

**5<sup>th</sup>** INTERNATIONAL  
MEETING on  
APICOMPLEXAN  
PARASITES in  
FARM ANIMALS



**BERLIN**  
2–4 OCTOBER  
*2019*

PROGRAMME





## TABLE OF CONTENTS

Organisation and imprint .....	4
Welcome note .....	5
Keynote speakers .....	6
Programme overview .....	10
Scientific programme	
Wednesday, 2 October .....	11
Thursday, 3 October .....	12
Friday, 4 October .....	16
Poster sessions	
Thursday, 3 October .....	20
Friday, 4 October.....	26
General information .....	30
Sponsors, exhibitors and media cooperations .....	32
Social programme .....	34
Index of authors and session chairs .....	35

### Key abbreviations

AT	Abstract talk
IT	Invited talk
OL	Opening lectures
P	Poster
PS	Poster session
QF	Quick fire
TS	Talk session

## ORGANISATION AND IMPRINT

### Venue

Hotel Steglitz International  
Albrechtstraße 2 | 12165 Berlin/DE

### Date

2–4 October 2019

### Conference website

[www.apicowplexa.de](http://www.apicowplexa.de)

### Conference chairs

Gereon Schares | Franz J. Conraths  
Friedrich-Loeffler-Institut  
Federal Research Institute for Animal Health  
Institute of Epidemiology  
Südufer 10 | 17493 Greifswald – Insel Riems/DE

### Local organising committee

Gereon Schares (Greifswald – Insel Riems/DE)	Frank Seeber (Berlin/DE)
Franz J. Conraths (Greifswald – Insel Riems/DE)	Karsten Nöckler (Berlin/DE)
Pavlo Maksimov (Greifswald – Insel Riems/DE)	Georg von Samson-Himmelstjerna (Berlin/DE)
Toni Aebischer (Berlin/DE)	Emanuel Heitlinger (Berlin/DE)

### Scientific committee

Jon Boyle (Pittsburgh/US)	Markus Meissner (Munich/DE)
Brian Cooke (Melbourne/AU)	Ard Nijhof (Berlin/DE)
Andrew Hemphill (Bern/CH)	Luis Ortega-Mora (Madrid/SP)
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Frank Katzer (Penicuik/GB)	Fiona Tomley (Hatfield/GB)
Alexandre Leitao (Lisbon/PT)	Wes Van Voorhis (Washington/US)

### Professional congress organiser

Conventus Congressmanagement & Marketing GmbH  
Cyntia Rammel  
Carl-Pulfrich-Strasse 1 | 07745 Jena/DE  
Phone +49 3641 31 16-333  
[apicowplexa2019@conventus.de](mailto:apicowplexa2019@conventus.de) | [www.conventus.de](http://www.conventus.de)

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Dear colleagues and friends,

It is our pleasure to invite you to attend the 5<sup>th</sup> International Meeting on Apicomplexan Parasites in Farm Animals (ApicoWplexa) in Berlin from 2–4 October 2019. This meeting will be in line with the highly successful ApicoWplexa conferences held so far. It is our task to provide you with good conditions for networking and scientific exchange in the field of apicomplexan parasites in livestock.

The meeting will overview the different areas of research on apicomplexan parasites in farm animals, from molecular and cell biology over host-parasite interactions, immunology to epidemiology and control of infections with these parasites. Knowledge on all these aspects is prerequisite to develop intervention strategies, effective vaccines or drugs. New vaccines, drugs and novel intervention strategies against apicomplexan parasites in livestock will therefore be key topics of the up-coming conference in Berlin.

The ApicoWplexa conferences focused in the past on toxoplasmosis, neosporosis, besnoitiosis, eimeriosis, babesiosis and theileriosis. In the ApicoWplexa meeting in Berlin, we wish to cover also cryptosporidiosis due to its importance as a zoonotic disease. We also plan to dedicate more time on the One-Health aspect of apicomplexan parasites in farm animals.

We look forward to welcoming you.

Best regards,

Gereon Schares and Franz J. Conraths  
on behalf of the organising committee

## KEYNOTE SPEAKERS

The following CVs were handed in by the keynote speakers:

### Julio Benavides (León/ES)



My scientific career started as an undergraduate student during the last year of the Veterinary Degree at the University of León, when I received a grant from the Spanish Government (Ministry of Education) and produced a minor thesis on maedi visna, a lentiviral infection of ruminants. I continued the research on this topic for my Ph.D. thanks to two predoctoral grants from the regional (FPI, Junta de Castilla y León) and national Governments (FPU, MEC). My Ph.D. thesis obtained the maximum classification (Sobresaliente cum laude) and the Extraordinary Doctorate Award of the Veterinary Degree, University of León (2007).

After finishing my Ph.D. I moved to Moredun Research Institute, Edinburgh, UK with a permanent postdoctoral position as Veterinary Research Immunopathologist, where I worked for 3 years and 4 months. In this time I participated in several research projects focused on analysing the host-pathogen relation in different diseases of ruminants (i.e. neosporosis, toxoplasmosis, malignant catarrhal fever, infectious bovine rhinotracheitis and louping ill). My role in these projects was centered in analyzing the pathological and immune responses developed by the host as a consequence of the infection and how the vaccination or host strain could influence over this response. At this time, I was granted a research project as co-Principal investigator, and had the opportunity to supervise several Degree and Ph.D. students.

As my second Postdoctoral position I moved to the Instituto de Ganadería de Montaña (CSIC-University of León), Spain, under a JAE-doc contract (CSIC) for three years. In 2011 I was granted a research project (Ref. AGL2011-30205) by the Spanish Government (MICIN) as Principal Investigator, which allowed me to initiate a new line of research in the institute based on the study of protozoan diseases of ruminants. Within this line, I have been also granted as Principal Investigator three research projects: one within the European NADIR Transnational Access Projects, other from the BSAS/Biosciences KTN programme and the more recent one (Ref. AGL2016-75935-C2-2-R) by the Spanish Government (MIC). Currently, I have a permanent contract as scientist with the Spanish Research Council, where I lead a line of research in protozoan diseases of ruminants.

During my scientific career, I have published 79 peer-reviewed papers, 57 of them in journals within the first quartile of the area of research. I have participated in 18 research projects (10 national and 8 international), 4 of them as Principal Investigator, and 13 research contracts, 6 of them as Principal Investigator. Co-supervised 5 Ph.D. theses (3 currently under development), 5 final degree dissertations and 1 master thesis. I have also published 20 papers in knowledge transfer journals.

**Jon Boyle (Pittsburgh/US)**

Jon Boyle is an Associate Professor in Biological Sciences at the University of Pittsburgh, USA. In 1995, he received his undergraduate degree in Molecular Biology from the University of Montana and after working at the University of Montpellier II as a Fullbright Scholar, he joined the laboratory of Dr. Timothy Yoshino in 1996 to perform his doctoral studies. There he studied host-parasite interactions between larval stages of the human trematode parasite *Schistosoma mansoni* and its snail host and graduated with a Ph.D. in 2003. He then joined the laboratory of Dr. John Boothroyd at Stanford University to study molecular determinants of virulence in the Apicomplexan parasite *Toxoplasma gondii*. He joined the Department of Biology at the University of Pittsburgh in 2008 where he continues his work on Toxoplasma-host interactions. His work integrates multiple omics techniques with cell biology and genetics to identify, and ultimately characterise, key parasite effectors and how they determine virulence differences between Toxoplasma strains as well as between closely related species.

**Adrian Hehl (Zurich/CH)**

Adrian Hehl is a cell biologist and biomedical researcher at the Vetsuisse faculty of the University of Zurich. He has worked on protozoan parasite models since his Ph.D. at the University of Bern where he characterised gene expression regulation in African Trypanosomes. In 1998, returning from several years as a postdoc working on Toxoplasma differentiation in Prof. Boothroyd's laboratory at Stanford, he set up his own research group in Zurich focusing on processes associated with stage-differentiation with an emphasis on protein trafficking using *Giardia lamblia* as a model organism. During his work at the Institute of Parasitology at Vetsuisse he also became interested in the molecular mechanisms of sexual development of *T. gondii* in cats and conducted several interdisciplinary research projects on characterisation of gene expression during specific life cycle stages of Toxoplasma and other apicomplexan parasites. Having shifted the focus exclusively on coccidian parasites in 2019 his research group is currently exploring tissue engineering and in-vitroisation of sexual development in definitive hosts.

**Hernan Lorenzi (Rockville/US)**

Hernan Lorenzi is an assistant professor in the Infectious Disease Group at the J. Craig Venter Institute (JCVI). His research is currently focused on understanding how protozoan parasites and bacteria evolve and interact with the human host to cause disease. Dr. Lorenzi's lab uses a combination of next generation sequencing technologies and bioinformatics approaches to elucidate the effect of microbial, parasite and host genetics on human disease, and assists in the development of vaccines and novel therapeutic treatments. Dr. Lorenzi has led several NIAID-funded studies to characterise the genomes and assess the population diversity of human pathogens and related organisms, including *Cryptosporidium muris*, *Toxoplasma gondii*, *Hammondia hammondi* and *Grigarina niphandrodes*. Currently Dr. Lorenzi's lab is applying

## KEYNOTE SPEAKERS

high-throughput sequencing and bioinformatics analyses to study host-pathogen interactions in toxoplasmosis and protective immunity in malaria.

