student Program: Galewoods C & D

Symposium Floorplan

THE FORUM

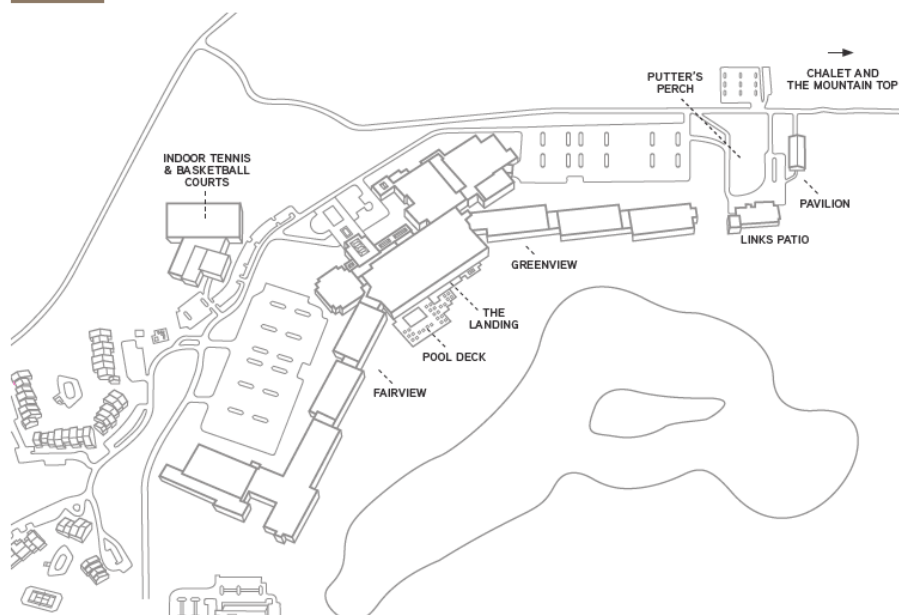
BUILDING ONE



Key

Gala: The Forum Ballroom

EXPERIENTIAL VENUES



Key

Student Outdoor Reception:
Greenview Lawn

Welcome Reception:
The Landing & Pool Deck

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IFF Danisco Animal Nutrition & Health

Optimizing Nutrition for Healthier Pigs

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SYMPOSIUM PROGRAM

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Monday, May 19

Time	Event	Location
6:00 PM – 10:00 PM	DPP Student Social	Geneva Chophouse

Tuesday, May 20

Time	Event	Location
8:00 AM – 6:00 PM	Registration	
8:00 AM – 9:00 AM	Satellite Symposia Breakfast	Evergreen Foyer
8:30 AM – 12:00 PM	Satellite Symposium 1 <i>Mineral metabolism: a holistic approach for swine nutrition and health</i> (Sponsor: Animine)	Evergreen Ballroom III
8:30 AM – 12:00 PM	Satellite Symposium 2 <i>Advances in nutritional strategies to enhance nutrient utilization, growth and health of pigs</i> (Sponsor: Evonik Nutrition & Care GmbH)	Evergreen Ballroom I & II
12:00 PM – 1:00 PM	Satellite Symposia Lunch	Evergreen Foyer
1:00 PM – 4:30 PM	Satellite Symposium 3 <i>Mitigating antimicrobial resistance by promoting gut health in pigs</i> (Sponsor: PIG-PARADIGM)	Evergreen Ballroom I & II
1:00 PM – 4:30 PM	Satellite Symposium 4 <i>How to make antimicrobials in pig feed redundant, an Australian approach</i> (Sponsor: DSM-Firmenich)	Evergreen Ballroom III



AB Neo is a specialist division of AB Agri, focused on becoming the leaders in neonate nutrition, using science as our driving force, and keeping our customer's needs at the heart of everything we do. Our comprehensive portfolio includes innovative solutions such as milk replacers, early feeds, nutritional

supplements, and specialist ingredients, all designed to optimise the performance and well-being of young farmed animals. AB Neo is proud to be home to renowned brands, including AdiCare™, DanMilk™, Pump'n'Grow™, Primary Diets™, Cellpro™, and AlphaSoy™.



Adisseo is a global leader in nutritional solutions for animal feed. Our mission is to provide products and services for animal nutrition with the best guarantee of safety for people and the environment. We're unique for our investments in both industry and research which guarantees a competitive and innovative product offering

and service. We pride ourselves on our sustainability efforts through social responsibility, safety, environmental protection, and sustainable growth.

