Department of Pathology and Pathogen Biology
Royal Veterinary College, London, UK

4th International Symposium

on

Parasite Infections in Poultry

28th – 29th June 2019

to be held at:

University of Veterinary Medicine
Veterinärplatz 1
1210-Vienna, Austria
(http://www.vetmeduni.ac.at/International-Symposium-Parasite-Infections-Poultry-2016/)

Clinic for Poultry and Fish Medicine
University of Veterinary Medicine,Vienna,Austria

Friday 28th of June

8.00 **Registration**

9.00 **Welcome and opening**
(O. Doblhoff, F.M. Tomley and M. Hess)

9.15 - 09.50 Keynote I

Progress towards vaccination against poultry red mite (*Dermanyssus gallinae*)

Nunn, F.[a], Bartley, K.[a], Küster, T.[b], Price, D.[a], Burgess, S.[a], Øines, Ø.[c], Blake D.P.[b], Tomley, F.[b] and Nisbet, A.[a].

([a]Moredun Research Institute, Penicuik, UK; [b]Pathology and Pathogen Biology, Royal Veterinary College, North Mymms, UK; [c]Norwegian Veterinary Institute, Oslo, Norway)

09.50 - 10.02 Short Oral Poster Presentations

Combination of a new experimental approach and a mathematical model for a more realistic description of population dynamics of *Dermanyssus gallinae*

Roy, L.[a], Zriki, G.[a], Blatrix, R.[a], Gimenez, O.[a], Dijoux, J.[a], Dadu, L.[a], Soulié, A.S.[a], Chiron, G.[b], Sleeckx, N.[c] and Bicout, D.J.[d]

([a]CEFE, University Paul Valéry Montpellier 3, CNRS, EPHE, IRD, Montpellier, France; [b]Technical Poultry Institute, Lyon, France; [c]Experimental Poultry Centre, Geel, Belgium; [d]Biomathematics and Epidemiology EPSP, TIMC Laboratory, UMR CNRS 5525 Grenoble Alpes University, VetAgro Sup, Marcy l'Etoile, France)

Current situation of *Dermanyssus gallinae* and control methods in Ankara, Turkey

Koc, N. and Nalbantoglu, A.S.

(Faculty of Veterinary Medicine, Department of Parasitology, Ankara University, Turkey)

Transcriptome analysis in blood-fed and starved poultry red mites, *Dermanyssus gallinae*

Fujisawa, S.[a], Murata, S.[a,b], Takehara, M.[a], Isezaki, M.[a], Ogawa, R.[c], Uno, Y.[c], Taneno, A.[c], Okagawa, T.[b], Maekawa, N.[b], Konnai, S.[a,b] and Ohashi, K.[a,b]

([a]Department of Disease Control and [b]Department of Advanced Pharmaceutics, Faculty of Veterinary Medicine, Hokkaido University, Japan; [c]Vaxxinova Japan K.K., Japan)

Mapping the genetic diversity of *Dermanyssus gallinae* onto a European framework utilising the cytochrome c oxidase subunit I (COI) gene

Karp-Tatham, E.[a], Kuester, T.[b], Angelou, A.[c], Papadopoulos, E.[c], Nisbet, A.J.[d], Xia, D.[a], Tomley, F.[a] and Blake, D.P.[a]

([a]Pathobiology and Population Sciences, Royal Veterinary College, Hatfield, UK; [b]University of Bern, Switzerland; [c]Laboratory of Parasitology and Parasitic Diseases, School of Veterinary Medicine, Aristotle University of Thessaloniki, Greece; [d]Vaccines, Moredun Research Institute, Penicuik, UK)

10.02 - 10.45 Coffee Break and Poster Session

10.45 - 11.45 Red mite Session I

An example of national control *Dermanyssus gallinae*

Pavličević, A.[a], Ratajac, R.[b], Stojanov, I.[b] and Pavlović, I.[c]

([a]AVES MIT" LLC, Cluster "Dermanyssus gallinae", Subotica-Bajmok, Serbia; [b]Scientific Veterinary Institute „Novi Sad", Novi Sad, Serbia; [c]Scientific Veterinary Institute of Serbia, Belgrade, Serbia)