In addition, his lab is carrying out a number of studies to elucidate the impact of long-term space travel and different diets on the Astronauts' microbiome and health.



### **Virginia Marugan-Hernandez (London/GB)**

Virginia Marugan-Hernandez completed her Ph.D. (2011) in the Department of Animal Health of the Universidad Complutense of Madrid in Prof. Luis Ortega-Moras' lab, testing transgenic strains of *Neospora caninum* as live vaccines and identifying new vaccine targets by proteomic approaches. Thereafter, Virginia Marugan-Hernandez moved to The Royal Veterinary College as a postdoctoral researcher in Profs. Fiona Tomley and Damer Blakes' lab, working in different molecular parasitology and vaccine development of *Eimeria* species. In 2017, she was appointed as Research Fellow in Veterinary Vaccinology in the Department of Pathobiology and Population Sciences. Virginia Marugan-Hernandez' current research is to focus on the biology and control of *Eimeria* parasites affecting chickens. She has optimised in vitro methods of infection and development for sporozoites of *E. tenella* (Houghton Trust Small Research Grant) and standardised RNA interference and inhibition assays for the investigation of functional roles of parasite and host proteins identified in the previous approaches for identification of new therapeutic targets (BBSRC BB/L00299X). She leads research in transgenesis in *E. tenella*, developing protocols for the use of this parasite as delivery vector for antigens of other avian pathogens. She has improved the expression of antigens in transgenic parasites and used protein fusions with fluorescent reporters for protein localisation that has significantly simplified the conventional procedures for protein characterisation (BBSRC BB/H020195/2) in this parasite.



### **Philipp Olias (Bern/CH)**

Philipp Olias earned his DVM and Ph.D. (2010) from Freie Universität Berlin in Germany and completed his postdoctoral training in the laboratory of David Sibley at Washington University School of Medicine in St. Louis, MO (2012 to 2016). He is a board-certified veterinary pathologist (Dipl. ECPV) and is currently working at the University of Bern in Switzerland. His group investigates the molecular mechanisms how the apicomplexan parasites *Theileria* and *Cryptosporidium* interfere with the host cell proteome and cause disease.



### **David Sibley (St. Louis/US)**

David Sibley is the Alan A. and Edith L. Wolff Distinguished Professor in Molecular Microbiology at Washington University School of Medicine, St. Louis. David Sibley is recognised for his work on the cellular and molecular basis of intracellular parasitism and for defining the molecular determinants of pathogenesis that underlie diseases caused by protozoan parasites. Sibley earned a B.A. degree in biological sciences from Oberlin College in 1978, and a Ph.D. in zoology and physiology from Louisiana State University in 1985. He completed postdoctoral fellowships at the U.S. Public Health Service's National Hansen's Disease Center and Stanford University School of Medicine.

In 1991, David Sibley joined the faculty in the Department of Molecular Microbiology at Washington University School of Medicine, St. Louis.

He is a Burroughs-Wellcome Scholar in Molecular Parasitology (2000-2005), a Fellow in the American Academy of Microbiology (2007), recipient of the Alice and CC Wang Molecular Parasitology Award from the American Society of Biochemistry and Molecular Biology (2017), and an Elected Fellow of the American Association for Advancement Science (2018).



### Furio Spano (Rome/IT)

Furio Spano received his MSc degree in biological sciences in 1982 and the Ph.D. in 1988 at the University of Roma "Sapienza". In 1992, he joined Robert Sinden's laboratory at the Imperial College of London, where he conducted studies on malaria transmission blocking antibodies. From 1993 to 1999, he worked at the Institute of Parasitology of the University of Rome "Sapienza", where he studied host-parasite interaction and genetic diversity of *Cryptosporidium*. Since 1999, he is senior staff scientist in the Department of Infectious Diseases at the Istituto Superiore di Sanità (Rome) and member of the European Union Reference Laboratory for Parasites. Over the last twenty years, his research activity focused on various aspects of *Toxoplasma gondii* molecular and cellular biology, including host-cell invasion, oocyst structure and the interaction of sporozoites with the host-cell.



### Henk Wisselink (Lelystad/NL)

Henk Wisselink is research scientist and project leader at the department of Infection Biology at Wageningen Bioveterinary Research in Lelystad, The Netherlands. He is a microbiologist and has over 35 years experience in research of diseases in animals. His areas of expertise are veterinary microbiology, food safety, zoonoses, meat chain quality and diagnostics. He participates in several national and international projects for research to *Toxoplasma gondii* infections. As project leader, he is involved in a national project for the control of *Toxoplasma gondii* infections in pigs. He has authored and co-authored more than 60 publications in peer reviewed scientific journals.

# PROGRAMME OVERVIEW

Wednesday, 2 October		Thursday, 3 October		Friday, 4 October	
Plenary hall	Foyer	Plenary hall	Poster hall	Plenary hall	Poster hall
		08:30–10:15		08:30–10:00	
		<b>TS01</b> One health: Food and water as source of infection with coccidian parasites p. 12		<b>TS05</b> Pathogenesis and experimental animal models p. 16	
	16:00–17:00 Registration p. 11		10:15–10:45 <b>PS01</b> Poster session 1 p. 20	10:00–10:50 <b>PS03</b> Poster session 3 p. 26	
17:00–17:15 Welcome p. 11		11:00–13:00 <b>TS02</b> Genetic variability, parasite evolution and virulence p. 12		11:00–13:00 <b>TS06</b> Vaccination, chemotherapy and control p. 17	
17:15–18:15 <b>OL</b> Opening lectures p. 11					
18:15–20:00 Welcome reception p. 34		13:45–15:30 <b>TS03</b> Host-parasite interaction I p. 13		13:45–15:30 <b>TS07</b> Epidemiology and diagnosis p. 18	
			15:30–16:00 <b>PS02</b> Poster session 2 p. 22	15:45–16:10 <b>QF01</b> Quick fire session p. 19	
		16:15–18:00 <b>TS04</b> Host-parasite interaction II p. 14		16:10–16:30 Closing and poster awards p. 19	
	19:00–22:30 Social evening p. 34				
				Organisational Talk session	Social programme Poster session

16:00	<b>Registration</b>
17:00	<b>Welcome</b> T. C. Mettenleiter (Greifswald – Insel Riems/DE) President of Friedrich-Loeffler-Institut – Federal Research Institute for Animal Health
	G. Schares, F. J. Conraths (Greifswald – Insel Riems/DE) Conference chairs
<b>17:15–18:15</b>	<b>OL I Opening lectures</b> Chairs D. Soldati-Favre (Geneva/CH), M. Meissner (Munich/DE)
17:15 IT01	If you can't get <i>Toxoplasma gondii</i> to reveal its secrets, its family members are MORE than willing to talk S. Sokol, S. Wong, A. Primack, J. Dubey, <u>J. Boyle</u> (Pittsburgh/US)
17:45 IT02	"Hidden" stages of the Toxoplasma life cycle: Cats, mice, and petri dishes A. Hehl (Zurich/CH)
<b>18:15–20:00</b>	<b>Welcome reception (further information on page 34)</b>

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Save the date

08–11 March 2020 | Leipzig

6<sup>th</sup> Joint Conference of the DGHM & VAAM

72<sup>nd</sup> Annual Meeting of the German Society for Hygiene and Microbiology (DGHM)

Annual Meeting 2020 of the Association for General and Applied Microbiology (VAAM)

[www.dghm-vaam.de](http://www.dghm-vaam.de)

18–21 March 2020 | Bonn

29<sup>th</sup> Annual Meeting of the German Society for Parasitology (DGP)

[www.parasitology-meeting.de](http://www.parasitology-meeting.de)

25–28 March 2020 | Berlin

30<sup>th</sup> Annual Meeting of the Society for Virology

[www.virology-meeting.de](http://www.virology-meeting.de)



