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to be held at:

**vetmeduni**

**University of Veterinary Medicine  
Veterinärplatz 1  
1210-Vienna, Austria**

## Wednesday 18<sup>th</sup> of September

8.00 **Registration**

9.00 **Welcome and opening**  
(Dieter Liebhart and Michael Hess)

**9.15 - 10.15 Keynote I**

**Cross-species conservation of host factors and virus evolution highlight proteins at the antiviral frontline**

Andreas Pichlmair

*(Institute of Virology, Technical University of Munich, Germany)*

**10.15 - 11.30 Session I (Host-Pathogen Interactions I)**

**RIPLET activation of duck RIG-I and antagonism by influenza virus NS1 protein**

Mirzabek Kazbekov<sup>1</sup>, Angela Chiriankandath<sup>1</sup>, Katharine Magor<sup>1,2</sup>

<sup>1</sup>*Department of Biological Sciences, University of Alberta, Edmonton, Canada;* <sup>2</sup>*Li Ka Shing Institute of Virology, University of Alberta, Edmonton, Canada*

**Chicken 3D enteroids as tool to determine virulence of non-notifiable avian influenza**

Kate Sutton<sup>1</sup>, Hui-Min<sup>2</sup>, Paul Digard<sup>2</sup>, Sjaak de Wit<sup>3</sup>, Lonneke Vervelde<sup>1,3</sup>

<sup>1</sup>*Division of Immunology, The Roslin Institute and R(D)SVS, University of Edinburgh, UK;* <sup>2</sup>*Division of Virology, The Roslin Institute and R(D)SVS, University of Edinburgh, UK;* <sup>3</sup>*Research and Development, Royal GD, Deventer, The Netherlands*

**Elucidating divergent cellular immune responses to avian influenza in genetically distinct inbred chicken lines: a deep dive into the Harderian gland**

Ying Wang<sup>1</sup>, Emily J. Aston<sup>1</sup>, Susan J. Lamont<sup>2</sup>, Rodrigo A. Gallardo<sup>3</sup>, Hans H. Cheng<sup>4</sup>, Huaijun Zhou<sup>1</sup>

<sup>1</sup>*Department of Animal Science, University of California, Davis, CA, USA;* <sup>2</sup>*Department of Animal Science, Iowa State University, Ames, IA, USA;* <sup>3</sup>*School of Veterinary Medicine, University of California, Davis, CA, USA;* <sup>4</sup>*USDA-ARS Avian Disease and Oncology Laboratory, East Lansing, MI, USA*

**Do  $\gamma\delta$  T lymphocytes have an impact on infectious bursal disease pathogenesis in chickens?**

Johanna Trapp<sup>1</sup>, Sonja Härtle<sup>2</sup>, Benjamin Schusser<sup>3</sup>, Silke Rautenschlein<sup>1</sup>

<sup>1</sup>*Clinic for Poultry, University of Veterinary Medicine Hannover, Hanover, Germany;* <sup>2</sup>*Department for Veterinary Science, University of Munich, Munich, Germany;* <sup>3</sup>*Reproductive Biotechnology, TUM School of Life Sciences, Freising, Germany*

**Comparison of the pathogenicity and immune response to two A3B1 genotype infectious bursal disease virus isolates belonging to different pathotypes**

Balázs Felföldi<sup>1</sup>, Edit Walkó-Kovács<sup>1</sup>, Tímea Tatár-Kis<sup>1</sup>, Tamás Mató<sup>1</sup>, Guillermo Gonzalez<sup>2</sup>, István Kiss<sup>1</sup>

<sup>1</sup>*Ceva Animal Health, Budapest, Hungary;* <sup>2</sup>*Ceva Animal Health, Libourne, France*

**11.30 - 12.00 Coffee Break and Poster Session**

**12.00 - 13.00 Session II (Host-Pathogen Interactions II)**

**Impact of microbial populations on the intestinal immune system**

Simon Früh<sup>1,2</sup>, Sarah Lettmann<sup>1</sup>, Catherine Schouler<sup>3</sup>, Thomas Göbel<sup>1</sup>, Philippe Velge<sup>3</sup>, Sonja Härtle<sup>1</sup>, Bernd Kaspers<sup>1</sup>

<sup>1</sup>Department for Veterinary Sciences, Ludwig-Maximilians-Universität München, Munich, Germany;

<sup>2</sup>Institute of Virology, Freie Universität Berlin, Berlin, Germany; <sup>3</sup>INRAE Val de Loire, Nouzilly, France