Assessing biological control of *Dermanyssus gallinae* by single and multiple predatory mite species via individual- and population-level experiments

Zriki, G.[a], Blatrix, R.[a], Dijoux, J.[a], Tallon, D.[a], Dadu, L.[a], Soulié, A.S.[a], Chiron, G.[b], Sleeckx, N.[c] and Roy, L.[a]

([a]CEFE, University Paul Valéry Montpellier 3, CNRS, University Montpellier, EPHE, IRD, Montpellier, France; [b]Technical Poultry Institute, Lyon, France; [c]Experimental Poultry Centre, Geel, Belgium)

Cysteine protease and ferritin 2 as vaccine antigens to control poultry red mites, *Dermanyssus gallinae*

Murata, S.[a,b], Isezaki, M.[a], Taniguchi, A.[a], Fujisawa, S.[a], Taneno, A.[c], Sakai, E.[c], Uno, Y.[c], Ogawa, R.[c], Ichii, O.[d], Ito, T.[e], Takehara, M.[a], Morita, A.[a], Maekawa, N.[b], Okagawa, T.[b], Konnai, S.[a,b] and Ohashi, K.[a,b]

([a]Department of Disease Control, [b]Department of Advanced Pharmaceutics, and [d]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine, Hokkaido University, Japan; [c]Vaxxinova Japan K.K., Japan; [e]Hokkaido Institute of Public Health, Japan)

11.45 – 13.00 Lunch

13.00 - 14.00 Red mite Session II

The poultry red mite *Dermanyssus gallinae*: a certified vector of fowl typhoid

Cocciolo, G.[a], Circella, E.[a], Pugliese, N.[a], Felice, V.[b], Mescolini, G.[b], Zoller, H.[c], Borchert-Stuhlträger, M.[c], Thomas, E.[c] and Camarda, A.[a]

([a]Department of Veterinary Medicine, University of Bari Aldo Moro, Italy; [b]Department of Veterinary Medical Sciences, University of Bologna, Italy; [c]MSD Animal Health Innovation GmbH, Germany)

Fipronil in Dutch laying hens: working towards solutions

Ter Veen, C.[a], Van Eerden, E.[b], Swart, W.A.[a], Wiegel, J.[a], Kense, M.[a], Bouwstra, R.[a] and Counotte, G.H.M.[a]

([a]GD Animal Health, Deventer, The Netherlands; [b]Schothorst Feed Research, Lelystad, The Netherlands)

Effect of fluralaner on behavioural and stress indicators in laying hens infested with *Dermanyssus gallinae*

Thomas, E.[a], Temple, D.[b] and Petersen, I.[a]

([a]MSD Animal Health Innovation GmbH, Schwabenheim, Germany; [b]School of Veterinary Medicine, Universitat Autonoma de Barcelona, Bellaterra, Spain)

14.00 - 14.35 Keynote II

Vaccine development for coccidiosis: pricing, efficacy and productivity in intensive broiler systems

Gilbert, W.[a], Bellet, C.[a], Tomley, F.M.[b], Blake, D.P.[b], and Rushton, J.[a]

([a]University of Liverpool, UK; [b]Royal Veterinary College, UK)

14.35 - 14.41 Short Oral Poster Presentations

Local changes in the intestinal mucosa after vaccination against *Eimeria*

Brylina, M.

(Veterinary Parasitology Department, Moscow State Veterinary Academy named after K.I. Skrjabin, Russia)

Apple cider vinegar and green tea are not effective against a mixed challenge of chickens with *Eimeria* spp. but influence the intestinal microbiota after challenge with *Eimeria* spp.

Hauck, R.[a,b], Hamilton, M.[a,b] , Wang, X.[b], McCrea, B.A.[c], Carrisosa, M.[a] and Macklin, K.S.[a]

([a]Department of Poultry Science, College of Agriculture and [b]Department of Pathobiology, College of Veterinary Medicine, Auburn University, USA; [c]Alabama Cooperative Extension System, Auburn, USA)

14.41 - 15.20 Coffee Break

15.20 - 17.00 Eimeria Session

The value of Elanco's Health Tracking System in broiler production

Reinhoudt, D.