08:30–10:15	<b>TS01 I One health: Food and water as source of infection with coccidian parasites</b>
Chairs	F. Katzer (Penicuik, Edinburgh/GB), M. Opsteegh (Bilthoven/NL)
08:30 IT03	<b>The oocyst of coccidian parasites: A Trojan Horse for special invaders</b> F. Spano (Rome/IT)
09:00 AT01	Prevalence of potentially zoonotic assemblages of <i>Giardia duodenalis</i> in wild deer in Scotland <u>P. Bartley</u> , R. Carneiro Costa, R. Bacchetti, B. Wells, F. Katzer (Edinburgh/GB)
09:15 AT02	Monitoring <i>Toxoplasma gondii</i> infection in lactating goats: Antibody detection in serum and milk samples and parasitic DNA detection in milk <u>A. L. Gazzonis</u> , S. A. Zanzani, L. Villa, M. T. Manfredi (Milan/IT)
09:30 AT03	Detection of <i>Toxoplasma gondii</i> oocysts in fresh vegetables and fruits <u>C. S. Marques</u> , S. Sousa, A. Castro, J. C. Costa (Porto/PT)
09:45 AT04	Comparative detection of <i>Toxoplasma gondii</i> in red deer, roe deer and wild boar in Germany <u>N. Bier</u> , K. Stollberg (Berlin/DE), G. Schares (Greifswald – Insel Riems/DE), A. Mayer-Scholl, A. Johne, K. Nöckler, M. Richter (Berlin/DE)
10:00 AT05	Quantitative microbial risk assessment for meatborne <i>Toxoplasma gondii</i> infection in the Netherlands H. Deng, A. Swart, A. Bonacic Marinovic, J. van der Giessen, <u>M. Opsteegh</u> (Bilthoven/NL)
10:15–10:45	<b>PS01 I Poster session 1</b> detailed information on page 20
10:45–11:00	<b>Coffee break</b>
11:00–13:00	<b>TS02 I Genetic variability, parasite evolution and virulence</b>
Chairs	D. Blake (North Mymms, London, Hatfield/GB), F. Seeber (Berlin/DE)
11:00 IT04	Comparative genome analysis of tissue-cyst forming coccidian parasites of diverse host range H. Lorenzi (La Jolla/US)

11:30 <b>AT06</b>	Genetics of <i>Eimeria</i> populations: New findings from a familiar foe <u>D. Blake</u> (North Mymms/GB), V. Vrba (Ringwood/GB), I. Jatau (Zaria/NG), D. Xia (North Mymms/GB), M. Jenkins (Beltsville/US), G. Underwood (Ringwood/GB), A. Khan, M. Grigg (Bethesda/US), F. Tomley (North Mymms/GB)
11:45 <b>AT07</b>	A comparison of the early immune responses and parasite tissue distribution in mice experimentally infected with oocysts of either archetypal or non-archetypal genotypes of <i>Toxoplasma gondii</i> <u>D. Pontes Chiebao</u> (São Paulo/BR), P. Bartley, F. Chianini, L. Black, A. Burrells (Edinburgh/GB), H. Pena, R. Soares (São Paulo/BR), E. Innes, F. Katzer (Edinburgh/GB)
12:00 <b>AT08</b>	Genome-wide single nucleotide variation of <i>Toxoplasma gondii</i> type II isolates from Europe <u>P. Maksimov</u> (Greifswald – Insel Riems/DE), S. Cacciò (Rome/IT), F. J. Conraths, C. Staubach, G. Schares (Greifswald – Insel Riems/DE)
12:15 <b>AT09</b>	Whole genome sequencing to identify genetic variations in isolates of <i>Sarcocystis neurona</i> <u>J. Norris</u> , S. Dangoudoubiyam, D. Howe (Lexington/US)
12:30 <b>AT10</b>	Transcriptional changes in sexual-stage related genes of <i>Cystoisospora suis</i> in cell culture <u>T. Cruz Bustos</u> , B. Ruttkowski, A. S. Feix, A. Joachim (Vienna/AT)
12:45 <b>AT11</b>	Isolation and genetic characterisation of <i>Toxoplasma gondii</i> in Spanish sheep livestock <u>M. Fernández-Escobar</u> , R. Calero-Bernal (Madrid/ES), J. Benavides (León/ES), J. Regidor-Cerrillo (Madrid/ES), M. C. Guerrero Molina (Ciudad de Mexico/MX), D. Gutiérrez-Expósito (León/ES), E. Collantes-Fernández, L. M. Ortega-Mora (Madrid/ES)
13:00–13:45	Lunch break
<b>13:45–15:30</b>	<b>TS03 I Host-parasite interaction I</b>
Chairs	C. Hermosilla (Giessen/DE), A. Pain (Thuwal/SA)
13:45 <b>IT05</b>	Apicomplexan exploitation of host cell signaling: Between rewiring and malignant transformation K. Woods, F. Brühlmann, M. Maurizio, S. Rottenberg, <u>P. Olias</u> (Bern/CH)

## SCIENTIFIC PROGRAMME | THURSDAY, 3 OCTOBER

14:15 <b>AT12</b>	Dynamics and within-host competition of <i>Theileria lestoquardi</i> and <i>T. ovis</i> among naive sheep in Oman H. Awad, A. Gadalla, M. Postigo, S. Al-Hamidhi (Muscat/OM), A. Sultan (Doha/QA), B. Shiels (Glasgow/GB), A. Pain (Jeddah/SA), J. Thompson (Edinburgh/GB), <u>H. Babiker</u> (Muscat/OM)
14:30 <b>AT13</b>	<i>Eimeria tenella</i> ROP kinase EtROP1 induces G0/G1 cell cycle arrest and inhibits host cell apoptosis M. Diallo, A. Sausset, A. Gnahoui-David, A. Ribeiro E Silva, A. Brionne, Y. Le Vern, F. Bussière, J. Tottey, S. Lacroix-Lamandé, F. Laurent, <u>A. Silvestre</u> (Nouzilly/FR)
14:45 <b>AT14</b>	The Toxoplasma TgGRAX effector is involved in modulation of host autonomous innate immune response <u>M. Nyonda</u> , P.-M. Hammoudi, J. Maire (Geneva/CH), M. Yamamoto (Osaka/JP), D. Soldati-Favre (Geneva/CH)
15:00 <b>AT15</b>	Comparative proteomic analysis of bovine placentas infected with high and low virulence <i>Neospora caninum</i> isolates P. Horcajo, A. Pitarch, L. Jiménez-Pelayo, M. García-Sánchez, E. Collantes-Fernández, L. M. Ortega-Mora, J. Regidor-Cerrillo (Madrid/ES)
15:15 <b>AT16</b>	Dissecting the transcriptional landscapes of <i>Theileria annulata</i> -infected host cell identifies novel tumor suppressor genes relevant to host cell transformation and human cancer <u>Z. Rchiad</u> , M. Haidar (Thuwal/SA, Paris/FR), H. R. Ansari (Thuwal/SA), S. Tajeri (Paris/FR), S. Mfarrej, F. Ben Rached, A. Kaushik (Thuwal/SA), G. Langsley (Paris/FR), A. Pain (Thuwal/SA)
<b>15:30–16:00</b>	<b>PS02   Poster session 2</b> detailed information on page 22
<b>16:00–16:15</b>	<b>Coffee break</b>
<b>16:15–18:00</b> Chairs	<b>TS04   Host-parasite interaction II</b> P. Olias (Bern/CH), V. Marugan-Hernandez (Hatfield/GB)
<b>16:15 IT06</b>	Forward genetics in <i>Cryptosporidium</i> enabled by complete in vitro development in stem cell-derived intestinal epithelium D. Sibley (St. Louis/US)

16:45 <b>AT17</b>	Actin dynamics, regulation and function in <i>Toxoplasma gondii</i> M. Meissner (Munich/DE)
17:00 <b>AT18</b>	The predicted <i>T. gondii</i> rhoptry kinase ROP39 indirectly affects PVM accumulation of Irga6 S. Singh, M. Murillo Leon, F. Melbert, L. Blum (Freiburg i. Br./DE), D. Soldati-Favre (Geneva/CH), K. Pfeffer (Düsseldorf/DE), J. Enrique Gómez Marín (Armenia/CO), T. Steinflledt (Freiburg i. Br./DE)
17:15 <b>AT19</b>	Generation and characterisation of selected virulence factor knockout strains of <i>C. parvum</i> using CRISPR/CAS method M. Berberich (Leipzig/DE)
17:30 <b>AT20</b>	First evidence of interferon-gamma response in <i>Besnoitia besnoiti</i> naturally infected animals L. Comtet, L. Olagnon, K. Martin (Grabels/FR), C. Grisez (Toulouse/FR), M. Rameil, X. Desclaux (Foix/FR), F. Prevot (Toulouse/FR), M. Malzac (Grabels/FR), P. Jacquiet (Toulouse/FR), J.-P. Alzieu (Foix/FR), P. Pourquier (Grabels/FR)
17:45 <b>AT21</b>	Comparative tachyzoite proteome analyses among six <i>Neospora caninum</i> isolates with different virulence L. Rico San Román, P. Horcajo Iglesias, J. Regidor-Cerrillo, M. Fernández-Escobar, E. Collantes-Fernández, D. Gutiérrez Blázquez, M. L. Hernández Sánchez (Madrid/ES), J. Saeij (Davis/US), L. M. Ortega-Mora (Madrid/ES)