**Dose-dependent interaction of lipopolysaccharide and lactobacilli-postbiotic on the transcriptome in HD11 cells**

Samuel C. G. Jansseune<sup>1,2,3</sup>, Fany Blanc<sup>2</sup>, Jürgen van Baal<sup>1</sup>, Aart Lammers<sup>4</sup>

<sup>1</sup>Animal Nutrition Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, the Netherlands;

<sup>2</sup>Université Paris-Saclay, INRAE, AgroParisTech, GABI, Jouy-en-Josas, France; <sup>3</sup>Ikena, Sautron, France; <sup>4</sup>Adaptation and Physiology Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, the Netherlands

**Pan-genome analysis of innate immune functions in a highly attenuated fowlpox vaccine strain reveals diverse immunomodulatory strategies**

Efstathios S Giotis<sup>1,2\*</sup>, Steven Laidlaw<sup>3</sup>, Jason Mercer<sup>4</sup>, Brian J Ferguson<sup>5</sup>, Michael A Skinner<sup>1</sup>

<sup>1</sup>Section of Virology, Imperial College London Faculty of Medicine, London, UK; <sup>2</sup>School of Life Sciences, University of Essex, Colchester, UK;

<sup>3</sup>Wellcome Centre for Human Genetics, University of Oxford, Oxford, UK; <sup>4</sup>Institute of Microbiology and Infection, University of Birmingham, Birmingham, UK; <sup>5</sup>Department of Pathology, University of Cambridge, Cambridge, UK

**Reduction in CD8<sup>+</sup> cells in spleen associated with viral presence in multiple organs in SPF chickens experimentally inoculated with the novel *Pegivirus alectoris***

Miguel Matos<sup>1</sup>, Sina Bagheri<sup>1</sup>, Markus Kranzler<sup>1</sup>, Dieter Liebhart<sup>1</sup>, Michael Hess<sup>1</sup>

<sup>1</sup>Clinical Centre for Population Medicine in Fish, Pig, and Poultry, Clinical Department for Farm Animals and Food System Science, University of Veterinary Medicine Vienna, Austria

**13.00 - 14.00 Lunch**

**14.00 - 15.00 Session III (Host-Pathogen Interactions III)**

**Changes in cellular immune response in lung and spleen coincidence with pathological lesions and organ colonization of broilers and layer type chickens following experimental infection with avian pathogenic *Escherichia coli***

Sina Bagheri<sup>1</sup>, Mohamed Kamal Abdelhamid<sup>1</sup>, Hammad Ur Rehman<sup>1</sup>, Ivana Bilic<sup>1</sup>, Surya Paudel<sup>2</sup>, Claudia Hess<sup>1</sup>, Michael Hess<sup>1</sup>, Dieter Liebhart<sup>1</sup>

<sup>1</sup>Clinical Centre for Population Medicine in Fish, Pig, and Poultry, Clinical Department for Farm Animals and Food System Science, University of Veterinary Medicine Vienna, Austria; <sup>2</sup>Department of Infectious Diseases and Public Health, Jockey Club College of Veterinary Medicine and Life Sciences, City University of Hong Kong

**Program: 17<sup>th</sup> Avian Immunology Research Group Meeting**

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**Tracheal transcriptional profiles of chickens vaccinated with the Vaxsafe MS live-attenuated vaccine following challenge with the virulent Australian *Mycoplasma synoviae* field strain 94011 V-18d**

Kanishka I. Kamathewatta<sup>1</sup>, Anna Kanci Condello<sup>1</sup>, Pollob K. Shil<sup>1</sup>, Amir H. Noormohammadi<sup>1</sup>, Kelly A. Tivendale<sup>1</sup>, Nadeeka K. Wawegama<sup>1</sup>, Glenn F. Browning<sup>1</sup>

<sup>1</sup>*Asia-Pacific Centre for Animal Health, Melbourne Veterinary School, Faculty of Science, The University of Melbourne, Parkville, Victoria, Australia*

**Inflammatory response to infection with pathogenic *Enterococcus cecorum***

Amanda Rosenbaum<sup>1</sup>, Silke Rautenschlein<sup>1</sup>, Arne Jung<sup>1</sup>

<sup>1</sup>*Clinic for Poultry, University of Veterinary Medicine Hannover, Foundation, Hannover, Germany*

**Using ancient DNA to understand host-pathogen interactions**

Steven Fiddaman<sup>1</sup>, Laurent Frantz<sup>3</sup>, Oliver Pybus<sup>1</sup>, Greger Larson<sup>2</sup>, Adrian L Smith<sup>1</sup>