Tuesday, May 20

Time	Event	Location
4:00 PM – 6:00 PM	DPP2025 Professional Development Student Workshop	Galewoods C & D
	Session I: Networking: The key to your success Dr. Crystal L. Levesque, South Dakota State University	
	Session II: Designing microbiome studies in pigs Dr. Benjamin Willing, University of Alberta	
	Session III: Strengths and weaknesses of methods in assessing pig intestinal physiology Dr. Nicholas Gabler, Iowa State University	
	Session IV : Direct visualization assays in formalin-fixed tissues Dr. Eric R. Burrough, Iowa State University	
6:00 PM – 10:00 PM	DPP Welcome Reception	The Landing



Animine is a global leader in precision mineral solutions for animal nutrition. With a strong focus on swine, our expertise ensures tailored solutions that meet the unique needs of this sector, optimizing health, growth and productivity. Our innovative portfolio includes: HiZox® a potentiated Zn source, CoRouge®, the only monovalent copper on the

market and ManGrin® a purified form of manganese. We are proud to collaborate with esteemed institutions such as INRAE (France), NC State, Kansas State University, University of Georgia, and University of Illinois. These partnerships drive our commitment to advancing knowledge on trace minerals, optimizing animal health and performance, while minimizing ecological footprints. The company's extensive contributions over 15 years include participation in over 100 technical and scientific publications, showcasing its influence on global industry trends. Our vision is to become the cornerstone of trace minerals in animal health and nutrition through pioneering innovations, agility and steadfast dedication to sustainable development.



utilized as DFM for almost 40 years in swine production.

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Wednesday, May 21

Time	Event	Location
8:00 AM - 12:00 PM	Registration	
6:30 AM	Breakfast	On your own
8:30 AM - 8:55 AM	Opening Remarks and Welcome Thomas Burkey, University of Nebraska	Grand Ballroom
8:55 AM - 12:30 PM	SYMPOSIA AND ORAL SESSIONS Functionality of the Intestinal Microbiome and Host Response Chair: Tom Burkey, University of Nebraska Co-chair: Martin Nyachoti, University of Manitoba	Grand Ballroom
8:55 AM	Introduction Tom Burkey/Martin Nyachoti	
9:00 AM	1 KEYNOTE: Searching for the microbes that correlate with pig health, exploring microbial transfer and testing mode of action. B.P. Willing*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.	
9:45 AM	2 EU Circles project: Machine Learning Approaches to Multi-Kingdom Gut Microbiota Reveal Key Predictors of Piglet Growth During the Nursery Phase. F. Correa ^{*1} , D. Luise ¹ , G. Palladino ² , F. Palum ^{11bo1} , D. Scicchitano ² , G. Babbi ² , A. Castagnetti ³ , M. Soverini ³ , S. Rampelli ² , M. Candela ² , P.L. Martelli ² , and P. Trevisi ¹ , ¹ Department of Agricultural and Food Sciences, University of Bologna, 40127 Bologna, Italy, ² Department of Pharmacy and Biotechnology, University of Bologna, 40126 Bologna, Italy, ³ Wellmicro srl, 40128 Bologna, Italy.	



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BASF Animal Nutrition provides a comprehensive product portfolio with long-term experience in supporting the animal nutrition industry and meeting the needs of swine nutritionists. Our portfolio includes performance ingredients such as enzymes, organic minerals, Organic acids and mycotoxin binders,

which are proven to support animal wellbeing. We work closely with our customers to deliver reliable, science-based solutions that drive success in the feed industry.



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Cargill is a family company providing food, ingredients, agricultural solutions, and industrial products to nourish the world in a safe, responsible, and sustainable way. Cargill Animal Nutrition is a locally focused global animal nutrition company that offers proven nutrition, health, and business solutions you can trust to

build more profitable pork production systems with confidence and peace of mind. Our researched-backed and data driven approach is our foundation, learning your goals and business challenges is the top priority for our experts.

Wednesday, May 21

Time	Event	Location
8:55 AM – 12:30 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
10:00 AM	Short Break	
10:30 AM	3 KEYNOTE: Gut Microbiota-host cells interaction in Health and Diseases. <i>H. M. Blottière^{*1,2}, ¹Nantes Université, INRAE, UMR 1280 PhAN, F-44000, Nantes, France, ²Université Paris-Saclay, INRAE, MetaGenoPolis, MGP, F-78350, Jouy-en-Josas, France.</i>	
11:15 AM	4 Litter Origin is associated with Gut Microbiome Composition During Tail-Biting Outbreaks in Growing-Finishing Pigs. <i>Sudario Roberto Silva Junior^{*1}, Courtney Archer¹, Lee Johnston^{1,2}, Yuzhi Li^{1,2}, and Andres Gomez¹, ¹Department of Animal Science, University of Minnesota, St. Paul, MN, USA, ²West Central Research and Outreach Center, University of Minnesota, Morris, MN, USA.</i>	
11:30 AM	5 Exploring the Gut Microbiota's Impact on Sow Performance: Links Between Performance, Stage in Reproductive Cycle, and Key Factors in a European Sow Study. <i>M. Weiss^{*1,2}, G. A. Vestergaard², S. E. bohddi², L. H. B. Hansen², T. T. M. Knudsen², and D.S. Nielsen¹, ¹University of Copenhagen, Department of food Science, University of Copenhagen, 1958 Frederiksberg, Denmark, ²Novonesis, Novonesis, Animal Biosolutions, Biologiens vej 2, 2800 Kongens Lyngby, Denmark.</i>	