(Elanco Animal Health, Utrecht, The Netherlands)

Transmission of resident and challenge *Eimeria* strains between pens in broiler experiments

Velkers, F.C.[a], Kers, J.G.[a], Spaninks, M.[a], Ter Veen, C.[b], Smidt, H.[c] and Stegeman J.A.[a]

([a]Department of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, the Netherlands; [b]GD Animal Health, Deventer, The Netherlands; [c]Laboratory of Microbiology, Wageningen University & Research, Wageningen, The Netherlands)

Eimeria populations and interactions with the enteric microbiota

Blake, D.P.[a], Macdonald S.[a], Hinsu, A.T.[b], Koringa, P.G.[b], Thakkar, J.R.[b], Jakhesara, S.J.[b], Nolan, M.J.[a], Psifidi, A.[a], Tomley, F.M.[a], Stabler, R.A.[c], Rank, D.N.[b], Raman, M.[d] and Joshi, C.G.[b]

([a]Pathobiology and Population Sciences, The Royal Veterinary College, Hatfield, Hertfordshire, UK; [b]College of Veterinary Science and Animal Husbandry, Anand Agricultural University, India; [c]London School of Hygiene and Tropical Medicine, London, UK; [d]Translational Research Platform for Veterinary Biologicals, Tamil Nadu Veterinary and Animal Sciences University, India)

Experimental clues on oocyst micropyle changes of *Eimeria acervulina* suggesting a fertilization step at oocyst level

Reperant, J.-M., Thomas-Henaff, M., Benoit, C., Le Bihannic, P. and Grasland, B.

(Anses (French Agency for Food, Environmental and Occupational Health and Safety), Laboratory of Ploufragan-Plouzané-Niort, Zoopôle, Ploufragan, France)

Quantitative analysis of poultry macrophage phagocytosis during co-infection by the apicomplexan parasites *Toxoplasma gondii* and *Eimeria tenella*

Zhang, R.[a], Daugschies, A.[a], Bangoura B.[b]

([a]Institute of Parasitology, Leipzig University, Leipzig, Germany; [b]Department of Veterinary Sciences, University of Wyoming, Laramie, USA)

19.30 Symposium Dinner at the Haus der Musik (Sound Museum)

(www.hausdermusik.com)

Saturday 29th of June

09.00 - 09.35 Keynote III

Current Status of Blackhead Disease (Histomoniasis) in U.S. Poultry

Clark, S.[a] and Wakeman, W.[b]

([a]Devenish Nutrition, LLC, Fairmont, Minnesota, USA; [b]Anpario Plc, Worksop, UK)

09.35 – 10.35 Histomonas Session I

Evolution of blackhead outbreaks in France

Turblin, V.[a] and Pinson, M.[b]

([a]MC VET Conseil, Réseau Cristal, Sablé-sur-Sarthe, France; [b]LABOVET Conseil, Réseau Cristal, Les Herbiers, France)

Blackhead Disease in Germany: problems and possibilities in turkey husbandry from the perspective of poultry veterinarians

Casteel E.

(RWS Agrarveredelung, Cloppenburg, Germany)

***Histomonas meleagridis* infections in chickens, the situation in Belgium**

Van Limbergen, T.

*(*PEHESTAT *bvba, Belgium)*

10.35 - 10.41 Short Oral Poster Presentations

Encapsulated organic acids are effective at controlling *Histomonas* growth *in vitro*

Wealleans, A.L.[a], Pollock, K.V.[b], Chadwick, E.[c], Beckstead, R.[c] and Thijs, L.[a]

([a]Kemin, Europa NV, Herentals Belgium; [b]Kemin Industries, Des Moines, USA; [c]North Carolina State University, Raleigh, USA)

Histomonas meleagridis-specific T-cell response in chickens and turkeys

Lagler, L.[a,b], Schmidt, S.[a], Mitra, T.[b], Pierron, A.[a], Vatzia, E.[a], Milburn, J.[a], van Dongen, K.[a], Stas, M.[c], Villanueva-Hernandez, S.[a], Stadler, M.[a], Wernsdorf, P.[b], Hatfaludi, T.[b], Liebhart, D.[b] and Gerner, W.[a]

