

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) Andrew van Kessel (University of Saskatchewan, Co-Chair)

International Steering Committee

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Dr. David Torrallaradona IRTA, Spain

Prof. Romuald Zabielski 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



Maple Lawn Ballroom: Posters and Meals Geneva Chophouse: Student Reception



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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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
9:00 AM - 12:00 PM	Satellite Symposium 1 Mineral metabolism: a holistic approach (Sponsor: Animine)	Evergreen Ballroom III for swine nutrition and health
9:00 AM - 12:00 PM	Satellite Symposium 2 Advances in nutritional strategies to enh and health of pigs (Sponsor: Evonik Nutri	Evergreen Ballroom I & II ance nutrient utilization, growth tion & Care GmbH)
12:00 PM - 1:00 PM	Satellite Symposia Lunch	Evergreen Foyer
1:00 PM - 4:00 PM	Satellite Symposium 3 Mitigating antimicrobial resistance by pro (Sponsor: PIG-PARADIGM)	Evergreen Ballroom I & II omoting gut health in pigs
1:00 PM - 4:00 PM	Satellite Symposium 4 How to make antimicrobials in pig feed r approach (Sponsor: DSM-Firmenich)	Evergreen Ballroom III edundant, an Australian



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 AdiCareTM, DanMilkTM, Pump'n'GrowTM, Primary DietsTM, CellproTM, and AlphaSoyTM.



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 su Dr. Crystal L. Levesque, South Dakota St	uccess ate University
	Session II: Designing microbiome studies in pigs Dr. Benjamin Willing, University of Alberta	
	Session III: Strengths and weaknesses o intestinal physiology Dr. Nicholas Gabler, lowa State Universit	f methods in assessing pig y
	Session IV : Direct visualization assays ir Dr. Eric R. Burrough, lowa State Universit	n formalin-fixed tissues ty
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 d form of manganese. We are

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.



ASAHI BIOSCIENCES, INC. is the sole distributor and manufacturer of CALSPORIN® in the E.S.A. Asahi Biosciences, Inc., we strive to be a supporter and innovator in animal health & performance by providing our products, microbial products, and technical solutions. CALSPORIN® was launched in Japan at 1986 and has been in swine production

utilized as DFM for almost 40 years in swine production.





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 Microbio Chair: Sarah Pearce, USDA-ARS Co-chair: Martin Nyachoti, University of	Grand Ballroom me and Host Response Manitoba
8:55 AM		Introduction Sarah Pearce/Martin Nyachoti	
9:00 AM	1	KEYNOTE: Searching for the microbes the microbial transfer and testing mode of a B.P. Willing*, Department of Agricultural, Food Edmonton, Alberta, Canada.	hat correlate with pig health, exploring action. and Nutritional Science, University of Alberta,
9:45 AM	2	EU Circles project: Machine Learn Gut Microbiota Reveal Key Predictors of F. Correa* ¹ , D. Luise ¹ , G. Palladino ² , F. Palum ¹¹ k M. Soverini ³ , S. Rampelli ² , M. Candela ² , P.L Agricultural and Food Sciences, University of of Pharmacy and Biotechnology, University of srl, 40128 Bologna, Italy.	ing Approaches to Multi-Kingdom Piglet Growth During the Nursery Phase. Do ¹ , D. Scicchitano ² , G. Babbi ² , A. Castagnetti ³ , J. Martelli ² , and P. Trevisi ¹ , ¹ Department of Bologna, 40127 Bologna, Italy, ² Department of Bologna, 40126 Bologna, Italy, ³ Wellmicro



BASF Animal Nutrition provides a comprehensive portfolio product 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.



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.



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 H. M. Blottière*1,2, ¹ Nantes Univers Nantes, France, ² Université Paris-Sac Jouy-en-Josas, France.	interaction in Health and Diseases. sité, INRAE, UMR 1280 PhAN, F-44000, clay, INRAE, MetaGenoPolis, MGP, F-78350,
11:15 AM	4	Litter Origin is associated with Gut M Outbreaks in Growing-Finishing Pigs Sudario Roberto Silva Junior*1, Cou and Andres Gomez1, 'Department of St. Paul, MN, USA, ² West Central Res Minnesota, Morris, MN, USA.	icrobiome Composition During Tail-Biting • rtney Archer ¹ , Lee Johnston ^{1,2} , Yuzhi Li ^{1,2} , • Animal Science, University of Minnesota, search and Outreach Center, University of
11:30 AM	5	Exploring the Gut Microbiota's Impa Performance, Stage in Reproductive Study. M. Weiss* ^{1,2} , G. A. Vestergaard ² , S. E boh D.S. Nielsen ¹ , ¹ University of Copenhager Copenhagen, 1958 Frederiksberg, Denma Biologiens vej 2, 2800 Kongens Lyngby, De	act on Sow Performance: Links Between Cycle, and Key Factors in a European Sow didi ² , L. H. B. Hansen ² , T. T. M. Knudsen ² , and n, Department of food Science, University of rk, ² Novonesis, Novonesis, Animal Biosolutions, enmark.