<sup>1</sup>*Departments of Biology and <sup>2</sup>Archaeology, University of Oxford, UK; <sup>3</sup>Faculty of Veterinary Medicine, LMU, Munich, Germany*

**15.00 - 16.00 Coffee Break and Poster Session**

**18.00 - 19.00 Evening lecture at the banquet hall**

**How to soar with eagles when working with chickens**

Georg Wick<sup>1</sup>

<sup>1</sup>*Medical University of Innsbruck, Austria*

**19.00 Dinner at Vetmeduni**

**Thursday 19<sup>th</sup> of September**

**9.00 - 10.00 Keynote II**

**Songbird MHC – so similar, yet so different, to that of other birds**

Helena Westerdahl<sup>1</sup>

<sup>1</sup>*Lund University, Sweden*

**10.00 - 11.00 Session IV (MHC and Adaptive Immunity)**

**Promiscuous generalist and fastidious specialist MHC molecules in resistance to infectious pathogens**

Jim Kaufman<sup>1</sup>

<sup>1</sup>*Institute for Immunology and Infection Research, University of Edinburgh, United Kingdom*

**Probiotic-induced changes in microbial and host lipid metabolism energize immune cells**

Lauren Anderson<sup>1</sup>, Anne Ballou<sup>2</sup>, Natalie Roberts<sup>1</sup>, Matthew Koci<sup>1</sup>

<sup>1</sup>*Prestage Department of Poultry Science, North Carolina State University, Raleigh, NC, USA; <sup>2</sup>Iluma Alliance, Durham, NC, USA*

**Deciphering critical signals in early chicken B-cell development**

Milena Brunner<sup>1</sup>, Catarina L. C. T. Cavaleiro<sup>1</sup>, Tom V. L. Berghof<sup>1</sup>, Christine Wurmser<sup>2</sup>, Theresa von Heyl<sup>1</sup>, Benjamin Schusser<sup>1,3</sup>

<sup>1</sup> *Reproductive Biotechnology, TUM School of Life Sciences Weihenstephan, Technical University of Munich, Freising, Germany*; <sup>2</sup> *Division of Animal Physiology and Immunology, TUM School of Life Sciences Weihenstephan, Technical University of Munich, Freising, Germany*; <sup>3</sup> *Center for Infection Prevention (ZIP), Technical University of Munich, Freising, Germany*

**Characterization of mucosa associated chicken plasma cells**

Dominik von La Roche<sup>1</sup>, Sonja Härtle<sup>1</sup>

<sup>1</sup> *LMU Munich, Department of Veterinary Sciences, Immunology Working Group, Germany*

**11.00 - 11.30 Coffee Break and Poster Session**

**11.30 - 12.45 Session V (Evolutionary and Ecological Immunology)**

**Effects of prior pathogen exposure on inter-individual variability in immunity and disease in house finches**

Garrett-Larsen, J. N.<sup>1\*</sup>, Pérez-Umphrey<sup>1\*</sup>, A. A. Langwig<sup>1</sup>, K. E., Fleming-Davies<sup>2</sup>, A. E. & D. M. Hawley<sup>1</sup>

<sup>1</sup> *Department of Biological Sciences, Virginia Tech, Blacksburg, VA, USA*; <sup>2</sup> *Department of Biology, University of San Diego, San Diego, CA, USA* \*These authors contributed equally.

**Regulation of the house finch population-specific immune responses to an evolving pathogen, *Mycoplasma gallisepticum***

Michal Vinkler<sup>1\*</sup>, Amberleigh E. Henschen<sup>2</sup>, Nithya Kuttiyarthu Veetil<sup>1</sup>, Balraj Melepat<sup>1</sup>, Daniel Divín<sup>1</sup>, Dana M. Hawley<sup>3</sup>, Rami A. Dalloul<sup>4</sup>, James S. Adelman<sup>2\*</sup>

<sup>1</sup> *Charles University, Faculty of Science, Department of Zoology, Prague, Czech Republic*; <sup>2</sup> *University of Memphis, Department of Biological Sciences, Memphis, USA*; <sup>3</sup> *Virginia Tech, Department of Biological Sciences, Blacksburg, USA*; <sup>4</sup> *University of Georgia, Department of Poultry Science, Athens, USA* \*These authors contributed equally.