*([a]Institute of Immunology, University of Veterinary Medicine, Vienna, Austria; [b]Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; [c]*Clinic for Swine, University *of Veterinary Medicine, Vienna, Austria)*

The impact of attenuated and virulent *Histomonas* on the innate immune response of chickens and turkeys

Mitra, T.[a], Bramberger, B.[a], Hess, M.[a,b] and Liebhart, D.[a]

([a]Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; [b]Christian Doppler Laboratory for Innovative Poultry Vaccines (IPOV), Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

10.41 - 11.20 Coffee Break and Poster Session

11.20 - 12.20 Histomonas Session II

Full genome sequence of virulent and *in vitro* attenuated *Histomonas meleagridis*

Bilic, I.[a], Palmieri, N.[a], Jaskulska, B.[a] and Hess, M.[a,b]

([a]Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; [b]Christian Doppler Laboratory for Innovative Poultry Vaccines (IPOV), Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

Combating *Histomonas meleagridis* using novel antimicrobial peptides derived from microbiomes

Pickup, J., Oyama, L., Nixey, C. and Huws, S.

(Queens University Belfast, UK)

Histomonas meleagridis favors the caecal colonization of *Escherichia coli* in chickens determined experimentally

Paudel, S.[a], Hamid, M.[a], Hatfaludi, T.[a], Rezaee, M.[a], Liebhart, D.[a], Hess, C.[a] and Hess, M.[a,b]

([a]Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; [b]Christian Doppler Laboratory for Innovative Poultry Vaccines (IPOV), Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

12.20 – 13.30 Lunch

13.30 - 14.05 Keynote IV

Present and future trends of coccidiosis control in turkeys

Dehaeck, B., De Gussem, K., Marien, M. and Vereecken, M.

(Huvepharma NV, Antwerp, Belgium)

14.05 - 14.40 Keynote V

New insights into host-parasite interactions in a chicken-nematode system

Das, G.

(Institute of Nutritional Physiology 'Oskar Kellner', Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany)

14.40 - 15.40 Nematode Session

Control of *Capillaria* infestation with fenbendazole in chickens via drinking water treatment in combination with zero-day egg withdrawal

Koopman, R.

(MSD Animal Health, Boxmeer, Netherlands)

Prevalence of parasites in backyard chicken flocks in Alabama, USA

Carrisosa, M.[a], McCrea, B.A.[c], Macklin, K.S.[a], Dormitorio, T.[a] and Hauck, R.[a,b]

([a]Department of Poultry Science, College of Agriculture and [b]Department of Pathobiology, College of Veterinary Medicine, Auburn University, USA; [c]Alabama Cooperative Extension System, Auburn, USA)

Prevalence of intestinal helminthes in layers kept in alternative husbandry system: influence of housing and age of birds

Zloch, A.[a], Kuchling, S.[b], Hess, M.[a] and Hess C.[a]

([a]Clinic for Poultry and Fish Medicine, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Austria, [b]Austrian Agency for Health and Food Safety (AGES), Division for Data, Statistics and Risk Assessment, Graz, Austria)

15:40 Concluding Remarks

15.45 End of the Symposium

Additional Posters

Red Mite

Consequences of a low infestation by *Dermanyssus gallinae* on layer hen performance

Cariou, N. and Daluzeau, L.

(MSD Animal Health, Beaucouzé, France)

MITECONTROL: Developing Integrated Pest Management (IPM) strategies to control poultry red mite infestations in laying houses

Decru, E[a]., Chiron, G.[b], Norton T.[c], Roy, L.[d], Vargas Navarro, A.[e], Walton, J.[f], & Sleeckx, N.[a]

([a]Experimental Poultry Centre, Geel, Belgium; [b]Technical Poultry Institute, Paris, France; [c]Research and Development, University of Leuven, Belgium; [d]CEFE CNRS, University Montpellier, France; [e]Koppert Biological Systems, Berkel & Rodenrijs, The Netherlands; [f]RSK ADAS, Bristol, UK)