in the most flexible, tailored way. Includes vitamins, premixes and carotenoids, Performance Solutions - Solutions designed to improve the sustainability and profitability of animal farming. Includes enzymes, mycotoxin deactivation and eubiotics for gut performance, and Precision Services – The latest data analytics and diagnostics to improve animal health, lifetime performance, resource use and environmental footprint - while mitigating risks and unlocking more value. Includes Sustell™ and Verax™.



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swine, ruminants, or aquaculture. Learn more at eastman.com/ animal nutrition.





Time		Event	Location
8:55 AM - 12:30 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:45 AM	6	Advances toward commercial use of t weaning stress in pigs. Paul Oladele, Wenxuan Dong, Brian Ric West Lafayette, IN, USA.	fecal microbiota transplantation to mitigate hert, and Timothy Johnson*, <i>Purdue University,</i>
12:00 PM	7	Carbohydrate and nitrogen required in pigs. Ehsan Khafipour ¹ , Sandra Paredes ¹ , Qiong <i>Nutrition and Health, Minneapolis, MN</i> , ² 0	ments for optimizing hindgut microbiome ; Hu*1, Maria Sardi², and Ali Naqvi², 1Cargill Animal Cargill, Minneapolis, MN.
12:15 PM	8	Fecal filtrate transplantation and die to veterinary antimicrobials. A. Middelkoop*1, J. Priem1, C. Larsen ² , Research, Meerkoetenweg 26, 8218 NA Lely Dyrlægevej 68, 1870, Frederiksberg C, De	etary fibre supplementation as alternatives T. Thymann ² , and F. Molist ¹ , ¹ Schothorst Feed vstad, The Netherlands, ² University of Copenhagen, nmark.
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 Nutri Chair: Crystal Levesque, South Dako	ent Digestion and Absorption ota State University,

Co-Chair: Pedro Urriola, University of Minnesota



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

amino acids, functional feed additives and feed quality services.



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

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.



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 an digestive tract of pigs. S de Vries* and WJJ Gerrits, Animal Nut. Wageningen, the Netherlands.	nd nutrient absorption kinetics in the rition Group, Wageningen University & Research,
3:15 PM	113	In vitro fermentation potential of un H. Zhang* ^{1,2} , J. Cone ¹ , A.K. Kies ³ , W.H. Hen Group, Department of Animal Sciences, Wa Netherlands, ² State Key Laboratory of A Technology, China Agricultural University Netherlands, ⁴ Division of Human Nutrition Food Sciences, Wageningen University &	ndigested dietary protein in growing pigs. driks ¹ , and N. van der Wielen ^{1,4} , ¹ Animal Nutrition geningen University & Research, Wageningen, The nimal Nutrition, College of Animal Science and ty, Beijing, China, ³ ArieKiesAdvies, Druten, The o and Health, Department of Agrotechnology and Research, Wageningen, The Netherlands.
3:30 PM	114	Evaluation of soybean-derived tryps luminal pH, and endogenous enzyme MJ Nisley* ¹ , ER Burrough ¹ , HB Krishnan ² , <i>USA, ²University of Missouri, Columbia, M</i>	sin inhibitor proteins on gastric emptying, e activity in late-stage nursery pigs. and NK Gabler ¹ , ¹ Iowa State University, Ames, IA, 10, USA.
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-theart 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 Axtra PHY® GOLD, Axtra® 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.