**Effects of early-life immune activation on behaviour in budgerigars (*Melopsittacus undulatus*)**

Marková K.<sup>1</sup>, Divín D.<sup>1</sup>, Voukali E.<sup>1</sup>, Melepat B.<sup>1</sup>, Těšický M.<sup>1</sup>, Veetil N. K.<sup>1</sup>, Li T.<sup>1</sup>, Szabó A.<sup>1</sup>, Exnerová A., Vinkler M.<sup>1</sup>

<sup>1</sup> *Department of Zoology, Faculty of Science, Charles University, Czech Republic*

**Different immune genes show variation in strength of positive selection: genomic approach in birds**

Martin Těšický<sup>1,2,3</sup>, Wieslaw Babik<sup>4</sup>, Jakub Kreisinger<sup>1</sup>, Seran Yıldız<sup>1</sup>, Laurent Frantz<sup>3</sup>, Tomáš Albrecht<sup>1,2</sup>, Michal Vinkler<sup>1</sup>

<sup>1</sup> *Charles University, Faculty of Science, Department of Zoology, Prague, Czech Republic*; <sup>2</sup> *Institute of Vertebrate Biology, v.v.i., The Czech Academy of Sciences, Brno, Czech Republic*; <sup>3</sup> *Ludwig Maximilian University of Munich, Faculty of Veterinary Medicine, Institute of Palaeoanatomy, Domestication Research and the History of Veterinary Medicine, Munich, Germany*; <sup>4</sup> *Institute of Environmental Sciences, Faculty of Biology, Jagiellonian University, Krakow, Poland*

**Omission of dietary P supplements affects immune cells numbers but not function in laying hens**

N. Wallauch<sup>1</sup>, S. Schmucker<sup>1</sup>, T. Hofmann<sup>1</sup>, V. Sommerfeld<sup>1</sup>, K. Huber<sup>1</sup>, M. Rodehutschord<sup>1</sup>, V. Stefanski<sup>1</sup>

<sup>1</sup>*Institute of Animal Science, University of Hohenheim, 70599 Stuttgart, Germany*

12.45 - 14.00 Lunch

**14.00 - 15.15 Session VI (Vaccines and Immunotherapy)**

**Cell mediated responses generated in chicken immunised with H9N2 avian influenza irradiated vaccine**

Richard Thiga Kangethe<sup>1</sup>, Alessio Bortolami<sup>2</sup>, Francesco Bonfante<sup>2</sup>, Giovanni Cattoli<sup>2</sup>, Viskam Wijewardana<sup>1</sup>

<sup>1</sup>*Animal Production and Health Laboratory, Department of Nuclear Sciences and Applications, Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture, International Atomic Energy Agency (IAEA), Vienna, Austria;* <sup>2</sup>*Department of Comparative Biomedical Sciences, Istituto Zooprofilattico Sperimentale delle Venezie, Legnaro, Italy*

**The French touch: feedback, challenges and prospects of vaccination against high pathogenicity influenza viruses in duck farming**

Sébastien Mathieu Soubies<sup>1</sup>, Mathilda Walch<sup>1</sup>, Clément Castille<sup>1</sup>, Laura Leboutteiller<sup>1</sup>, Guillaume Croville<sup>1</sup>, Jean-Luc Guérin<sup>1</sup>

<sup>1</sup>*IHAP, Université de Toulouse, INRAE, ENVT, Toulouse, France*

**Spatio-temporal distribution of HVT and innate immune responses following *in ovo* inoculation**

Emma Armstrong<sup>1</sup>, Kate Sutton<sup>1</sup>, Ad de Groof<sup>2</sup>, Jayne Hope<sup>1</sup>, Lonneke Vervelde<sup>1</sup>

<sup>1</sup>*The Roslin Institute, The University of Edinburgh, Easter Bush Campus, Midlothian, United Kingdom;* <sup>2</sup>*MSD-Animal Health, Boxmeer, Netherlands*

**Efficacy and tolerability of an mRNA vaccine expressing gB and pp38 antigens of Marek's disease virus in chickens**

Fatemeh (Darya) Fazel<sup>1</sup>, Nitish Boodhoo<sup>1</sup>, Ayumi Matsuyama-Kato<sup>1</sup>, Mohammadali Alizadeh<sup>1</sup>, Shayan Sharif<sup>1</sup>

<sup>1</sup>*Department of Pathobiology, Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada*

**Optimising *in ovo* Herpesvirus of turkey (HVT) - vectored vaccines: Defining the role of the HVT vNr-13 protein *in vitro* in chicken embryo fibroblasts and *in ovo* in late stage embryonic tissues**