<b>08:30–10:00</b>	<b>TS05 I Pathogenesis and experimental animal models</b>
Chairs	L. M. Ortega-Mora (Madrid/SP), L. Innes (Edinburgh/GB)
08:30 <b>IT07</b>	<b>Experimental models to study pathogenesis and control of apicomplexan parasites in ruminants</b> J. Benavides (León/ES)
09:00 <b>AT22</b>	Experimental toxoplasmosis in pigs inoculated with different parasite stages and different genotypes of <i>Toxoplasma gondii</i> <u>B. Koudela</u> (Brno/CZ), W. Basso (Bern, Zurich/CH), G. Schares (Greifswald – Insel Riems/DE), M. Škorič, J. Smola (Brno/CZ)
09:15 <b>AT23</b>	Physiopathology of <i>Eimeria tenella</i> infection and integrity of the intestinal barrier: Influence of the microbiota P. Gaboriaud (Nouzilly/FR), G. Sadrin (Nouzilly, Châteaubourg/FR), E. Guittot, G. Fort, Y. Le Vern, A. Sausset, A. Niepceron, A. Silvestre, R. Guabiraba, S. Lacroix-Lamandé, N. Lallier, C. Schouler, F. Laurent, <u>F. I. Bussiere</u> (Nouzilly/FR)
09:30 <b>AT24</b>	Recrudescence and vertical transmission of persistent infection of <i>Neospora caninum</i> in sheep <u>D. Gutiérrez-Expósito</u> (León/ES), M. González-Warleta (Coruña/ES), J. Espinosa, R. Vallejo (León/ES), J. Castro-Hermida, C. Calvo (Coruña/ES), M. C. Ferreras-Estrada, V. Pérez (León/ES), M. Mezo (Coruña/ES), J. Benavides (León/ES)
09:45 <b>AT25</b>	Phenotypic characterisation of Spanish <i>Toxoplasma gondii</i> isolates in a murine model M. Fernández-Escobar, R. Calero-Bernal, Á. Lubián, A. Colos-Arango, J. Regidor-Cerrillo (Madrid/ES), R. Vallejo, J. Benavides (León/ES), E. Collantes-Fernández, L. M. Ortega-Mora (Madrid/ES)
<b>10:00–10:50</b>	<b>PS03 I Poster session 3</b> detailed information on page 26
10:50–11:00	Coffee break

**11:00–13:00****TS06 | Vaccination, chemotherapy and control**

Chairs

K. Woods (Bern/CH), W. Van Voorhis (Seattle/US)

11:00

**Current research in *Eimeria* species affecting chicken****IT08**I. Pastor-Fernandez, A. Burrell, F. Soutter, E. Attree, D. Xia, D. Blake, F. Tomley, V. Marugan-Hernandez (Hatfield/GB)

11:30

**AT26**

Lessons from BKIs: Why it may be hard to get a drug that treats cryptosporidiosis and cystoisosporosis but also toxoplasmosis, sarcocystosis, besnoitiosis and neosporosis

W. Van Voorhis, S. L. M. Arnold, K. K. Ojo, M. A. Hulverson, R. Choi, G. R. Whitman, L. K. Barrett (Seattle/US), R. Sanchez-Sanchez, I. Ferre (Madrid/ES), M. Riggs (Tucson/US), J. Doggett (Portland/US), A. Shrestha, A. Joachim (Vienna/AT), A. Hemphill (Bern/CH), G. Álvarez-García, L. M. Ortega-Mora (Madrid/ES)

11:45

**AT27**Vaccination with transgenic *Eimeria tenella* expressing vaccine candidates from *Eimeria maxima* confers partial protection against high level *E. maxima* challenge in a broiler model of coccidiosis

I. Pastor-Fernandez, S. Kim, V. Marugan-Hernandez, F. Soutter, F. Tomley, D. Blake (Hatfield/GB)

12:00

**AT28**

Metal-captured inhibition of pre-mRNA processing activity by CPSF3 controls very efficiently Cryptosporidium infection

C. Swale, A. Bougdour (Grenoble/FR), A. Gnahoui-David, J. Tottey (Nouzilly/FR), S. Georgeault (Tours/FR), F. Laurent (Nouzilly/FR), A. Palencia, M.-A. Hakimi (Grenoble/FR)

12:15

**AT29**Optimisation of a mucosal immunisation approach against *Neospora caninum* infection

A. Correia, R. Fróis-Martins, M. Resende, P. Ferreira, L. Teixeira, A. Rocha, R. Appelberg, M. Vilanova (Porto/PT)

12:30

**AT30**Novel generation of arene Ruthenium complexes based compounds for specific targeting of *Toxoplasma gondii*G. Boubaker, Y. Amdouni, N. Anghel, E. Paunescu, O. Desiatkina, J. Furrer, P. Buetikofer, K. Woods, A. Hemphill (Bern/CH)

12:45 <b>AT31</b>	Endochin-like Quinolones exhibit promising efficacy against <i>Neospora caninum</i> in vitro and in experimentally infected pregnant mice <u>N. Anghel, V. Balmer, J. Müller, P. Winzer, D. Imhof, X. Langa, J. Jelk, A. Aguado-Martinez (Bern/CH), M. Roozbehani (Teheran/IR), S. Pou, A. Nilsen, M. Riscoe (Portland/US), N. Mercader Huber, P. Bütkofer (Bern/CH), J. Doggett (Portland/US), A. Hemphill (Bern/CH)</u>
13:00–13:45	Lunch break
<b>13:45–15:30</b>	<b>TS07 I Epidemiology and diagnosis</b>
Chairs	G. Álvarez-García (Madrid/SP), W. Basso (Bern, Zurich/CH)
13:45 IT09	A risk based surveillance programme for <i>Toxoplasma gondii</i> in pigs using a combination of farm auditing and serological screening <u>H. Wisselink, M. Swanenburg, J. L. Gonzales (Lelystad/NL), M. A. P. M. Van Asseldonk, C. P. A. Van Wagenberg (Wageningen/NL), J. W. B. van der Giessen (Bilthoven/NL), B. G. Meerburg, I. M. Krijger (Wageningen/NL), D. M. Eppink, M. Bouwknegt, D. Oorburg (Boxtel/NL)</u>
14:15 <b>AT32</b>	Wildlife as environmental sentinels and potential sources of novel genotypes of <i>Cryptosporidium parvum</i> for neonatal calves <u>H. Shaw, R. Bacchetti, J. Gilray, S. Thomson, F. Katzer (Edinburgh/GB)</u>
14:30 <b>AT33</b>	Multigenome sequence-based genotyping and morphotyping of <i>Eimeria</i> species infecting commercial sheep and goat <u>E. Rejman, J. R. Barta (Guelph/CA)</u>
14:45 <b>AT34</b>	Differentiating mixed <i>Cryptosporidium</i> infections in calves <u>I. Dettwiler, W. Basso (Bern/CH), K. Troell (Uppsala/SE), M. Meylan, P. Olias (Bern/CH)</u>
15:00 <b>AT35</b>	Serological diagnosis of besnoitiosis: A multi-species competitive enzyme linked immunosorbent assay overcoming the problem of false-positive reactions <u>G. Schares, D. Nascimento, A. Bärwald (Greifswald – Insel Riems/DE), C. Jutras, S. Riivard, V. Brodeur (Chibougamau/CA), S. L. DeNotta (Gainesville Florida/US), W. Basso (Bern/CH), F. J. Conraths (Greifswald – Insel Riems/DE)</u>

15:15 <b>AT36</b>	<i>Sarcocystis falcatula</i> -like derived from opossum in Northeastern Brazil: In vitro propagation in avian cells, molecular characterisation and bioassay in birds <u>L. Gondim</u> (Salvador/BR), R. Soares (São Paulo/BR), A. Tavares, W. Borges-Silva, R. de Jesus (Salvador/BR), H. Llano (São Paulo/BR), L. Gondim (Salvador/BR)
15:30–15:45	<b>Coffee break</b>
<b>15:45–16:10</b>	<b>QF01   Quick fire session on selected poster contributions</b>
Chairs	F. J. Conraths (Greifswald – Insel Riems/DE), A. Hemphill (Bern/CH)
15:45 <b>P49</b>	Assessment of a yeast based vaccine system for oral delivery of <i>Eimeria tenella</i> antigens in commercial layer chickens <u>F. Soutter</u> , T. Küster, M. Nolan, F. Tomley, D. Werling, D. Blake (Hatfield/GB)
15:50 <b>P50</b>	Sources of bovine sarcocystosis at farm: An innovative approach <u>M. Drouet</u> (Villers-Bocage/FR), M.-N. Fouilloux (Lyon/FR), S. Rubiola, F. Chiesa (Grugliasco/IT)
15:55 <b>P55</b>	Effect of the microbiota on the development of the parasite <i>Eimeria tenella</i> P. Gaboriaud, E. Guittot, G. Fort, A. Niepceron, R. Guabiraba, A. Silvestre, S. Lacroix-Lamandé, N. Lallier, C. Schouler, F. Laurent, <u>F. I. Bussiere</u> (Nouzilly/FR)
16:00 <b>P56</b>	Adaptative changes in recently obtained <i>Toxoplasma gondii</i> isolates after in vitro cultivation <u>A. Colos-Arango</u> , J. Regidor-Cerrillo, M. Fernández-Escobar, R. Calero-Bernal, L. M. Ortega-Mora (Madrid/ES)
16:05 <b>P65</b>	Bumped kinase inhibitor BKI-1748: Studies on in vitro efficacy, safety and in vivo effects in pregnant mice infected with the highly virulent <i>N. caninum</i> isolate Nc-Spain7 <u>D. Imhof</u> , P. Winzer, N. Anghel, V. Balmer, N. Eberhard (Bern/CH), W. Van Voorhis, K. K. Ojo, M. A. Hulverson, R. Choi (Seattle/US), L. M. Ortega-Mora (Madrid/ES), A. Hemphill (Bern/CH)
<b>16:10–16:30</b>	<b>Closing and poster awards</b>
	G. Schares, F. J. Conraths (Greifswald – Insel Riems/DE)