Time		Event	Location
2:25 PM - 5:00 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
4:15 PM	115	Basal ileal endogenous crude prof influenced by age. JAL Barbosa*1, H Moreira Junior1, Gorrosterrazú1, MLP Tsé2, ABS Oliveira Paulo (USP), Luiz de Queiroz College of Piracicaba, São Paulo, Brazil, 2São F Veterinary Medicine and Animal Sci Botucatu, São Paulo, Brazil, 3Ingredion, M	tein and amino acid losses in swine is JL Brito ¹ , CEM Bertanha ¹ , SSS Sousa ¹ , A ³ , F Dilelis ¹ , and US Ruiz ¹ , ¹ University of São f Agriculture, Department of Animal Science, Paulo State University (UNESP), School of ience, Department of Animal Production, logi Guacu, São Paulo, Brazil.
4:30 PM	116	Feasibility of using an x-ray fluores pigs. Y.J.Y. Manaig*1, E. Gourlez ² , M. Taris ¹ , A.R. <i>France, ²INRAE, Institut Agro Rennes-Ang</i>	Scence device for digestibility studies in Monteiro ¹ , and F. De Quelen ² , ¹ <i>Animine, Annecy,</i> <i>ers, PEGASE, Saint Gilles, France.</i>
4:45 PM	117	Fiber Fermentation Kinetics of Whea I. Kaikat* ¹ , L. Blavi ² , M. A. Ton Nu ² , S. and J. F. Pérez ¹ , ¹ Animal Nutrition an Animal and Food Science, Universite Bellaterra, Spain, ² AB Neo, PL Fraga, 22520 Fraga (Huesca), Spain, ³ AB Vista, M	At and Maize in Weaned Piglets. . Tibble ² , A. Koppenol ² , G. González-Ortiz ³ , ad Welfare Service (SNiBA), Department of at Autònoma de Barcelona (UAB), 08193 . C/ Comunidad de Murcia, parc. LIE-1-03, 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

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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 is throughout the production

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

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 <u>www.kemin.com/swine</u>.



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

Wednesday, May 21

Time	Event	Location
6:00 PM - 10:00 PM	Ticketed Event: A Night on the Lakes	Boat trip
	Join us for an unforgettable evening on La Symposium on Digestive Physiology of Pi Grand Geneva Resort & Spa to Lake Genev cruise set against Wisconsin's beautiful I an array of appetizers as you network wit	ake Geneva as part of the 16th International gs. Attendees will be transported from the ra Cruise Lines, where they'll board a scenic akeside views. Enjoy a welcome drink and ch colleagues from around the world. relax

Thursday, May 22

on "A Night on the Lakes."

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 Digest Chair: Chengbo Yang, University of M Co-Chair: Ruurd Zijlstra, University o	Grand Ballroom tive Function and Nutrient Efficiency lanitoba, of Alberta
8:30 AM	Welcome Chengbo Yang/Ruurd Ziilstra	



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 Imporvers, Organic Minerals, Fats, among many other innovative solutions.





Time		Event	Location
8:30 AM - 11:50 AM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
8:35 AM	118	KEYNOTE: Approaches for reducing in the pig-challenges and opportun Léa Cappelaere ^{1,2} , Florence Garcia-Launa Montminy* ¹ , ¹ Laval University, Quebec, Q ³ INRAE UMR PEGASE, Saint-Gilles, Brita	g nitrogenous/phosphorus waste excretion i ties. ay ³ , Patrick Schlegel ² , and Marie Pierre Létourneau uebec, Canada, ² Agroscope, Posieux, Switzerland, nny, France.
9:20 AM	119	Improving starch digestion in barle phytase, protease and their combin X. Liu*1, B.M. Flanagan1, E. Roura ^{1,2} , and M Queensland Alliance for Agriculture and Brisbane, Queensland, Australia, ² Cent Agriculture and Food Innovation, The U Australia.	y, wheat and maize by xylanase/glucanase, nation in an in vitro digestion model. .J. Gidley ^{1, 1} Centre for Nutrition and Food Sciences, d Food Innovation, The University of Queensland, tre for Animal Science, Queensland Alliance for Iniversity of Queensland, Brisbane, Queensland,
9:35 AM	120	In vitro evaluation of chicory-ind weaning piglets: Approach com fermentation with a triple cell cultu T.S. Kulkarni*1. ² , P. Siegien ² , L. Come Theysgeur ¹ , A. Lucau ⁴ , N. Everaert ³ , <i>BioEcoAgro, University of Lille, Lille, Laboratory, TERRA Teaching and F</i> <i>University of Liège, Gembloux, BE</i> <i>EcoSystems lab, Division of A2H, De</i> <i>BELGIUM, ⁴Joint Laboratory CHIC41H Uni</i>	luced modulation of intestinal health in bining in vitro digestion, dialysis, and ure model. r ³ , A. Richel ² , B. Cudennec ¹ , C. Dugardin ¹ , S. M. Schroyen ² , and R. Ravallec ¹ , ¹ UMR-T 1158, FRANCE, ² Precision Livestock and Nutrition Research Centre, Gembloux Agro-Bio Tech, LGIUM, ³ Nutrition and Animal Microbiota partment of Biosystems, KU Leuven, Leuven, iversity of Lille-Florimond-Desprez, Lille, FRANCE.
9:50 AM	121	Safe level of soy antinutritional fac M. A. Ton Nu* ^{1,2} , L. Blavi Josa ² , L. Sobrevi a/s, Videbaek, Midtjylland, Denmark, ² A	tors in diets of weaned piglets. a², S. Laird², S. Tibble², and A. Koppenol², ¹ AB Neo B Neo, Fraga, Huesca, Spain.