Vishwanatha R. A. P. Reddy<sup>1</sup>, Weicheng Li<sup>2</sup>, Yaoyao Zhang<sup>2</sup>, Salik Nazki<sup>3,4</sup>, Andrew J. Broadbent<sup>2,5</sup>, Yongxiu Yao<sup>2</sup>, Venugopal Nair<sup>2,6,7</sup>

<sup>1</sup>*School of Life Sciences, Keele University, Keele, United Kingdom;* <sup>2</sup>*The Pirbright Institute, Woking, United Kingdom;* <sup>3</sup>*Pandemic Sciences Institute, Nuffield Department of Medicine, University of Oxford, Oxford, United Kingdom;* <sup>4</sup>*Chinese Academy of Medical Sciences Oxford Institute, Nuffield Department of Medicine, University of Oxford, Oxford, United Kingdom;* <sup>5</sup>*Department of Animal and Avian Sciences, University of Maryland, United States of America;* <sup>6</sup>*Jenner Institute, University of Oxford, Oxford, United Kingdom;* <sup>7</sup>*Department of Biology, University of Oxford, Oxford, United Kingdom*

15.15 - 16.00 Coffee Break and Poster Session

19.00 Conference Dinner in Vienna

## Friday 20<sup>th</sup> of September

9.00 - 10.00 Keynote III

**How much diversity is in your breakfast egg? Local breed or high-performance chickens: who is more immunologically competent?**

Steffen Weigend<sup>1</sup> and Ulrike Blohm<sup>2</sup>

<sup>1</sup>*Friedrich Loeffler Institut, Institute of Farm Animal Genetics, Neustadt-Mariensee, Germany;*

<sup>2</sup>*Friedrich Loeffler Institut, Institute of Immunology, Greifswald – Insel Riems, Germany*

10.00 - 10.30 Session VII (Immunogenetics)

**From feather pecking to immunity: immune differences in a line selected for high and low feather pecking**

Tanja Hofmann<sup>1</sup>, Sonja Schmucker<sup>1</sup>, Volker Stefanski<sup>1</sup>

<sup>1</sup>*Behavioral Physiology of Livestock, Institute of Animal Science, University of Hohenheim, Stuttgart, Germany*

**Characterizing expression profiles of turkey immune cell populations within peripheral blood using single-cell transcriptomics**

Melissa S. Monson<sup>1</sup>, Sharu Paul Sharma<sup>2</sup>, Kristen A. Byrne<sup>1</sup>, and Crystal L. Loving<sup>1</sup>

<sup>1</sup>*USDA, ARS, National Animal Disease Center, Food Safety and Enteric Pathogens Research Unit, Ames, IA, USA;* <sup>2</sup>*Iowa State University, Office of Biotechnology, Genome Informatics Facility, Ames, IA, USA*

10.30 - 11.00 Coffee Break and Poster Session

11.00 - 12.00 Session VIII (Innate Immunity)

**Aberrant innate immune function in UCD200/206 scleroderma-prone chickens**

Gisela F. Erf<sup>1</sup>, Chrysta N. Beck<sup>1</sup>, Jossie M. Santamaria<sup>1</sup>, Angeline Rodriguez<sup>1</sup>, Katee Johnson<sup>1</sup>, Allie Bowerman<sup>1</sup>

<sup>1</sup>*University of Arkansas System Division of Agriculture, Department of Poultry Science, Fayetteville, Arkansas, USA*

**Developing cell based assays to study trained immunity in chicken NK cells**

Daphne van Haarlem<sup>1</sup>, Claudia van Hal<sup>1</sup>, Christine Jansen<sup>1</sup>

<sup>1</sup>*Cell Biology & Immunology group, Department of Animal Sciences, Wageningen University & Research, Wageningen, The Netherlands*

**Characterization of nucleotide-binding oligomerization domain (NOD)-like receptor protein 3 (NLRP3) in chickens and its role in Marek's disease**

Janan Shoja Doost<sup>1</sup>, Nitish Boodhoo<sup>1</sup>, Shayan Sharif<sup>1</sup>

<sup>1</sup>*Department of Pathobiology, University of Guelph, Ontario, Canada*

## Program: 17<sup>th</sup> Avian Immunology Research Group Meeting

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### **Avian interferon regulatory factors (almost) resolved**

