



## Pig Genetics and Genomics

**Organised by a Standing Committee:** YES

### Meeting information

Date: 03/07/2023

Time: 2pm

Number of participants: Approx 65

### Chair

Name: Amanda Warr

Affiliation: The Roslin Institute

Contact email: [Amanda.warr@roslin.ed.ac.uk](mailto:Amanda.warr@roslin.ed.ac.uk)

### Co-Chair (optional)

Name: Andreia Amaral (standing in for Daniel Ciobanu, who took part in organising the workshop but was unable to attend)

Affiliation: University of Lisbon (DC: University of Nebraska-Lincoln)

Contact email: [andreaamaral@fmv.ulisboa.pt](mailto:andreaamaral@fmv.ulisboa.pt) (DC: [dciobanu@unl.edu](mailto:dciobanu@unl.edu))

## Agenda

### **2pm: Initiative for African Indigenous Pig Genome Project**

Adeniyi C. Adeola\*<sup>1,2</sup>, Xian Shi<sup>1</sup>, Xiaolei Liu<sup>3</sup>, Olawale F. Olaniyan<sup>4</sup>, Chadi A. M. S. Djagoun<sup>5</sup>, George Msalya<sup>6</sup>, David H. Mauki<sup>7</sup>, Ndifor K. Wanzie<sup>8</sup>, George Niba<sup>9</sup>, Pam D. Luka<sup>10</sup>, Sunday C. Olaogun<sup>11</sup>, Victor M. O. Okoro<sup>12</sup>, Jian-Lin Han<sup>13</sup>, Min-Sheng Peng<sup>1,2</sup>, Ya-Ping Zhang<sup>1,2</sup>, <sup>1</sup>State Key Laboratory of Genetic Resources and Evolution & Yunnan Laboratory of Molecular Biology of Domestic Animals, Kunming Institute of Zoology, , Chinese Academy of Sciences, Kunming, Yunnan, China, <sup>2</sup>Sino-Africa Joint Research Centre, Chinese Academy of Sciences, Kunming, Yunnan, China, <sup>3</sup>Key Laboratory of Agricultural Animal Genetics, Breeding and Reproduction, Ministry of Education, Key Laboratory of Swine Genetics and Breeding, Ministry of Agriculture, College of Animal Science and Technology, Huazhong Agricultural University, Wuhan, China, <sup>4</sup>West Africa Livestock Innovation Centre, Banjul, The Gambia, <sup>5</sup>Laboratory of Applied Ecology, Faculty of Agronomic Sciences, University of Abomey-Calavi, Cotonou, Benin, <sup>6</sup>Sokoine University of Agriculture, Morogoro, Tanzania, <sup>7</sup>Center for Cancer Immunology, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences (CAS), Shenzhen, China, <sup>8</sup>Department of Zoology, University of Douala, Douala, Cameroon, <sup>9</sup>National Centre for Animal Husbandry, Veterinary and Halieutic Training, Jakiri, Cameroon, <sup>10</sup>National Veterinary Research Institute, Vom, Nigeria, <sup>11</sup>Department of Veterinary Medicine, University of Ibadan, Ibadan, Nigeria, <sup>12</sup>Department of Animal Science and Technology, School of Agriculture and Agricultural Technology, Federal University of Technology, Owerri, Nigeria, <sup>13</sup>International livestock Research Institute, Nairobi, Kenya.

### **2:13pm: Identification of new transcription factors using eGWAS in four porcine tissues**

Samin Hosseini<sup>1</sup>, M Gòdia<sup>1</sup>, MFL Derks<sup>1</sup>, B Harlizius<sup>2</sup>, O Madsen<sup>1</sup>, and MAM Groenen\*<sup>1</sup>, <sup>1</sup>Wageningen University & Research, Wageningen, The Netherlands, <sup>2</sup>Topigs Norsvin Research Center, Beuningen, the Netherlands

### **2:26pm: Comprehensive identification of functional DNA elements and 3D chromatin interaction map in the pig genome**



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Daoyuan Wang\*<sup>1</sup>, Mingyang Hu<sup>1</sup>, Yaping Guo<sup>1</sup>, Renzhuo Kuang<sup>1</sup>, Honghong Zhou<sup>1</sup>, Ruixian Ma<sup>1</sup>, Zheyu Han<sup>1</sup>, Linmi Li<sup>1</sup>, Hao Peng<sup>1</sup>, Zhixiang Xu<sup>1</sup>, Yan Zhang<sup>1</sup>, Mengjin Zhu<sup>1,3</sup>, Chris K. Tuggle<sup>4</sup>, Yunxiao Zhao<sup>1</sup>, Shuhong Zhao<sup>1,2</sup>, <sup>1</sup>Key Lab of Agricultural Animal Genetics, Breeding, and Reproduction of Ministry of Education, Huazhong Agricultural University, Wuhan, Hubei, China, <sup>2</sup>Hubei Hongshan Laboratory, Huazhong Agricultural University, Wuhan, Hubei, China, <sup>3</sup>The Cooperative Innovation Center for Sustainable Pig Production, Wuhan, Hubei, China, <sup>4</sup>Department of Animal Science, Iowa State University, Ames, Iowa, USA.