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 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.

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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 po concentration in heat-damaged anin J. Y. Sung*1, M. K. Wiltafsky-Martin ² , and C USA, ² Evonik Operations GmbH, Hanau, G	otential indicator of digestible amino acid nal byproducts for growing pigs. D. Adeola ¹ , ¹ Purdue University, West Lafayette, IN, ermany.
10:50 AM	123	Effect of bakery products and legume of growing-finishing pigs. M. van Helvoort*1 and P. Bikker2, ¹ De H ² Wageningen University & Research, Wag Netherlands.	e seeds in the diet on nutrient digestibility Jeus Animal Nutrition, Ede, The Netherlands, Teningen Livestock Research, Wageningen, The
11:05 AM	124	A new sustainable grain protein conce or hydrolyzed wheat gluten in piglet L.C.M. van Enckevort*, P.T. van 't Veld, <i>Voorthuizen, Netherlands</i> .	entrate can replace soy protein concentrate diets. , and I.M. van As, <i>Denkavit Netherlands B.V.,</i>
11:20 AM	125	Probiotic Bacillus subtilis C-3102 ir scouring on its progeny. JB Lacuesta ^{*1} , E Angeles ¹ , JM Raquipo ¹ Inc, Quezon City, Philippines, ² Philippin City, Philippines.	mproved sow performance and reduced , KJ Gayosa ¹ , and R Masilungan ² , ¹ Philchema, nes College of Swine Practitioners, Quezon



MSP[RS] Resistant Starch has been manufactured for over 20 years, providing a researchbacked 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.

MAY 20-23, 2025 | LAKE GENEUA



17



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.</i> , <i>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 Absor Neonate and Impact of Weaning on In Chair: Nicholas Gabler, Iowa State Ur Co-chair: Nathan Horn, United Anima	ptive Capacity in the ntestinal Function niversity, al 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*1, Theresa Casey1, Timothy Johnson1, Jun Xie2, Olayiwola Adeola1, and Kolapo Ajuwon1, 1Department of Animal Sciences, Purdue University, West Lafayette, IN 47907, United States, 2Department of Statistics, Purdue University, West Lafayette, IN 47907,	

United States.



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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.