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At dsm-firmenich Animal Health & Nutrition, we supply science-based products, services and innovations for the health, well-being and sustainability of farm animals. Our 3 business lines include Essential Products – Vital nutrients for the healthy growth and development of farm animals delivered to the customer

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quality and control feed hygiene. Get the best for your poultry, swine, ruminants, or aquaculture. Learn more at eastman.com/ animal nutrition.

Wednesday, May 21

Time	Event	Location
8:55 AM – 12:30 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:45 AM	6 Advances toward commercial use of fecal microbiota transplantation to mitigate weaning stress in pigs. Paul Oladele, Wenxuan Dong, Brian Richert, and Timothy Johnson*, <i>Purdue University, West Lafayette, IN, USA.</i>	
12:00 PM	7 Carbohydrate and nitrogen requirements for optimizing hindgut microbiome in pigs. Ehsan Khafipour ¹ , Sandra Paredes ¹ , Qiong Hu ^{*1} , Maria Sardi ² , and Ali Naqvi ² , ¹ <i>Cargill Animal Nutrition and Health, Minneapolis, MN</i> , ² <i>Cargill, Minneapolis, MN.</i>	
12:15 PM	8 Fecal filtrate transplantation and dietary fibre supplementation as alternatives to veterinary antimicrobials. A. Middelkoop ^{*1} , J. Priem ¹ , C. Larsen ² , T. Thyman ² , and F. Molist ¹ , ¹ <i>Schothorst Feed Research, Meerkoetenweg 26, 8218 NA Lelystad, The Netherlands</i> , ² <i>University of Copenhagen, Dyrølægevej 68, 1870, Frederiksberg C, Denmark.</i>	
12:30 PM – 2:25 PM	Lunch and Poster Sessions	Maple Lawn Ballroom
2:25 PM – 5:00 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
Advances in Understanding of Nutrient Digestion and Absorption Chair: Crystal Levesque, South Dakota State University, Co-Chair: Pedro Urriola, University of Minnesota		



amino acids, functional feed additives and feed quality services.

At Evonik Animal Nutrition, we are Sciencing the Global Food Challenge because it's all about life. We develop products, services and system solutions that feed animals efficiently and sustainably and help supply a growing world population with healthy, high-quality and affordable animal protein. Connect with us for information on our



physiology to solve real-world challenges in livestock production. With a focus on optimizing gut health, pre and probiotics, phytogenics, rumen modifiers and more, Fortiva products help address the most challenging issues across all industry segments.

Fortiva helps shape the future of animal resilience through impactful ingredients, serving large integrators and producers, veterinarians, independent nutritionists, feed manufacturers, co-ops and dealers throughout the United States. The company creates non-medicated critical active ingredients that work with an animal's

Wednesday, May 21

Time	Event	Location
2:25 PM – 5:00 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
2:25 PM	Introduction Crystal Levesque/Pedro Urriola	
2:30 PM	112 KEYNOTE: Modulators of passage and nutrient absorption kinetics in the digestive tract of pigs. S de Vries* and WJJ Gerrits, <i>Animal Nutrition Group, Wageningen University & Research, Wageningen, the Netherlands.</i>	
3:15 PM	113 In vitro fermentation potential of undigested dietary protein in growing pigs. H. Zhang* ^{1,2} , J. Cone ¹ , A.K. Kies ³ , W.H. Hendriks ¹ , and N. van der Wielen ^{1,4} , <i>¹Animal Nutrition Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, The Netherlands, ²State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, ³ArieKiesAdvies, Druten, The Netherlands, ⁴Division of Human Nutrition and Health, Department of Agrotechnology and Food Sciences, Wageningen University & Research, Wageningen, The Netherlands.</i>	
3:30 PM	114 Evaluation of soybean-derived trypsin inhibitor proteins on gastric emptying, luminal pH, and endogenous enzyme activity in late-stage nursery pigs. MJ Nisley* ¹ , ER Burrough ¹ , HB Krishnan ² , and NK Gabler ¹ , <i>¹Iowa State University, Ames, IA, USA, ²University of Missouri, Columbia, MO, USA.</i>	
3:45 PM	Short Break	



Huvepharma® serves the global & U.S. swine industry by providing veterinary products, non-medicated and medicated feed additives, vaccines, and other solutions for porcine health. The combination of state-of-the-art production facilities with 50+ years of fermentation expertise allows us to offer a diverse range of products,

while maintaining strict quality standards. We're dedicated to supplying the industry solutions that improve performance, health, and welfare, while also supporting food safety and sustainability efforts. Endeavoring to meet the unique needs of our customers, we're keeping production animals at the center of what we do. Learn more at www.huvepharma.us.