**10:15–10:50 PS01 | Poster session 1**

- P01** Do all seropositive cattle in a farm contribute to bovine besnoitiosis transmission in the same way?  
C. Grisez, F. Prevot, L. Bottari (Toulouse/FR), J.-P. Alzieu (Foix/FR), C. Lacz (Albi/FR), C. Boulon (Privas/FR), J. Petermann (Châteauroux/FR), P. Jacquiet (Toulouse/FR)
- P02** Molecular characterisation of *Cryptosporidium* spp. from domestic pigs in Argentina  
L. De Felice, G. Moré, M. C. Venturini, J. M. Unzaga (La Plata/AR)
- P03** First report of *Neospora caninum* vertical transmission in human being in Brazil  
R. Andreotti, P. Oliveira Duarte, L. Marla Oshiro, B. Csordas Cabral, J. Cavalcante Barros (Campo Grande/BR)
- P04** Detection of *Toxoplasma gondii* from a horse with glanders  
D. Pontes Chiebao, A. Nassar, A. Romaldini, L. H. Okuda, C. Del Fava (São Paulo/BR), A. P. Alvim, M. Sanchez-Vazquez, M. Rosa, J. Pompei (Rio de Janeiro/BR), H. Pena, B. Alves (São Paulo/BR), M. Araujo, G. Marques (Brasília/BR), M. Pituco (São Paulo, Rio de Janeiro/BR)
- P05** Comparison of *Cystoisospora suis* developmental stages in cell culture and a novel cell-free culture system  
A. S. Feix (Vienna/AT)
- P06** Investigation of *Sarcocystis* species infection in farmed fallow deer (*Dama dama*) from Lithuania  
E. Rudaitytė-Lukošienė, P. Prakas, Ž. Strazdaitė-Žielienė, E. Servienė, D. Butkauskas (Vilnius/LT)
- P07** Added value of IgM detection and low avidity index as markers of acute bovine besnoitiosis  
C. Diezma-Díaz, I. Ferre, B. Saldías, J. Blanco Murcia, L. M. Ortega-Mora, G. Álvarez-García (Madrid/ES)
- P08** Endothelial injury and inflammation are key pathogenic mechanisms responsible for early azoospermia during acute besnoitiosis in bulls  
D. González-Barrio, C. Diezma-Díaz, E. Tabanera, E. Aguado-Criado, M. Pizarro-Díaz, M. González-Huecas, I. Ferre, A. Jiménez-Meléndez (Madrid/ES), D. Gutiérrez-Expósito (León/ES), L. M. Ortega-Mora, G. Álvarez-García (Madrid/ES)

- P09** RNA-Seq analyses reveal that endothelial activation is associated with *Besnoitia besnoiti* host cell invasion and proliferation  
A. Jiménez-Meléndez (Madrid/ES), C. Ramakrishnan, A. Hehl (Zurich/CH),  
G. Álvarez- García (Madrid/ES)
- P10** Molecular characterisation and in vitro virulence phenotypes of Argentinean *Neospora caninum* bovine isolates  
L. M. Campero (La Plata, Buenos Aires/AR), M. Runco (La Plata/AR),  
W. Basso (Bern/CH), G. Schares (Greifswald – Insel Riems/DE),  
I. Gual (Balcarce, Buenos Aires/AR), A. Dellarupe (La Plata, Buenos Aires/AR),  
L. De Felice (La Plata/AR), L. M. Ortega-Mora (Madrid/ES),  
D. P. Moore (Balcarce, Buenos Aires/AR), G. Moré (La Plata, Buenos Aires/AR),  
M. C. Venturini (La Plata/AR)
- P11** Identifying the mechanism of action of Tartrolon E: A broad spectrum anti-apicomplexan compound  
G. Bowden, J. Beashaw, I. Driskell (Pullman/US), Z. Lin, E. Schmidt (Salt Lake City/US),  
D. Schaefer, M. Riggs (Tucson/US), T. Ramadhar (Washington DC/US),  
J. Clardy (Boston/US), R. O'Connor (Pullman/US)
- P12** *Eimeria bovis* macromeront formation: The role of LDL  
A. Taubert, L. Silva, Z. Velásquez, C. Hermosilla (Giessen/DE)
- P13** Transcriptomic analysis of mice brain infected with two *Neospora caninum* isolates from goats in Brazil  
R. Costa, L. Mesquita, D. Wadt (São Paulo/BR), M. Varaschin (Lavras/BR),  
P. Maiorka (São Paulo/BR)
- P14** Seroprevalence of *Toxoplasma gondii* and *Neospora caninum* in livestock in Tanzania  
G. Semango (Tengeru/TZ), C. Hamilton, J. Gilray, J. Thomson (Edinburgh/GB),  
K. Kreppel (Tengeru/TZ), F. Katzer (Edinburgh/GB), T. Kibona (Tengeru/TZ),  
F. Lankester (Washington/US), K. Allan, J. Claxton (Glasgow/GB),  
L. Innes (Edinburgh/GB), E. Swai (Dodoma/TZ), J. Buza (Tengeru/TZ), S. Cleaveland,  
W. A. de Glanville (Glasgow/GB)
- P15** Targeting Theileria effector proteins at the schizont membrane  
F. Brühlmann, K. Woods, P. Olias (Bern/CH)
- P16** Luminex-based serological determination of *Toxoplasma gondii* infection in chickens  
B. Fabian (Berlin/DE), F. Hedar, G. Schares (Greifswald – Insel Riems/DE),  
F. Seeber (Berlin/DE)

## POSTER SESSIONS | THURSDAY, 3 OCTOBER

- P17** *Besnoitia besnoiti*-induced NETs damage host endothelial cells but do not alter parasite proliferation  
I. Conejeros, Z. Velásquez, D. Grob, E. Zhou, H. Salecker, C. Hermosilla, A. Taubert (Giessen/DE)
- P18** In vitro overexpression of *Babesia bovis* hap2 protein induces morphological changes in transfected parasites  
M. Silva, J. Laughery, P. Lacy, H. Alzan, C. Suarez (Pullman/US)
- P19** Simultaneous and positively correlated bovine NET formation and autophagy in *Besnoitia besnoiti* tachyzoite and bradyzoite-exposed polymorphonuclear neutrophils  
I. Conejeros, E. Zhou, Z. Velásquez, L. Silva, U. Gärtner, C. Hermosilla, A. Taubert (Giessen/DE)
- P20** Establishing a skin immune alarm to prevent tick-borne apicomplexan parasite transmission  
S. Tudela Zúquete, I. Delgado (Lisbon/PT), C. Santa, B. Manadas (Coimbra/PT), L. Alfaro Cardoso, D. Santos, A. Pinto Basto, A. Leitão (Lisbon/PT)
- P21** Electron microscopical and immunocytochemical characterisation of multinucleated complexes formed upon exposure of *Neospora caninum* tachyzoites to the bumped kinase inhibitors BKI-1294 and BKI-1748  
V. Balmer, P. Winzer, N. Anghel (Bern/CH), O. K. Kayode, W. Van Voorhis (Seattle/US), A. Hemphill (Bern/CH)
- P22** Molecular Phylogeny and Diversity of Apicomplexans: An Aquatic Perspective  
M. Freeman, K. Johnson (Basseterre/KN), A. Kristmundsson (Reykjavík/IS)
- P23** Risk factors associated with the occurrence of various tick-borne pathogens on livestock farms in the arid and semi-arid agro-ecological zones of Pakistan  
A. Rehman (Lahore/PK), F. J. Conraths, C. Sauter-Louis (Greifswald – Insel Riems/DE), A. Nijhof (Berlin/DE)