Lenka Ungrová<sup>1</sup>, Jiří Nehyba<sup>1</sup>, Veronika Krchlíková<sup>2</sup>, Tomáš Hron<sup>1</sup>, Bernd Kaspers<sup>3</sup>, Josef Geryk<sup>1</sup>, Jiří Hejnar<sup>1</sup>, Daniel Elleder<sup>1</sup>

<sup>1</sup>*Institute of Molecular Genetics of the Czech Academy of Sciences, Prague, Czech Republic;* <sup>2</sup>*Institute for Medical Virology and Epidemiology of Viral Diseases, Tuebingen, German;* <sup>3</sup>*Department of Veterinary Science, Faculty of Veterinary Medicine at the Ludwig-Maximilians-University, Planegg/Martinsried, Germany*

**12.00 - 12.30 Coffee Break and Poster Session**

**12.30 Business Meeting and conference closing**



## Poster

### **Dietary fiber supplementation and *Campylobacter jejuni* effects the cellular immune response in the cecum of broiler chickens**

Sina Bagheri<sup>1</sup>, Motuma Debelo<sup>1</sup>, Dieter Liebhart<sup>1</sup>, Claudia Hess<sup>1</sup>, Michael Hess<sup>1</sup>, Wageha Awad<sup>1</sup>

<sup>1</sup>*Clinical Centre for Population Medicine in Fish, Pig and Poultry, Clinical Department for Farm Animals and Food System Science, University of Veterinary Medicine, Vienna, Austria*

### **Absolute cell count highlights the importance of CD4<sup>+</sup> and CD8<sup>+</sup> T cells against hepatitis-hydropericardium syndrome (HHS) challenge after vaccination with a fowl adenovirus (FAdV) chimeric fiber protein**

Carlotta De Luca<sup>1,2</sup>, Anna Schachner<sup>2</sup>, Michael Hess<sup>1,2</sup>, Dieter Liebhart<sup>1</sup>, Taniya Mitra<sup>1</sup>

<sup>1</sup>*Clinical Centre for Population Medicine in Fish, Pig and Poultry, Clinical Department for Farm Animals and Food System Science, University of Veterinary Medicine, Vienna, Austria;* <sup>2</sup>*Christian Doppler Laboratory for Innovative Poultry Vaccines (IPOV), University of Veterinary Medicine, Vienna, Austria*

### **Characterization of a novel chicken $\gamma\delta$ TCR specific marker**

Veronika Drexel<sup>1</sup>, Simon Früh<sup>1,2</sup>, Thomas Göbel<sup>1</sup>

<sup>1</sup>*Department of Veterinary Immunology, LMU Munich, Germany;* <sup>2</sup>*Department of Veterinary Medicine, Institute of Virology, FU Berlin, Germany*

### ***In vitro* immunoregulatory potential of *A.galli* excretory/secretory products**

Feix, AS<sup>1</sup>, Kjærup, RB<sup>1</sup>, Premathilaka, C<sup>2</sup>, Kodithuwakku, S<sup>2</sup>, Fazeli, A<sup>2</sup>, Dalgaard, TS<sup>1</sup>

<sup>1</sup>*Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark;* <sup>2</sup>*ERA Chair COMBIVET, Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Science, Tartu, Estonia*

### **Comparative immune competence analysis of three local chicken breeds**

Luise Freier<sup>1</sup>, Inga Tiemann<sup>2</sup>, Josefine Stuff<sup>2</sup>, Steffen Weigend<sup>3</sup>, Maryna Kuryshko<sup>4</sup>, Elsayed M. Abdelwhab<sup>4</sup>, Christian Grund<sup>5</sup>, Ulrike Blohm<sup>1</sup>

<sup>1</sup>*Friedrich Loeffler Institut, Institute of Immunology, Greifswald – Insel Riems, Germany;* <sup>2</sup>*Institute of Agricultural Engineering, University of Bonn, Germany;* <sup>3</sup>*Friedrich Loeffler Institut, Institute of Farm Animal Genetics, Neustadt-Mariensee, Germany;* <sup>4</sup>*Friedrich Loeffler Institut, Institute of Molecular Virology and Cell Biology, Greifswald – Insel Riems, Germany;* <sup>5</sup>*Friedrich Loeffler Institut, Institute of Diagnostic Virology, Greifswald – Insel Riems, Germany*

### **From B cells to T cells – identification of IBDV specific T helper cells by using immunopeptidomics**

Samer Halabi<sup>1</sup>, Michael Ghosh<sup>2</sup>, Maria Danysz<sup>1</sup>, Stefan Stevanović<sup>2</sup>, Hans-Georg Rammensee<sup>2</sup>, Jim Kaufman<sup>1</sup>, Sonja Härtle<sup>3</sup>