For over 40 years, IFF Danisco Animal Nutrition & Health has been at the forefront of providing innovative solutions to swine producers. Our extensive line of feed additives (including Axta PHY® GOLD, Axta® PRIME, Danisco Xylanase, Syncra® SWI, Betafin®) has been instrumental in tackling the nutritional and health

challenges associated with antibiotic-free and sustainable pork production. At IFF, we embrace the critical role we play in feeding our global population. By combining our expertise in nutrition and gut health with unparalleled customer service, we're able to recommend comprehensive strategies that deliver measurable results. Our products support a favorable microbiome in pigs enabling better growth, maximized feed utilization, and stress reduction that would otherwise predispose them to enteric disease. IFF's science-based products and strategies target rations for sows, nursery pigs and grow-finish animals where they deliver a range of benefits that optimize nutrition, liveability, gut health, and producer profits.

Wednesday, May 21

Time	Event	Location
2:25 PM – 5:00 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
4:15 PM	115 Basal ileal endogenous crude protein and amino acid losses in swine is influenced by age. JAL Barbosa ^{*1} , H Moreira Junior ¹ , JL Brito ¹ , CEM Bertanha ¹ , SSS Sousa ¹ , A Gorrosterrazú ¹ , MLP Tsé ² , ABS Oliveira ³ , F Dilelis ¹ , and US Ruiz ¹ , ¹ University of São Paulo (USP), Luiz de Queiroz College of Agriculture, Department of Animal Science, Piracicaba, São Paulo, Brazil, ² São Paulo State University (UNESP), School of Veterinary Medicine and Animal Science, Department of Animal Production, Botucatu, São Paulo, Brazil, ³ Ingredion, Mogi Guacu, São Paulo, Brazil.	
4:30 PM	116 Feasibility of using an x-ray fluorescence device for digestibility studies in pigs. Y.J.Y. Manaig ^{*1} , E. Gourlez ² , M. Taris ¹ , A.R. Monteiro ¹ , and F. De Quelen ² , ¹ Animine, Annecy, France, ² INRAE, Institut Agro Rennes-Angers, PEGASE, Saint Gilles, France.	
4:45 PM	117 Fiber Fermentation Kinetics of Wheat and Maize in Weaned Piglets. I. Kaikat ^{*1} , L. Blavi ² , M. A. Ton Nu ² , S. Tibble ² , A. Koppenol ² , G. González-Ortiz ³ , and J. F. Pérez ¹ , ¹ Animal Nutrition and Welfare Service (SNIWA), Department of Animal and Food Science, Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Spain, ² AB Neo, PL Fraga, C/ Comunidad de Murcia, parc. LIE-1-03, 22520 Fraga (Huesca), Spain, ³ AB Vista, Marlborough SN8 ⁴ AN, United Kingdom.	



Kemin is delivering products and services that help customers raise healthy livestock and poultry and achieve optimal nutrition, feed quality, gut health and pathogen control – all while maximizing profitability. Our ingredients feed animals more efficiently, which means we use less resources that go further – supporting

sustainability in production. To help improve customers' bottom line and meet consumer expectations, Kemin is strengthening safety throughout various stages of the food chain, optimizing animal nutrition via enhanced ingredient utilization and developing new solutions that improve overall animal health and wellbeing. Learn more at www.kemin.com/swine.



Lucta develops innovative feed additives that go beyond palatability to enhance animal performance and welfare. Using cutting-edge technology, we create sustainable, tailored solutions that optimize digestion, enhance nutrient absorption, and support feed preservation. Our products deliver measurable results across species and life

stages—strengthening connections throughout the production chain as we create solutions for animal care.

Wednesday, May 21

Time	Event	Location
6:00 PM - 10:00 PM	<i>Ticketed Event:</i> A Night on the Lakes	Boat trip

Join us for an unforgettable evening on Lake Geneva as part of the 16th International Symposium on Digestive Physiology of Pigs. Attendees will be transported from the Grand Geneva Resort & Spa to Lake Geneva Cruise Lines, where they'll board a scenic cruise set against Wisconsin's beautiful lakeside views. Enjoy a welcome drink and an array of appetizers as you network with colleagues from around the world, relax to the gentle lake breeze, and experience the charm of one of Wisconsin's most iconic locations. Don't miss this unique opportunity to unwind and connect as we set sail on "A Night on the Lakes."