### 15:30–16:00 PS02 | Poster session 2

- P24** Bumped kinase inhibitor 1369 is effective against porcine cystoisosporosis at reduced treatment frequencies  
A. Shrestha, P. Greber, B. Ruttkowski, A. S. Feix (Vienna/AT), S. A. Michaels, G. R. Whitman, R. Choi, M. A. Hulverson, K. K. Ojo, W. Van Voorhis (Seattle/US), A. Joachim (Vienna/AT)

- P25** Seasonal variation of *Anaplasma marginale* in Brangus breed in midwest Brazil  
R. Andreotti, K. Rodriguez Martins, P. Oliveira Duarte, L. Oliveira Souza Higa,  
M. V. Garcia, J. Cavalcante Barros (Campo Grande/BR)
- P26** Differential effects of trypsin and chymotrypsin under reducing or non-reducing conditions on *Eimeria* excystation and release of viable sporozoites – Relevance to intestinal site specificity  
M. Jenkins (Beltsville/US)
- P27** EtROP2 is an early expressed kinase localised in the rhoptry compartment of *Eimeria tenella*  
A. Ribeiro E Silva, A. Saussat, Y. Le-Vern, F. Laurent, S. Lacroix-Lamandé,  
A. Silvestre (Nouzilly/FR)
- P28** Detection of antibodies to *Toxoplasma gondii* in oral fluid from pigs  
L. M. Campero (La Plata/AR), F. Schott (Zurich/CH), B. Gottstein (Bern/CH),  
X. Sidler (Zurich/CH), W. Basso (Bern, Zurich/CH)
- P30** Abortion during a subsequent pregnancy due to endogenous transplacental infection of natural *Neospora caninum* postnatally infected cattle in the dry period  
T. Dijkstra (Deventer/NL)
- P31** Molecular identification of *Sarcocystis hominis* and other three *Sarcocystis* species in cattle meat from Lithuania  
P. Prakas, Ž. Strazdaitė-Žielienė (Vilnius/LT), V. Januškevičius (Vilnius, Kaunas/LT),  
F. Chiesa (Turin/IT), A. Baranauskaitė, E. Rudaitytė-Lukošienė, E. Servienė (Vilnius/LT),  
S. Petkevičius (Kaunas/LT), D. Butkauskas (Vilnius/LT)
- P32** Serologic cross-reactivity between *Sarcocystis neurona* and *Sarcocystis falcatula*-like in experimentally infected Mongolian gerbils  
R. de Jesus, W. Borges-Silva, T. Bezerra, R. Uzêda, L. Gondim (Salvador/BR)
- P33** Placental immune response and extracellular matrix organisation during the early stages of *Neospora caninum* infection in pregnant heifers inoculated with high (Nc-Spain7)- or low (Nc-Spain1H)-virulence isolates at mid-gestation  
L. Jiménez-Pelayo, M. García-Sánchez, E. Collantes-Fernández, J. Regidor-Cerrillo,  
P. Horcajo (Madrid/ES), D. Gutiérrez-Expósito, J. Espinosa, J. Benavides (León/ES),  
K. Osoro (Asturias/ES), C. Pfarrer (Hanover/DE), L. M. Ortega-Mora (Madrid/ES)

- P34** Can an in vitro assay replace experimental infections to evaluate toltrazuril efficacy and resistance in *Cystoisospora suis*?  
B. Ruttkowski, A. Shrestha, A. Joachim (Vienna/AT)
- P35** Improvement of propagation and reverse genetics on *Cryptosporidium baileyi* in ovo  
M. Rafajlovic, M. Meissner, B. Kaspers, B. Schusser (Munich/DE)
- P36** *Toxoplasma gondii* atypical genotypes from synanthropic rodents in Argentina  
A. Dellarupe (Buenos Aires, La Plata/AR), L. Pardini (La Plata, Buenos Aires/AR),  
M. L. Gos, B. Fitte, M. Bernstein (Buenos Aires, La Plata/AR),  
L. De Felice (La Plata/AR), M. d. R. Robles (Buenos Aires, La Plata/AR),  
G. Moré (La Plata, Buenos Aires/AR), M. C. Ventruini, J. M. Unzaga (La Plata/AR)
- P37** First evidence of clinical besnoitiosis in donkeys in Italy  
L. Villa, A. L. Gazzonis (Lodi/IT), G. Álvarez-García (Madrid/ES), C. Perlotti (Lodi/IT),  
C. Diezma-Díaz, M. Fernandez-Alvarez (Madrid/ES), S. A. Zanzani, F. Ferrucci,  
M. T. Manfredi (Lodi/IT)
- P38** Experimental infection with *Toxoplasma gondii* in broiler chickens (*Gallus domesticus*): Seroconversion and distribution of the tissue cysts in brain, heart and skeletal muscle and prophylaxis  
M. E. Nedîşan, A. Györke, A. Toma-Naic, C. Ştefănuţ (Cluj-Napoca/RO),  
R. Blaga (Maisons-Alfort/FR), G. Schares (Greifswald – Insel Riems/DE),  
O. Djurković-Djaković (Belgrad/), V. Mircean (Cluj-Napoca/RO),  
V. Cozma (Cluj-Napoca, Bucharest/RO)
- P39** Investigation of the *Theileria parva* sporozoite surface glycan repertoire and binding C-type lectin receptors  
J. Kolakowski (Hatfield/GB), B. Shiels (Glasgow/GB), B. Lepenies (Hanover/DE),  
D. Ngugi (Hatfield/GB), T. Connelley (Midlothian/GB), D. Werling (Hatfield/GB)
- P40** Identifying essential host proteins for Theileria-induced cell transformation  
M. Maurizio, K. Woods (Bern/CH), J. G. Doench (Cambridge/US), S. Rottenberg,  
P. Olias (Bern/CH)
- P41** Coccidiostatic effects of tannin rich diets in rabbit production  
H. Legendre (Toulouse/FR), K. Saratsi, N. Voutzourakis, A. Saratsis,  
A. Stefanakis (Thermi Thessaloniki/GR), P. Gombault (Viâpre Le Petit/DE), H. Hoste,  
T. Gidenne (Toulouse/FR), S. Sotiraki (Thermi Thessaloniki/GR)
- P42** Cytokine expression during in-vitro infection of sheep trophoblasts with *Toxoplasma gondii* tachyzoites  
Z. Renteria-Solis, T. Grochow, A. Daugschies (Leipzig/DE)

- P43 Activities of endochin-like quinolones against in vitro cultured *Besnoitia besnoiti* tachyzoites  
N. Eberhard, V. Balmer, J. Müller, N. Müller (Bern/CH), S. Pou, A. Nilsen, M. Riscoe, J. Doggett (Portland/US), A. Hemphill (Bern/CH)
- P44 Serological survey on *Neospora* spp. and *Besnoitia* spp. in wild rabbits in Portugal  
H. Waap (Oeiras, Lisbon/PT), J. Carrilho, A. Munhoz (Lisbon/PT), J. Gomes (Oeiras, Lisbon/PT), C. Carvalho (Oeiras/PT), M. Cunha, M. Duarte (Oeiras, Lisbon/PT), G. Schares (Greifswald – Insel Riems/DE)
- P45 Genotypes of *Toxoplasma gondii* circulating in free-range chickens, pigs and pregnant women in Benue state, Nigeria  
I. Obijiaku (Makurdi/NG), J. Kwaga, J. Kabir, I. Lawal (Zaria/NG), D. Blake (London/GB)
- P46 5-Aminopyrazole-4-carboxamide-based Bumped-Kinase Inhibitors 1770 and 1708:  
Moving to a preclinical candidate for cryptosporidiosis  
K. K. Ojo, R. Choi, W. Huang, M. A. Hulverston, G. R. Whitman, S. L. M. Arnold, L. K. Barrett (Seattle/US), D. A. Shaefer, M. Riggs (Tucson/US), S. Lee, S. Tzipori (North Grafton/US), K. C. Marsh, B. E. Leroy, J. J. Lynch, G. M. Frieberg, D. J. Kempf (North Chicago/US), E. Fan, W. Van Voorhis (Seattle/US)



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10:00–10:50 PS03 | Poster session 3