Improving PRM control by implementation of IPM in practice with the Interreg NWE MiteControl project

Decru, E[a]., Chiron, G.[b], Norton T.[c], Roy, L.[d], Vargas Navarro, A.[e], Walton, J.[f], & Sleeckx, N.[a]

([a]Experimental Poultry Centre, Geel, Belgium; [b]Technical Poultry Institute, Paris, France; [c]Research and Development, University of Leuven, Belgium; [d]CEFE CNRS, University Montpellier, France; [e]Koppert Biological Systems, Berkel & Rodenrijs, The Netherlands; [f]RSK ADAS, Bristol, UK)

Enhancing efficiency and sustainability at controlling poultry red mites in laying hens

De Herdt, P., Van Hoye, K. and Van Gorp, S.

(MSD Animal Health, Brussels, Belgium)

The prevalence of *Dermanyssus gallinae* (Poultry Red Mite) on poultry farms in The Netherlands, based on monitoring data with AviVet® Red Mite traps

Lammers, G.A.[a], Bavinck V.[a] and van Dijk-Pecher F.[b]

([a]AviVet BV, Lunteren, The Netherlands; [b]MSD Animal Health, Boxmeer, The Netherlands)

The possible side-effect of two different drinking water additives on the control of *Dermanyssus gallinae*

Mul, M.F., Binnendijk, G.P., van Riel, J.W. and van Wikselaar, P.G.

(Wageningen Live Stock Research, University Wageningen, The Netherlands)

A case of red mite infestation in a laying hen farm, treated with fluralaner Exzolt ® and followed by hematological and biochemistrical analysis

Sauvaget, S. and Mauvisseau, T.

(Labovet Conseil, Les Essarts, France)

Eimeria and Coccidiosis

A multi-omic approach to improve annotation of the *Eimeria tenella* genome

Attree, E. [a], Gundogdu, O.[b], Blake, D.[a], Tomley, F.[a] and Xia, D.[a]

([a]Pathobiology and Population Sciences, The Royal Veterinary College, Hatfield, UK; [b]Faculty of Infectious & Tropical Diseases, London School of Hygiene & Tropical Medicine, London, UK)

Cytokine expression in poultry heterophils during in-vitro confrontation with *Eimeria tenella* sporozoites

Rentería-Solís, Z.

(Institute for Parasitology, Faculty of Veterinary Medicine, University of Leipzig, Leipzig, Germany)

Histomonas meleagridis and blackhead

Surveillance of histomonosis in Austrian turkey flocks following numerous fatal outbreaks

Liebhart, D.[a], Sulejmanovic, T.[a], Bilic, I.[a], Eigner, M.[b], Schliessnig, H.[b] and Hess, M.[a]

([a]Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; [b]Austrian Poultry Health Service)

In silico comparison of metabolic pathways between *Histomonas meleagridis* and closely related parasitic parabasalids with different hosts.

Palmieri, N., Bilic, I. and Hess, M.

(Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

Identification of *Histomonas meleagridis* surface proteins

Ramires, M., Hess, M. and Bilic, I.

(Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

PCR and serology confirm the infection of turkey hens and their resilience to histomonosis in mixed flocks following high mortalities in toms

Sulejmanovic, T., Grafl, B., Bilic, I., Jaskulska, B. and Hess, M.

(Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

Excretion of *Histomonas meleagridis* following experimental co-infection of different genotypes of commercial chickens with *Heterakis gallinarum* and *Ascaridia galli*

Wachter, L.[a], Daş, G.[b], Bilic, I.[a], Grafl[1], B., Hess, M.[a,c] and Liebhart, D.[a]

([a]Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; [b]Institute of Nutritional Physiology 'Oskar Kellner', Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany; [b]Christian Doppler Laboratory for Innovative Poultry Vaccines (IPOV), Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria)

Nematodes

Response of a dual-purpose chicken genotype to mixed-nematode infections as compared with those of broiler and layer type chickens

Das, G., Stehr, M. and Metges, C.C.

(Institute of Nutritional Physiology 'Oskar Kellner', Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany)

Sponsors

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