Thursday, May 22

Time	Event	Location
6:30 AM	Breakfast	On your own
8:00 AM - 12 :00 PM	Registration	
8:30 AM - 11:50 AM	SYMPOSIA AND ORAL SESSIONS Feed Resources for Improved Digestive Function and Nutrient Efficiency Chair: Chengbo Yang, University of Manitoba, Co-Chair: Ruurd Zijlstra, University of Alberta	Grand Ballroom
8:30 AM	Welcome Chengbo Yang/Ruurd Zijlstra	



MiXscience is part of Avril and currently employs 520 people. As a major player in animal nutrition in France and abroad, the company has a total turnover of 165 millions euros and operates in more than 55 countries. 10 million tons of feed equivalent are produced each year using miXscience know-how. MiXscience develops and

offers a large range of premixes, minerals, innovative specialties, biocontrol solutions (NOLIVADE range) and liquid feed adapted to different livestock species. Expert services complete this offer. Partner of feed manufacturers, integrators, and distributors, miXscience contributes to the development of a sustainable farming.



NOREL is a Spanish company whose business is to develop, manufacture, and market ingredients for animal feed. With more than 40 years of experience, it is present in over 70 countries worldwide.

NOREL's additives are designed to improve nutrient absorption and, therefore, increase animal performance.

NOREL's goal is to challenge itself and the industry in the pursuit of more efficient, responsible, and environmentally conscious animal nutrition, thus contributing to the proper use of limited natural resources. Its product portfolio includes Mycotoxin Binders, Antioxidants, Egg Quality Enhancers, Silage Improvers, Organic Minerals, Fats, among many other innovative solutions.

Thursday, May 22

Time	Event	Location
8:30 AM – 11:50 AM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
8:35 AM	118 KEYNOTE: Approaches for reducing nitrogenous/phosphorus waste excretion in the pig-challenges and opportunities. Léa Cappelaere ^{1,2} , Florence Garcia-Launay ³ , Patrick Schlegel ² , and Marie Pierre Létourneau Montminy ^{*1} , ¹ Laval University, Quebec, Quebec, Canada, ² Agroscope, Posieux, Switzerland, ³ INRAE UMR PEGASE, Saint-Gilles, Brittany, France.	
9:20 AM	119 Improving starch digestion in barley, wheat and maize by xylanase/glucanase, phytase, protease and their combination in an in vitro digestion model. X. Liu ^{*1} , B.M. Flanagan ¹ , E. Roura ^{1,2} , and M.J. Gidley ¹ , ¹ Centre for Nutrition and Food Sciences, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queensland, Australia, ² Centre for Animal Science, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queensland, Australia.	
9:35 AM	120 In vitro evaluation of chicory-induced modulation of intestinal health in weaning piglets: Approach combining in vitro digestion, dialysis, and fermentation with a triple cell culture model. T.S. Kulkarni ^{*1,2} , P. Siegien ² , L. Comer ³ , A. Richel ² , B. Cudennec ¹ , C. Dugardin ¹ , S. Theysgeur ¹ , A. Lucau ⁴ , N. Everaert ³ , M. Schroyen ² , and R. Ravallec ¹ , ¹ UMR-T 1158, BioEcoAgro, University of Lille, Lille, FRANCE, ² Precision Livestock and Nutrition Laboratory, TERRA Teaching and Research Centre, Gembloux Agro-Bio Tech, University of Liège, Gembloux, BELGIUM, ³ Nutrition and Animal Microbiota EcoSystems lab, Division of A2H, Department of Biosystems, KU Leuven, Leuven, BELGIUM, ⁴ Joint Laboratory CHIC41H University of Lille-Florimond-Desprez, Lille, FRANCE.	
9:50 AM	121 Safe level of soy antinutritional factors in diets of weaned piglets. M. A. Ton Nu ^{*1,2} , L. Blavi Josa ² , L. Sobrevia ² , S. Laird ² , S. Tibble ² , and A. Koppenol ² , ¹ AB Neo a/s, Videbaek, Midtjylland, Denmark, ² AB Neo, Fraga, Huesca, Spain.	

novonesis

At Novonesis, we believe solutions rooted in biology are key to tackling global challenges. Enzymes and microorganisms—our planet's tiniest yet mightiest agents of change—are central to our approach. By leveraging their power with science, we create biosolutions transforming how we produce, consume, and live.

Our swine biosolutions, like BioPlus® probiotics, are creating value for thousands of customers globally, benefiting both businesses and the planet. By partnering with customers, we continue to challenge conventional thinking and transform businesses with biology. Your expertise and our unrivaled biosolutions can make it happen sooner. And better. Let's better our world with biology.