- P47 *Cryptosporidium parvum* infection alters glucose transport in infected enterocytes  
C. Delling, A. Daugschies (Leipzig/DE), B. Bangoura (Laramie/US),  
F. Dengler (Leipzig/DE)
- P48 Zoonotic Cryptosporidium species and subtypes in lambs and goat kids in Algeria  
D. Baroudi (Maisons-Alfort/FR), A. Hakem (Djelfa/DZ), H. Adamu (Addis Ababa/ET),  
S. Amer (Kafr El Sheikh/EG; Maisons-Alfort/FR), D. Khelef, H. Dahmani (Algiers/DZ),  
X. Chen (Beijing/CN), D. Roelling (Atlanta/US), Y. Feng, L. Xiao (Guangzhou/CN),  
K. Adjou (Maisons-Alfort/FR)
- P49 Assessment of a yeast based vaccine system for oral delivery of *Eimeria tenella* antigens in commercial layer chickens  
F. Soutter, T. Küster, M. Nolan, F. Tomley, D. Werling, D. Blake (Hatfield/GB)
- P50 Sources of bovine sarcocystosis at farm: An innovative approach  
M. Drouet (Villers-Bocage/FR), M.-N. Fouilloux (Lyon/FR), S. Rubiola,  
F. Chiesa (Grugliasco/IT)
- P51 Novel in vitro models of *Besnoitia besnoiti* infection based on primary bovine aorta endothelial cells, fibroblasts and BVDV coinfections in endothelial cells  
A. Jiménez-Meléndez, M. Fernández-Álvarez, M. Á. Ramírez de Paz, C. Diezma,  
P. Vázquez, A. Calle, L. M. Ortega-Mora, G. Álvarez-García (Madrid/ES)
- P52 Anti-*Toxoplasma gondii* antibodies profile in female sheep of the State of Paraíba, Brazil: From birth to sexual maturity  
B. Valencio, B. F. Alves (São Paulo/BR), R. A. Bezerra, V. L. R Vilela,  
T. F. Feitosa (Sousa/BR), M. Amaku, S. Gennari (São Paulo/BR)
- P54 The *Theileria annulata* schizont recruits nuclear-pore containing membranes to its surface  
S. Huber, A. Bär, A. Hemphill, K. Woods (Bern/CH)
- P55 Effect of the microbiota on the development of the parasite *Eimeria tenella*  
P. Gaboriaud, E. Guitton, G. Fort, A. Niepceron, R. Guabiraba, A. Silvestre,  
S. Lacroix-Lamandé, N. Lallier, C. Schouler, F. Laurent, F. I. Bussiere (Nouzilly/FR)
- P56 Adaptative changes in recently obtained *Toxoplasma gondii* isolates after in vitro cultivation  
A. Colos-Arango, J. Regidor-Cerrillo, M. Fernández-Escobar, R. Calero-Bernal,  
L. M. Ortega-Mora (Madrid/ES)

- P57** Bioinformatic and experimental identification of a MEN/Hippo pathway in *Toxoplasma gondii*  
I. Delgado, D. Santos, S. Francisco (Lisbon/PT), A. Tavares,  
J. Coelho (Lisbon, Oeiras/PT), S. Zúquete, A. Leitão, H. Soares, S. Nolasco (Lisbon/PT)
- P58** Molecular detection of *Toxoplasma gondii*: Is one marker enough?  
F. Chiesa, S. Zanet, S. Rubiola, E. Battisti (Grugliasco/IT), D. Ranucci,  
F. Veronesi (Perugia/IT), E. Ferroglio (Grugliasco/IT)
- P59** IFN- $\gamma$  production by bovine adipose tissue stromal vascular fraction cells upon in vitro stimulation with *Neospora caninum* tachyzoites  
B. M. Oliveira, A. Pinto (Porto/PT), P. Meireles (Porto, Vila Nova de Famalicão/PT),  
P. G. Ferreira, M. Vilanova, A. Correia, L. Teixeira (Porto/PT)
- P60** Metabolic requirements of *Besnoitia besnoiti* tachyzoite-triggered NETosis  
E. Zhou, I. Conejeros, U. Gärtner, S. Mazurek, C. Hermosilla, A. Taubert (Giessen/DE)
- P61** Do dendritic cell derived exosomes play a role in *Toxoplasma gondii* infection?  
D. Santos, I. Delgado, S. Zúquete, A. Basto, A. Leitão (Lisbon/PT)
- P62** Programming mucosal-homing lymphocytes to block *Toxoplasma gondii* oral infection  
A. P. Basto, S. Zúquete, D. Santos, C. Figueiredo (Lisbon/PT),  
L. M. Ortega-Mora (Madrid/ES), A. Hemphill (Bern/CH), A. Leitão (Lisbon/PT)
- P63** *Toxoplasma gondii* strain and dose effect on body weight, serum antibodies response and systemic distribution in intraperitoneally infected domestic turkeys  
R. Gerhold, S. Ammar, C. Su (Knoxville/US)
- P64** Effect of meat processing on viability of *Toxoplasma gondii*: Towards replacement of mouse bioassay by in vitro testing  
M. Opsteegh, C. Dam-Deisz (Bilthoven/NL), P. de Boer (Zeist/NL),  
A. Faré (Zoetermeer/NL), P. Hengeveld (Bilthoven/NL), R. Luiten (Zoetermeer/NL),  
C. van Solt-Smits (Lelystad/NL), T. Verkleij (Zeist, Wageningen/NL),  
J. van der Giessen (Bilthoven/NL), H. Wisselink (Lelystad/NL)
- P65** Bumped kinase inhibitor BKI-1748: Studies on in vitro efficacy, safety and in vivo effects in pregnant mice infected with the highly virulent *N. caninum* isolate Nc-Spain7  
D. Imhof, P. Winzer, N. Anghel, V. Balmer, N. Eberhard (Bern/CH), W. Van Voorhis,  
K. K. Ojo, M. A. Hulverson, R. Choi (Seattle/US), L.-M. Ortega-Mora (Madrid/ES),  
A. Hemphill (Bern/CH)

- P66 Treatment with bumped kinase inhibitor 1294 alters *Neospora caninum* protein expression, which lead to a diversified humoral immune response in *N. caninum* infected mice  
P. Winzer, D. Imhof, J. Müller, D. Ritler, M. Heller (Bern/CH), K. K. Ojo,  
W. Van Voorhis (Seattle/US), L. M. Ortega-Mora (Madrid/ES), A. Hemphill (Bern/CH)
- P67 Preliminary validation of IgM-capture ELISA for early detection of *Besnoiti besnoiti* in cattle  
L. Comtet, L. Olagnon, K. Martin (Grabels/FR), C. Grisez (Toulouse/FR), M. Rameil,  
X. Desclaux (Foix/FR), F. Prevot, P. Jacquiet (Toulouse/FR), J.-P. Alzieu (Foix/FR),  
P. Pourquier (Grabels/FR)
- P68 Biological tools to study *Toxoplasma gondii* in its definitive host  
D. Le Roux, A. Blaizot, B. Polack (Maisons-Alfort/FR), T. Lilin (Maisons-Alfort/DE),  
R. Blaga (Maisons-Alfort/FR)
- P69 A base-exchange type phosphatidylserine synthase is essential for the lytic cycle of *Toxoplasma gondii*  
D. A. Katelas, R. D. Arroyo-Olarte, N. Gupta (Berlin/DE)
- P70 Molecular epidemiology of cryptosporidiosis in Zambia  
K. Hayashida (Sapporo/JP), M. Namwiinga R., S. Sianongo (Lusaka/ZM),  
C. Sugimoto (Lusaka/ZM, Sapporo/JP), M. M. Mutengo (Lusaka/ZM)
- P71 Molecular survey for cyst-forming coccidia (*Toxoplasma gondii*, *Neospora caninum*, *Sarcocystis* spp.) in Mediterranean periurban micromammals  
M. Fernández-Escobar, R. Calero-Bernal (Madrid/ES), J. Millán,  
A. D. Chirife (Santiago/CL), L. M. Ortega-Mora (Madrid/ES)
- P72 An in vitro system to study heteroresistance and metabolic host interaction on mature tissue cysts of *Toxoplasma gondii*  
C. Christiansen, J. Scholz, F. Melerowicz, F. Seeber, M. Laue, M. Blume (Berlin/DE)
- P73 The mode of action of *T. gondii* tissue cyst inhibitors  
D. Maus, E. Putrianti, J. Herrmann, R. Müller, M. Blume (Berlin/DE)

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### **SCIENTIFIC WORK PRESENTED AT THE 2019 APICOWPLEXA MEETING:**

- **POSTER:** Preliminary validation of IgM-capture ELISA for early detection of *Besnoiti besnoiti* in cattle
- **ORAL PRESENTATION:** First evidence of interferon-gamma response in *Besnoitia besnoiti* naturally-infected animals

## SOCIAL PROGRAMME

# Welcome reception

A warm welcome to Berlin! After the opening session it is time for the first networking evening. We invite you to socialise with your colleagues and other delegates in a pleasant atmosphere with some food and drinks. The welcome reception is included in the registration fee.

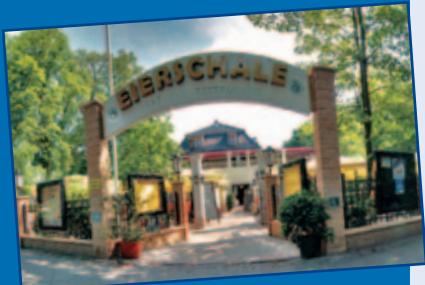
Date	Wednesday, 2 October
Time	18:15–20:00
Location	Hotel Steglitz International Albrechtstraße 2 12165 Berlin/DE
Registration fee	Included in conference registration



# Congress dinner

The legendary Berliner “Eierschale” (“eggshell”) shines in glorious splendor in a new and unmistakably lovingly restored ambience. Since 2008, the jazz bar, which was already known in the 1950s, now belongs to one of the leading culinary restaurants, musical institutions and venues in Berlin, with many hundreds of satisfied guests every week.