<sup>1</sup>*Institute for Immunology and Infection Research, University of Edinburgh, Edinburgh, United Kingdom;* <sup>2</sup>*Department of Immunology, Institute of Cell Biology, University of Tübingen, Tübingen, Germany;* <sup>3</sup>*Department of Veterinary Sciences, LMU Munich, Planegg, Germany*

### **Inhibition of Marek's disease virus replication and spread by 25-hydroxycholesterol and 27-hydroxycholesterol *in vitro***

Nitin Kamble<sup>1</sup>, Vishwanatha R. A. P. Reddy<sup>1,2</sup>, Ben Jackson<sup>1</sup>, Faisal R. Anjum<sup>1,3</sup>, Chidiebere C. Ubachukwu<sup>1</sup>, Ajit Patil<sup>1</sup>, Shahriar Behboudi<sup>1,3</sup>

<sup>1</sup>*The Pirbright Institute, Ash Road, Woking, United Kingdom;* <sup>2</sup>*School of Life Sciences, Keele University, Keele, United Kingdom;* <sup>3</sup>*Bristol Veterinary School, University of Bristol, Bristol, United Kingdom*

**Systemic immunomodulatory effects of phytogetic feed additives in *Ascaridia galli* infected layers**

Kjærup, RB<sup>1</sup>, Feix, A<sup>1</sup>, Thamsborg, SM<sup>2</sup>, Rotovnik, R<sup>2</sup>, Mejer, H<sup>2</sup>, Permin, A<sup>3</sup>, Dalgaard, TS<sup>1</sup>  
<sup>1</sup>Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark; <sup>2</sup>Department of Veterinary and Animal Sciences, University of Copenhagen, Denmark; <sup>3</sup>Værløse Dyreklinik IVS, Denmark and Unibrains IVS, Denmark

**Immunomodulatory effects of *Bacillus subtilis* DSM 32315 and *Bacillus velezensis* CECT 5940 on chicken peripheral blood mononuclear cells**

F. Larsberg<sup>1,2</sup>, M. Spreichert<sup>2</sup>, D. Hesse<sup>2</sup>, G. Loh<sup>3</sup>, G.A. Brockmann<sup>2</sup>, S. Kreuzer-Redmer<sup>1</sup>  
<sup>1</sup>Vetmeduni Vienna, Centre for Animal Nutrition and Animal Welfare Sciences, Vienna Austria; <sup>2</sup>Humboldt-Universität zu Berlin, Albrecht Daniel Thaer-Institute, Breeding Biology and Molecular Genetics, Berlin Germany; <sup>3</sup>Evonik Operations GmbH – Research, Development & Innovation Nutrition & Care, Hamburg, Germany

**Towards flow cytometric profiling of zebra finch leukocytes**

Balraj Melepat<sup>1</sup>, Karsten Skjødt<sup>2</sup>, Tina Sørensen Dalgaard<sup>3</sup>, Michal Vinkler<sup>1</sup>  
<sup>1</sup>Charles University, Faculty of Science, Department of Zoology, Prague, Czech Republic; <sup>2</sup>University of Southern Denmark, Department of Molecular Medicine, Odense, Denmark; <sup>3</sup>Aarhus University, Department of Animal and Veterinary Sciences, Blichers Allé, Denmark

***Escherichia coli* vaccination and chitin feed supplementation as alternative methods to control *Ascaridia galli* infection in chickens**

Moosavi, M<sup>1,2</sup>, Kjærup, RB<sup>1</sup>, Watrang, E<sup>3</sup>, Dalgaard, TS<sup>1</sup>  
<sup>1</sup>Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark; <sup>2</sup>Department of Poultry Science at Tarbiat Modares University, Tehran, Iran; <sup>3</sup>Department of Microbiology, Swedish Veterinary Agency, Uppsala, Sweden

**Characterization of regulatory T cells in chickens**

Isabell Naumann<sup>1</sup>, Bernd Kaspers<sup>1</sup>, Simon Früh<sup>1,2</sup>, Thomas Göbel<sup>1</sup>, Sonja Härtle<sup>1</sup>  
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**A class II system strongly expressed in intestinal epithelial cells after helminth worm infection**

Aimee Parker<sup>1</sup>, Tina Dalgaard<sup>2</sup>, Jim Kaufman<sup>3</sup>  
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***In vitro* assessment of immunogenicity and metabolic activity of different gamma-irradiated *Escherichia coli* strains**