NOVUS

NOVUS is the leader in intelligent nutrition. Intelligent nutrition is a novel combination of experienced people, insightful perspectives, and smarter solutions that allow us to put more into everything we create. More science. More insight. More inspiration. More benefits that deliver more for producers. Along with our feed

additives (organic trace minerals, organic acids, enzymes, essential oils, and amino acids) that support the health and development of poultry, pigs and cow, we offer over 30 years of animal agriculture experience and a diverse, global perspective. Learn how NOVUS is Made of More™ at novusint.com.

Thursday, May 22

Time	Event	Location
8:30 AM – 11:50 AM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
10:05 AM	Short Break	
10:35 AM	122 The ratio of cystine to protein as a potential indicator of digestible amino acid concentration in heat-damaged animal byproducts for growing pigs. J. Y. Sung ^{*1} , M. K. Wiltafsky-Martin ² , and O. Adeola ¹ , ¹ Purdue University, West Lafayette, IN, USA, ² Evonik Operations GmbH, Hanau, Germany.	
10:50 AM	123 Effect of bakery products and legume seeds in the diet on nutrient digestibility of growing-finishing pigs. M. van Helvoort ^{*1} and P. Bikker ² , ¹ De Heus Animal Nutrition, Ede, The Netherlands, ² Wageningen University & Research, Wageningen Livestock Research, Wageningen, The Netherlands.	
11:05 AM	124 A new sustainable grain protein concentrate can replace soy protein concentrate or hydrolyzed wheat gluten in piglet diets. L.C.M. van Enckevort [*] , P.T. van 't Veld, and I.M. van As, Denkaavit Netherlands B.V., Voorthuizen, Netherlands.	
11:20 AM	125 Probiotic Bacillus subtilis C-3102 improved sow performance and reduced scouring on its progeny. JB Lacuesta ^{*1} , E Angeles ¹ , JM Raquipo ¹ , KJ Gayosa ¹ , and R Masilungan ² , ¹ Philchem, Inc, Quezon City, Philippines, ² Philippines College of Swine Practitioners, Quezon City, Philippines.	



MSP[RS] Resistant Starch has been manufactured for over 20 years, providing a research-backed solution to enhance swine digestive health. This innovative product improves performance by promoting gut health and supports overall intestinal function. MSP[RS] Resistant Starch is upcycled from the potato manufacturing industry,

making it an environmentally friendly choice. By converting potato waste into a valuable supplement, MSP[RS] contributes to sustainable agriculture while ensuring piglets receive the best start in life. This combination of longevity, scientific validation, and eco-conscious production makes MSP[RS] Resistant Starch a trusted prebiotic for use with livestock.



PIG-PARADIGM (Preventing Infection in the Gut of developing Piglets -and thus Antimicrobial Resistance - by disentangling the interface of Diet, the host and the Gastrointestinal Microbiome) is a multidisciplinary, cross-Atlantic project focused on preventing gut infections in piglets to reduce antimicrobial use and mitigate antimicrobial

resistance (AMR). By investigating host-microbiome-nutrition interactions, PIG-PARADIGM explores microbiome-targeted nutritional strategies to enhance piglet resilience. The project's findings will contribute to sustainable solutions in pig farming, supporting reduced antibiotic reliance and promoting responsible antimicrobial use in both animal and human health.

Thursday, May 22

Time	Event	Location
8:30 AM – 11:50 AM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:35 AM	126 The use of protease improves the growth performance of newly weaned piglets fed diets reduced in energy and protein. O.O Babatunde*, G Tactacan, M.S Vieira, L Lahaye, and M.L de Moraes, <i>Jefo Nutrition Inc., St-Hyacinthe, QC, Canada.</i>	
11:50 AM – 1:40 PM	Lunch and Poster Sessions	Maple Lawn Ballroom
8:30 AM – 11:50 AM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
	Development of Digestive and Absorptive Capacity in the Neonate and Impact of Weaning on Intestinal Function Chair: Nicholas Gabler, Iowa State University, Co-chair: Nathan Horn, United Animal Health	
1:40 PM	Welcome Nicholas Gabler/Nathan Horn	
1:45 PM	229 KEYNOTE: Use of organoids to study the role of the microbiota in the early life development of the pig intestine. M. Beaumont*, GenPhySE, <i>Université de Toulouse, INRAE, ENVT, Castanet-Tolosan, France.</i>	
2:30 PM	230 Maternal dietary live yeast supplementation alters jejunal mucosal proteomes of piglets during suckling and postweaning phases. Yuechi Fu*, Theresa Casey ¹ , Timothy Johnson ¹ , Jun Xie ² , Olayiwola Adeola ¹ , and Kolapo Ajuwon ¹ , ¹ <i>Department of Animal Sciences, Purdue University, West Lafayette, IN 47907, United States</i> , ² <i>Department of Statistics, Purdue University, West Lafayette, IN 47907, United States.</i>	



Trouw Nutrition is Nutreco's livestock feed business line and a global leader in the feed, farm and health aspects of producing quality meat, eggs and milk. We've spent nearly a century developing innovative feed products and more sustainable ways of raising healthy farm animals and companion animals.