### **2:39pm: Multi-breed, multi-tissue, and multi-omics aiding the quest for key porcine regulators**

Daniel Crespo-Piazuelo<sup>1</sup>, A. Reverter<sup>2</sup>, Y. Ramayo-Caldas<sup>1</sup>, R. Quintanilla<sup>1</sup>, H. Acloque<sup>3</sup>, M.-J. Mercat<sup>4</sup>, M.C.A.M. Bink<sup>5</sup>, A.E. Huisman<sup>5</sup>, and M. Ballester\*<sup>1</sup>, <sup>1</sup>Animal Breeding and Genetics Program, Institute of Agrifood Research and Technology (IRTA), Torre Marimon, Caldes de Montbui, E08140, Spain, <sup>2</sup>CSIRO Agriculture and Food, St. Lucia, Brisbane, Queensland 4067, Australia, <sup>3</sup>INRAE GABI, Domaine de Vilvert, 78350 Jouy-en-Josas, France, <sup>4</sup>IFIP-Institut du porc and Alliance R&D, La Motte au Vicomte, 35651 Le Rheu, France, <sup>5</sup>Hendrix Genetics, P.O. Box 114, 5830 AC Boxmeer, the Netherlands.

### **2:52pm: Allele-specific expression in pig genomic makeup and phenotypic implications**

Wen-ye Yao\*<sup>1,2</sup>, Lijing Bai<sup>2</sup>, Kui Li<sup>2</sup>, Lingzhao Fang<sup>3</sup>, Martien A.M Groenen<sup>1</sup>, and Ole Madsen<sup>1</sup>, <sup>1</sup>Animal Breeding and Genomics, Wageningen University & Research, Wageningen, The Netherlands, <sup>2</sup>Agricultural Genomics Institute at Shenzhen, Chinese Academy of Agricultural Sciences, Shenzhen, China, <sup>3</sup>Center for Quantitative Genetics and Genomics (QGG), Aarhus University, Aarhus, Denmark.

### **3:05pm: Combined targeted and untargeted metabolomics in pigs coupled with genomic information: towards a comprehensive genetic characterization of the pig metabolome**

Samuele Bovo<sup>1</sup>, G Schiavo<sup>1</sup>, F Fanelli<sup>2</sup>, A Ribani<sup>1</sup>, F Bertolini\*<sup>1</sup>, M Gallo<sup>3</sup>, G Galimberti<sup>4</sup>, S Dall'Olio<sup>1</sup>, PL Martelli<sup>5</sup>, R Casadio<sup>5</sup>, U Pagotto<sup>2</sup>, and L Fontanesi<sup>1</sup>, <sup>1</sup>Department of Agricultural and Food Sciences, Division of Animal Sciences, University of Bologna, Bologna, Italy, <sup>2</sup>Department of Surgical and Medical Sciences, Endocrinology Unit, University of Bologna,



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Bologna, Italy, 3Associazione Nazionale Allevatori Suini, Roma, Italy, 4Department of Statistical Sciences “Paolo Fortunati”, University of Bologna, Bologna, Italy, 5Biocomputing Group, Department of Pharmacy and Biotechnology, University of Bologna, Bologna, Italy.

### **3:18pm: Enhancer-promoter interaction map in the maternal-fetal interface during implantation reveals important regulatory regions and variations in pigs**

Yan Sun\*<sup>1,2</sup>, Ru Liu<sup>1,2</sup>, Hao Liang<sup>1,2</sup>, Kun Han<sup>1,2</sup>, Feiyu Wang<sup>1,2</sup>, Jianhua Cao<sup>1,2</sup>, and Mei Yu<sup>1,2</sup>,  
1Key Laboratory of Agricultural Animal Genetics, Breeding and Reproduction, Ministry of Education, Huazhong Agricultural University, Wuhan, Hubei, China, 2College of Animal Science and Technology, Huazhong Agricultural University, Wuhan, Hubei, China.

### **3:31: Break**

### **4:01: On the genetic basis of porcine semen traits: a large-scale genome-wide study on a synthetic line**

Pedro da Costa Sá\*<sup>1</sup>, RM Godinho<sup>2</sup>, M Gòdia<sup>1</sup>, CA Sevillano<sup>2</sup>, B Harlizius<sup>2</sup>, O Madsen<sup>1</sup>, and H Bovenhuis<sup>1</sup>, 1Wageningen University and Research, Wageningen, The Netherlands, 2Topigs Norsvin Research Center, Beuningen, The Netherlands.

### **4:14pm: Towards identification of new genetic determinants for post weaning diarrhea in piglets**

Emil Ibragimov, Esben Østergaard Eriksen, Jens Peter Nielsen, Claus B. Jørgensen, Merete Fredholm, and Peter Karlskov-Mortensen\*, University of Copenhagen, Frederiksberg, Denmark.