Hammad Ur Rehman<sup>1</sup>, Sina Bagheri<sup>1</sup>, Mohamed Kamal Abdelhamid<sup>1</sup>, Surya Paudel<sup>2</sup>, Viskam Wijewardana<sup>3</sup>, Claudia Hess<sup>1</sup>, Michael Hess<sup>1</sup>, Dieter Liebhart<sup>1</sup>  
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**Antigenic cartography analysis of chimeric recombinant IBDV strains can be used to identify hypervariable region mutations that induce broadly cross-neutralizing antibody responses against diverse strains**

Vishwanatha RAP Reddy<sup>1,2</sup>, Sofia Egana-Labrin<sup>3</sup>, Salik Nazki<sup>1,4</sup>, Andrew Broadbent<sup>1,3</sup>

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**Suppressive effects of cyclic, environmental heat stress on the local and systemic acute inflammatory responses to lipopolysaccharide and on the circulating levels of lymphocytes in broiler chickens**

Alessandro J. Rocchi<sup>1</sup>, Jossie M. Santamaria<sup>1</sup>, Chrysta N. Beck<sup>1</sup>, Gisela F. Erf<sup>1</sup>

<sup>1</sup>University of Arkansas System Division of Agriculture, Department of Poultry Science, Fayetteville, Arkansas, USA

**Development of an intestinal inflammation model in poultry to apply new solutions modulating innate immunity**

J. Schmeisser<sup>1</sup>, R. Aureli<sup>1</sup>, C. Chatelle<sup>1</sup>, P. Jenn<sup>1</sup>, C. Iaconis<sup>1</sup>, E. Bacou<sup>1</sup>, A. Leduc<sup>1</sup>

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**Tenascin-C regulates B-cell migration in developing avian bursa of Fabricius**

Ádám Soós<sup>1</sup>, Emőke Szöcs<sup>1</sup>, Viktória Halasy<sup>1</sup>, Nándor Nagy<sup>1</sup>

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**Conventional dendritic cells limit infectious bronchitis virus in chicken lung**

Samantha Sives<sup>1</sup>, Emma Armstrong<sup>1</sup>, Dominika Borowska<sup>1</sup>, Zhiuguang Wu<sup>1</sup>, Adam Balic<sup>2,3</sup>, Kate Sutton<sup>1</sup>

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**Characterization and ontogeny of a novel lymphoid follicle inducer cell during development of the bursa of Fabricius**

Emőke Szöcs<sup>1</sup>, Adam Balic<sup>2,3</sup>, Ádám Soós<sup>1</sup>, Viktória Halasy<sup>1</sup>, Nandor Nagy<sup>1</sup>

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**Immune response of  $\gamma\delta$  T cell knockout chickens after *Salmonella enterica* serovar Enteritidis infection**

Felix Tetzlaff<sup>1</sup>, Ulrich Methner<sup>2</sup>, Benjamin Schusser<sup>3</sup>, Christian Menge<sup>1</sup>, Angela Berndt<sup>1</sup>

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**The knockout of  $\alpha\beta$  T cells causes severe cytotoxic reactions in chicken – new insights into the functions of T cell subpopulations**

Theresa von Heyl<sup>1</sup>, Romina Klinger<sup>1</sup>, Dorothea Aumann<sup>1</sup>, Christian Zenner<sup>1</sup>, Mohammed Alhussien<sup>1</sup>, Antonina Schlickerrieder<sup>1</sup>, Kamila Lengyel<sup>1</sup>, Hanna-Kaisa Vikkula<sup>1</sup>, Teresa Mittermair<sup>1</sup>, Hicham Sid<sup>1</sup>, Benjamin Schusser<sup>1,2\*</sup>

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<sup>2</sup>*Center for Infection Prevention (ZIP), Technical University of Munich, Freising, Germany*

**Detection and enumeration of *Eimeria tenella*-specific IFN- $\gamma$  producing spleen cells and PBMC by ELISpot**

Eva Wattrang<sup>1</sup>, Osama Ibrahim<sup>1</sup>, Anna Lundén<sup>1</sup>

<sup>1</sup>*Department of Microbiology, Swedish Veterinary Agency, Uppsala, Sweden*

**Immune responses of chickens against recombinant *Salmonella enterica* serotype *Infantis* flagellar and fimbrial proteins**

Hung-Yueh Yeh<sup>1</sup>, Jonathan G. Frye<sup>1</sup>, Charlene R. Jackson<sup>1</sup>

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