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</i> <i>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 PPARa is involved in regulating intestinal villus size and nutrient digestibility. Q. Wang*1, L. Yin1, Z. Wang1, J. Li1, Q. Wang1, J. Li1, Y. Yin2, and H. Yang12, ¹ College of Life Sciences, Hunan Normal University, Changsha, Hunan 410081, China, ² Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, 410125, China.	
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} , ¹ Department of Agricultural and Food Sciences (DISTAL), University of Bologna, Bologna, Italy, ² Department for Sustainable Food Process, Universita `Cattolica del Sacro Cuore, Piacenza, Italy, ³ Department of Agricultural, Food and Agro-Environmental Sciences, University of Pisa, Pisa, Italy.	
4:30 PM	234	Investigating the Impact of Early-Lif Physiology and Immune Function. L. Comer, M. Z. Akram, H. Zhao, and N Ecosystems Lab, Department of Biosystem	e Gut Microbiota Perturbation on Porcine . Everaert*, <i>Nutrition and Animal Microbiota</i> <i>ms, KU Leuven, Heverlee, Belgium.</i>
4:45 PM	235	Sensory additive in creep feed modul and metabolism in piglets. Z.W. Ng'ang'a ^{1,2} , N. Tous ¹ , J. Tarradas ¹ , R. B Tedo ³ , and D. Torrallardona ^{*1} , ¹ / <i>RTA</i> , An ² Universitat Rovira i Virgili, Tarragona, Cata Barcelona, Spain.	lates post-weaning immune development eltrán-Debón², J.J. Pastor³, S. López-Vergé³, G. nimal Nutrition, Constantí, Catalonia, Spain, alonia, Spain, ³Lucta S.A., Cerdanyola del Vallès,
6:00 PM - 10:00 PM		<i>Ticketed Event:</i> "Wisconsin: Heartlan to the World" Gala	d Forum
		Celebrate the agricultural heritage a "Wisconsin: Heartland to the World" O Grand Geneva Resort, this evening will to animal science and agriculture, alor farming. Indulge in a gourmet, farm-in bounty. With live entertainment, re- impact of our work in animal nutrit memorable evening of camaraderie,	and innovations of North America at the Gala. Set in the elegant surroundings of the l highlight Wisconsin's iconic contributions ngside the rich traditions of North American spired menu that represent the heartland's gional flavors, and a focus on the global ion and physiology, this gala promises a 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 Grand Ballroom 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	
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*, Laboratory of Mucosal Barrier Pathobiology, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.	
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* ¹ , K. A. Miller ¹ , E. R. Burrough ¹ , E. T. Helm ² , and N. K. Gabler ¹ , ¹ /owa State University, Ames, IA, USA, ² Virginia Polytechnic Institute and State University, Blacksburg, VA, USA.	
9:35 AM	238	Enhancing intestinal health and ant with organic acids. S. A. Flores ¹ , P. H. Pereira ¹ , I. C. Tavares ¹ , R Heim ⁵ , C. A. P. Garbossa ⁶ , and V. S. Canta Medicine, Federal University of Lavras, L e Tecnologia, Patos de Minas, Minas Ge Minnesota, United States of America, ⁴ Tro Nutrition, Amersfoort, Netherlands, ⁶ Sch University of São Paulo, Pirassununga, S	ioxidant defense in weaned piglets treated . F Chaves ² , S. R. Silva Júnior ³ , K. V. Z. Augusto ⁴ , G. arelli ^{*1} , ¹ Faculty of Animal Science and Veterinary avras, Minas Gerais, Brazil, ² AnimalNutri Ciência erais, Brazil, ³ University of Minnesota, Saint Paul, buw Nutrition, Campinas, São Paulo, Brazil, ⁵ Trouw bool of Veterinary Medicine and Animal Sciences, são Paulo, Brazil.
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 , ¹ Immunobiology Graduate Program, Iowa State University, Ames, IA, United States, ² USDA-ARS-National Animal Disease Center, Ames, IA, United States	
10:05 AM		Short Break	
10:35 AM	240	KEYNOTE: Interrogating porcine int resilience. C.L. Loving*1, J.E. Wiarda1, S. R. Becker Disease Center, Ames, IA, United States, University, Ames, IA, United States.	estinal immune status to enhance disease ⁻² , and K.A. Byrne ¹ , ¹ USDA-ARS National Animal ² Immunobiology Graduate Program, Iowa State
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, College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China.	



Friday, May 23

Time		Event	Location
8:30 AM - 12:05 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:35 AM	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. G.I. Lee*12, K.E. Bach Knudsen1, and M.S. Hedemann1, ¹ Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark, ² Department of Agricultural Science, Korea National Open University, Seoul, Republic of Korea.	
11:50 AM	243	The therapeutic effects of oat beta-glucans in an experimental porcine model of Crohn's disease. Dominika Szkopek*1, Lukasz Kopiasz ² , Jaroslaw Wolinski ¹ , Kinga Majchrzak Kuligowska ³ , Kamil Zaworski ¹ , Katarzyna Dziendzikowska ² , Katarzyna Sikorska ⁴ , Joanna Harasym ^{5,6} , and Joanna Gromadzka-Ostrowska ² , ¹ Laboratory of Large Animal Models, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Instytucka Str. 3, Jablonna, Poland, ² Department of Dietetics, Institute of Human Nutrition Sciences, Warsaw University of Life Sciences, Nowoursynowska Str. 159C, 02 776 Warsaw, Poland, ³ Department of Physiological Sciences, Institute of Veterinary Medicine, Warsaw University of Life Sciences, Nowoursynowska Str. 159, 02-776 Warsaw, Poland, ⁴ Centre for Radiobiology and Biological Dosimetry, Institute of Nuclear Chemistry and Technology, Drodna Str. 16, 03-195 Warsaw, Poland, ⁵ Department of Biotechnology and Food Analysis, Wroclaw University of Economics and Business, Komandorska Str. 118/120, 53 345 Wroclaw, Poland, ⁶ Adaptive Food Systems Accelerator-Science Centre, Wroclaw University of Economics and Business, Komandorska Str. 118/120, 53-345 Wroclaw, Poland.	
12:05 PM - 2:35 PM		Lunch & Closing	Grand Ballroom