### **4:27pm: Identification of genomic regions associated with fatty acid metabolism across four tissues in pigs**

Junhui Liu\*<sup>1,2</sup>, Cristina Sebastià<sup>1,2</sup>, Teodor Jové-Juncà<sup>3</sup>, Raquel Quintanilla<sup>3</sup>, Olga González-Rodríguez<sup>3</sup>, Magí Passols<sup>1,2</sup>, Anna Castelló<sup>1,2</sup>, Armand Sánchez<sup>1,2</sup>, Maria Ballester<sup>3</sup>, and Josep Maria Folch<sup>1,2</sup>, 1Plant and Animal Genomics, Centre for Research in Agricultural Genomics (CRAG), CSIC-IRTA-UAB-UB Consortium, Bellaterra, Spain, 2Departament de Ciència Animal i dels Aliments, Facultat de Veterinària, Universitat Autònoma de Barcelona (UAB), Bellaterra, Spain,



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3Animal Breeding and Genetics Program, Institut de Recerca i Tecnologia Agroalimentàries (IRTA), Torre Marimon, Caldes de Montbui, Spain.

### **4:40pm: Integrated analysis of genome-wide association studies and 3D epigenomic characteristics reveal the BMP2 gene regulating loin muscle depth in Yorkshire pigs**

Siqi Wan\*<sup>1</sup>, Yuanxin Miao<sup>2</sup>, Yunxia Zhao<sup>1</sup>, Shuhong Zhao<sup>1</sup>, Xuewen Xu<sup>1</sup>, and Tao Xiang<sup>1</sup>, <sup>1</sup>Key Laboratory of Agricultural Animal Genetics, Breeding and Reproduction of Ministry of Education & Key Laboratory of Swine Genetics and Breeding of Ministry of Agriculture, Huazhong Agricultural University, Wuhan 430070, Hubei province, China; <sup>2</sup>Research Institute of Agricultural Biotechnology, Jingchu University of Technology, Jingmen 448000, Hubei province, China;

### **4:53pm: Sequence based GWAS identifies novel loci influencing growth and reproduction traits in pigs.**

Anne Boshove\*<sup>1</sup>, M.F.L. Derks<sup>1,2</sup>, B. Harlizius<sup>1</sup>, E.F. Knol<sup>1</sup>, M.S. Lopes<sup>3</sup>, M. van Son<sup>4</sup>, and C.A. Sevillano<sup>1</sup>, <sup>1</sup>Topigs Norsvin Research Center, Beuningen, The Netherlands, <sup>2</sup>Animal Breeding and Genomics, Wageningen University & Research, Wageningen, the Netherlands, <sup>3</sup>Topigs Norsvin, Curitiba, Brazil, <sup>4</sup>Norsvin SA, Hamar, Norway.

### **5:06pm: Methods to predict lameness in sows**

Gary A Rohrer\*<sup>1</sup>, Lexi Ostrand<sup>2</sup>, Lea A Rempel<sup>1</sup>, Ty Schmidt<sup>2</sup>, and Benny Mote<sup>2</sup>, <sup>1</sup>USDA-ARS US Meat Animal Research Center, Clay Center, NE, USA, <sup>2</sup>University of Nebraska, Lincoln, NE, USA.

### **5:19pm: Business Meeting**

## **Summary of the meeting**

As Daniel Ciobanu could not attend the meeting, Andreia Amaral took the part of co-chair for the session.

The meeting proceeded as per the agenda and the room was occupied at a similar level throughout. The business meeting had to be cut very short due to the room being booked at 5:30pm for the Welcome Reception.



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During the business meeting Shuhong Zhao was re-elected for a second term on the standing committee by a show of hands by members only. Additionally Alex Clop and Peter Karlskov-Mortensen were nominated to join the committee and were elected by a show of hands by members only.

### New Committee chair

Chair: Catherine Larzul
Term of service ( <i>add years of first and second term of service</i> ): 2021
Affiliation: INRAE, France
E-mail address: catherine.larzul@inrae.fr

### New Committee co-chair (optional)

Co-chair: Shuhong Zhao
Term of service ( <i>add years of first and second term of service</i> ): 2019,2025
Affiliation: Huazhong Agricultural University, China
E-mail address: shzhao@mail.hzau.edu.cn

*Note: One term runs for two bi-annual conferences (i.e. four years)*

### New Committee members

Other committee members	First term of service (from year to year)	Second term of service (from year to year)	Email address
Shuhong Zhao	2019-2023	2023-2027	shzhao@mail.hzau.edu.cn



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Gary Rohrer	2021-2025		gary.rohrer@usda.gov
Amanda Warr	2017-2021	2021-2025	amanda.warr@roslin.ed.ac.uk
Andreia Amaral	2017-2021	2021-2025	andreiaamaral@fmv.ulisboa.pt
Catherine Larzul	2021-2025		catherine.larzul@inrae.fr
Alex Clop	2023-2027		alex.clop@cragenomica.es
Peter Karlskov- Mortensen	2023-2027		pkm@sund.ku.dk

**COMPARISON TEST (2020-2021)**      **YES/NO**



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**SIGNATURE**

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right. The signature is positioned above a solid black horizontal line.

**Chair**