With 71 manufacturing plants and a presence in 105 countries, Trouw Nutrition is everywhere our customers need us to be. We have a dedicated team of 8,300 and a global network to help our customers feed the future.



Vetagro is a progressive, science-based company with an Italian heart and an international presence. With over 40 years of experience, Vetagro specializes in developing and producing feed additives for ruminants, swine, poultry, and aquaculture. A strong dedication to Research and Development has enabled Vetagro to pioneer precision

microencapsulation technologies that improve intestinal health, control unwanted microflora, and increase nutrient bioavailability. Ultimately, Vetagro optimizes the productivity and sustainability of animal agriculture.

Thursday, May 22

Time	Event	Location
1:40 PM – 5:00 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
2:45 PM	231 Hypothalamic and ileal transcriptomic insights of poorly adapted freshly weaned pigs. L. Fabà*, T. G. Hulshof, M. O Wellington, and H. M. J. Van Hees, <i>Trouw Nutrition R&D, Swine Research Centre, Boxmeer, The 8 Netherlands.</i>	
3:00 PM	Short Break	
3:30 PM	232 KEYNOTE: Comparison of intestinal development of different pigs reveals PPARα is involved in regulating intestinal villus size and nutrient digestibility. Q. Wang ^{*1} , L. Yin ¹ , Z. Wang ¹ , J. Li ¹ , Q. Wang ¹ , J. Li ¹ , Y. Yin ² , and H. Yang ^{1,2} , <i>¹College of Life Sciences, Hunan Normal University, Changsha, Hunan 410081, China, ²Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, 410125, China.</i>	
4:15 PM	233 Multi-omics characterization of swine colostrum and association of bioactive compounds with piglet survival and growth. F. Correa ¹ , G. Rocchetti ² , P. Trevisi ¹ , M. Errico ² , B. Polimeni ¹ , A. Serra ³ , M. Mele ³ , L. Lucini ² , A. Gallo ² , and D. Luise ^{*1} , <i>¹Department of Agricultural and Food Sciences (DISTAL), University of Bologna, Bologna, Italy, ²Department for Sustainable Food Process, Università Cattolica del Sacro Cuore, Piacenza, Italy, ³Department of Agricultural, Food and Agro-Environmental Sciences, University of Pisa, Pisa, Italy.</i>	
4:30 PM	234 Investigating the Impact of Early-Life Gut Microbiota Perturbation on Porcine Physiology and Immune Function. L. Comer, M. Z. Akram, H. Zhao, and N. Everaert*, <i>Nutrition and Animal Microbiota Ecosystems Lab, Department of Biosystems, KU Leuven, Heverlee, Belgium.</i>	
4:45 PM	235 Sensory additive in creep feed modulates post-weaning immune development and metabolism in piglets. Z.W. Ng'ang'a ^{1,2} , N. Tous ¹ , J. Tarradas ¹ , R. Beltrán-Debón ² , J.J. Pastor ³ , S. López-Vergé ³ , G. Tedo ³ , and D. Torrallardona ^{*1} , <i>¹IRTA, Animal Nutrition, Constantí, Catalonia, Spain, ²Universitat Rovira i Virgili, Tarragona, Catalonia, Spain, ³Lucta S.A., Cerdanyola del Vallès, Barcelona, Spain.</i>	
6:00 PM – 10:00 PM	Ticketed Event: "Wisconsin: Heartland to the World" Gala	Forum

Celebrate the agricultural heritage and innovations of North America at the "Wisconsin: Heartland to the World" Gala. Set in the elegant surroundings of the Grand Geneva Resort, this evening will highlight Wisconsin's iconic contributions to animal science and agriculture, alongside the rich traditions of North American farming. Indulge in a gourmet, farm-inspired menu that represent the heartland's bounty. With live entertainment, regional flavors, and a focus on the global impact of our work in animal nutrition and physiology, this gala promises a memorable evening of camaraderie, culture, and celebration.

Friday, May 23

Time	Event	Location
6:30 AM	Breakfast	On your own
8:30 AM - 12:05 PM	SYMPOSIA AND ORAL SESSIONS Mucosal Immunity and Pathogenesis and the Role of the Digestive Tract in the Maintenance of Health Chair: Kola Ajuwon, Purdue University, Co-chair: Andrew Van Kessel, University of Saskatchewan	Grand Ballroom
8:30 AM	Welcome Kola Ajuwon/Andrew Van Kessel	
8:35 AM	236 KEYNOTE: The intestinal barrier. Too much of a good thing? J.R. Turner*, <i>Laboratory of Mucosal Barrier Pathobiology, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.</i>	
9:20 AM	237 Evaluating the impact of F18 Enterotoxigenic E. coli ileum attachment on Notch and Wnt signaling during early disease in nursery pigs. E. M. Due*, K. A. Miller ¹ , E. R. Burroughs ¹ , E. T. Helm ² , and N. K. Gabler ¹ , <i>¹Iowa State University, Ames, IA, USA, ²Virginia Polytechnic Institute and State University, Blacksburg, VA, USA.</i>	
9:35 AM	238 Enhancing intestinal health and antioxidant defense in weaned piglets treated with organic acids. S. A. Flores ¹ , P. H. Pereira ¹ , I. C. Tavares ¹ , R. F. Chaves ² , S. R. Silva Júnior ³ , K. V. Z. Augusto ⁴ , G. Heim ⁵ , C. A. P. Garbossa ⁶ , and V. S. Cantarelli*, <i>¹Faculty of Animal Science and Veterinary Medicine, Federal University of Lavras, Lavras, Minas Gerais, Brazil, ²AnimalNutri Ciência e Tecnologia, Patos de Minas, Minas Gerais, Brazil, ³University of Minnesota, Saint Paul, Minnesota, United States of America, ⁴Trouw Nutrition, Campinas, São Paulo, Brazil, ⁵Trouw Nutrition, Amersfoort, Netherlands, ⁶School of Veterinary Medicine and Animal Sciences, University of São Paulo, Pirassununga, São Paulo, Brazil.</i>	
9:50 AM	239 Salmonella-infected myeloid cells express butyrate receptors in the lower porcine intestinal tract. S.R. Becker* ¹ and C.L. Loving ² , <i>¹Immunobiology Graduate Program, Iowa State University, Ames, IA, United States, ²USDA-ARS-National Animal Disease Center, Ames, IA, United States</i>	
10:05 AM	Short Break	
10:35 AM	240 KEYNOTE: Interrogating porcine intestinal immune status to enhance disease resilience. C.L. Loving* ¹ , J.E. Wiarda ¹ , S. R. Becker ² , and K.A. Byrne ¹ , <i>¹USDA-ARS National Animal Disease Center, Ames, IA, United States, ²Immunobiology Graduate Program, Iowa State University, Ames, IA, United States.</i>	
11:20 AM	241 Intestinal plasma cells secreting IgA regulate Bacteroides uniformis commensalism and are dysregulated in weaned reaction. W.J. Tang* and H.F. Wang, <i>College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China.</i>	

Friday, May 23

Time	Event	Location
8:30 AM – 12:05 PM	SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:35 AM	<p>242 The influence of swine dysentery on concentration of short chain fatty acid, weight of intestinal tracts and intestinal morphology in growing pigs fed diets varying in soluble and insoluble fibers from co-products.</p> <p>G.I. Lee^{*1,2}, K.E. Bach Knudsen¹, and M.S. Hedemann¹, ¹<i>Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark,</i> ²<i>Department of Agricultural Science, Korea National Open University, Seoul, Republic of Korea.</i></p>	
11:50 AM	<p>243 The therapeutic effects of oat beta-glucans in an experimental porcine model of Crohn's disease.</p> <p>Dominika Szkopek^{*1}, Lukasz Kopiasz², Jaroslaw Wolinski¹, Kinga Majchrzak Kuligowska³, Kamil Zaworski¹, Katarzyna Dziendzikowska², Katarzyna Sikorska⁴, Joanna Harasym^{5,6}, and Joanna Gromadzka-Ostrowska², ¹<i>Laboratory of Large Animal Models, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Instytut Str. 3, Jablonna, Poland,</i> ²<i>Department of Dietetics, Institute of Human Nutrition Sciences, Warsaw University of Life Sciences, Nowoursynowska Str. 159C, 02 776 Warsaw, Poland,</i> ³<i>Department of Physiological Sciences, Institute of Veterinary Medicine, Warsaw University of Life Sciences, Nowoursynowska Str. 159, 02-776 Warsaw, Poland,</i> ⁴<i>Centre for Radiobiology and Biological Dosimetry, Institute of Nuclear Chemistry and Technology, Drodna Str. 16, 03-195 Warsaw, Poland,</i> ⁵<i>Department of Biotechnology and Food Analysis, Wroclaw University of Economics and Business, Komandorska Str. 118/120, 53 345 Wroclaw, Poland,</i> ⁶<i>Adaptive Food Systems Accelerator-Science Centre, Wroclaw University of Economics and Business, Komandorska Str. 118/120, 53-345 Wroclaw, Poland.</i></p>	
12:05 PM – 12:20 PM	Closing Comments	Grand Ballroom
12:20 PM	Lunch	Maple Lawn Ballroom