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Date	Thursday, 3 October
Time	19:00–22:00
Location	Eierschale Dahlem Podbielskiallee 50 14195 Berlin
Registration fee	Registration required   60 EUR

## INDEX OF AUTHORS AND SESSION CHAIRS

### A

Adamu, H.	26	Blume, M.	28	Cozma, V.	24
Adjou, K.	26	Bonacic Marinovic, A.	12	Cruz Bustos, T.	13
Aguado-Criado, E.	20	Borges-Silva, W.	19, 23	Csordas Cabral, B.	20
Aguado-Martinez, A.	18	Bottari, L.	20	Cunha, M.	25
Alfarro Cardoso, L.	22	Boubaker, G.	17		
Al-Hamidhi, S.	14	Bougdour, A.	17	<b>D</b>	
Allan, K.	21	Boulon, C.	20	da Cunha, I. A. L.	23
Álvarez-García, G.	17, 18, 20, 24, 26	Bouwknegt, M.	18	Dahmani, H.	26
Alves, B.	20	Bowden, G.	21	Dam-Deisz, C.	27
Alvim, A. P.	20	Boyle, J.	11	Dangoudoubiyam, S.	13
Alzan, H.	22	Brionne, A.	14	Daugschies, A.	24, 26
Alzieu, J.-P.	15, 20, 28	Brodeur, V.	18	de Barros, L. D.	23
Amaku, M.	26	Brühlmann, F.	13, 21	de Boer, P.	27
Amdouni, Y.	17	Buetikofer, P.	17	De Felice, L.	20, 21, 24
Amer, S.	26	Burrell, A.	13, 17	de Glanville, W. A.	21
Ammar, S.	27	Burrells, A.	13	de Jesus, R.	19, 23
Andreotti, R.	20, 23	Bussiere, F. I.	16, 19, 26	Del Fava, C.	20
Anghel, N.	17, 18, 19, 22, 27	Bussière, F.	14	Delgado, I.	22, 27
Ansari, H. R.	14	Bütikofer, P.	18	Dellarupe, A.	21, 24
Appelberg, R.	17	Butkauskas, D.	20, 23	Delling, C.	26
Araujo, M.	20	Buza, J.	21	Deng, H.	12
Arnold, S. L. M.	17, 25			Dengler, F.	26
Arroyo-Olarre, R. D.	28			DeNotta, S. L.	18
Attrie, E.	17	Cacciò, S.	13	Desclaux, X.	15, 28
Awad, H.	14	Calero-Bernal, R.	13, 16, 19, 26, 28	Desiatkina, O.	17
		Calle, A.	26	Dettwiler, I.	18
		Calvo, C.	16	Diallo, M.	14
		Campero, L. M.	21, 23	Diezma, C.	20, 24, 26
		Cardim, S. T.	23	Diezma-Díaz, C.	20, 24
		Carneiro Costa, R.	12	Dijkstra, T.	23
		Carrilho, J.	25	Djurković-Djaković, O.	24
		Carvalho, C.	25	Doench, J. G.	24
		Castro, A.	12	Doggett, J.	17, 18, 25
		Castro-Hermida, J.	16	Driskell, I.	21
		Cavalcante Barros, J.	20, 23	Drouet, M.	19, 26
		Chen, X.	26	Duarte, M.	25
		Chianini, F.	13	Dubey, J.	11
		Chiesa, F.	19, 23, 26, 27		
		Chirife, A. D.	28	<b>E</b>	
		Choi, R.	17, 19, 22, 25, 27	Eberhard, N.	19, 25, 27
		Christiansen, C.	28	Enrique Gómez Marín, J.	15
		Clardy, J.	21	Eppink, D. M.	18
		Claxton, J.	21	Espinosa, J.	16, 23
		Cleaveland, S.	21		
		Coelho, J.	27	<b>F</b>	
		Collantes-Fernández, E.	13, 14, 15	F. Feitosa, T.	26
			16, 23	Fabian, B.	21
		Colos-Arango, A.	16, 19, 26	Fan, E.	25
		Comtet, L.	15, 28	Faré, A.	27
		Conejeros, I.	22, 27	Feix, A. S.	13, 20, 22
		Connelley, T.	24	Feng, Y.	26
		Corraths, F. J.	11, 13, 18, 19, 22	Fernández-Álvarez, M.	24, 26
		Correia, A.	17, 27	Fernández-Escobar, M.	13, 15, 16
		Costa, J. C.	12		19, 26, 28
		Costa, R.	12, 21	Ferre, I.	17, 20

# INDEX OF AUTHORS AND SESSION CHAIRS

<b>H</b>				
Ferreira, P. G.	27	Haidar, M.	14	Kreppel, K.
Ferreirinha, P.	17	Hakem, A.	26	Krijger, I. M.
Ferreras-Estrada, M. C.	16	Hakimi, M.-A.	17	Kristmundsson, A.
Ferroglio, E.	27	Hamilton, C.	21	Küster, T.
Ferrucci, F.	24	Hammoudi, P.-M.	14	Kwaga, J.
Figueiredo, C.	27	Hayashida, K.	28	
Fitte, B.	24	Hedar, F.	21	
Fort, G.	16, 19, 26	Hehl, A.	11, 21	Lacroix-Lamandé, S.
Fouilloux, M.-N.	19, 26	Heller, M.	28	14, 16, 19 23, 26
Francisco, S.	27	Hemphill, A.	17, 18, 19, 22, 25, 26,	Lacy, P.
Freeman, M.	22		27, 28	Lacz, C.
Frieb erg, G. M.	25	Hengeveld, P.	27	Lallier, N.
Fróis-Martins, R.	17	Hermosilla, C.	13, 21, 22, 27	Langa, X.
Furrer, J.	17	Hernández Sánchez, M. L.	15	Langsley, G.
		Herrmann, J.	28	Lankester, F.
		Horcajo, P.	14, 15, 23	Laue, M.
		Horcajo Iglesias, P.	15	Laughery, J.
Gaboriaud, P.	16, 19, 26			14, 16, 17, 19, 23, 26
Gadalla, A.	14	Hoste, H.	24	Lawal, I.
Garcia, M. V.	23	Howe, D.	13	Le Roux, D.
García-Sánchez, M.	14, 23	Huang, W.	25	Le Vern, Y.
Gärtner, U.	22, 27	Huber, S.	26	Lee, S.
Gazzonis, A. L.	12, 24	Hulverson, M. A.	17, 19, 22, 25, 27	Legendre, H.
Gennari, S.	26			22, 27
Georgeault, s.	17	I		Leitão, A.
Gerhold, R.	27	Imhof, D.	18, 19, 27, 28	Lepenies, B.
Gidenne, T.	24	Innes, E.	13	Leroy, B. E.
Gilray, J.	18, 21	Innes, L.	16, 21	Le-Vern, Y.
Gnahoui-David, A.	14, 17			Lilin, T.
Gombault, P.	24	J		Lin, Z.
Gomes, J.	25	Jacquiet, P.	15, 20, 28	Llano, H.
Gondim, Le.	19, 23	Januškevičius, V.	23	Lorenzi, H.
Gondim, Lu.	19, 23	Jatau, I.	13	Lubián, Á.
Gonzales, J. L.	18	Jelk, J.	18	Luiten, R.
González-Barrio, D.	20	Jenkins, M.	13, 23	Lynch, J. J.
González-Huecas, M.	20	Jiménez-Meléndez, A.	20, 21, 26	
González-Warleta, M.	16	Jiménez-Pelayo, L.	14, 23	M
Gos, M. L.	24	Joachim, A.	13, 17, 22, 24	Maiorka, P.
Gottstein, B.	23	Johne, A.	12	Maire, J.
Greber, P.	22	Johnson, K.	22	Maksimov, P.
Grigg, M.	13	Jutras, C.	18	Malzac, M.
Grisez, C.	15, 20, 28			Manadas, B.
Grob, D.	22	K		Manfredi, M. T.
Grochow, T.	24	Kabir, J.	25	Marla Oshiro, L.
Guabiraba, R.	16, 19, 26	Kaspers, B.	24	Marques, C. S.
Gual, I.	21	Katelas, D. A.	28	Marques, G.
Guerrero Molina, M. C.	13	Katzer, F.	12, 13, 18, 21	Marsh, K. C.
Guitton, E.	16, 19, 26	Kaushik, A.	14	Martin, K.
Gupta, N.	28	Kayode, O. K.	22	Marugan-Hernandez, V.
Gutiérrez Blázquez, D.	15	Kempf, D. J.	25	15, 28 14, 17
Gutiérrez-Expósito, D.	13, 16, 20, 23	Khan, A.	13	Maurizio, M.
Györke, A.	24	Khelef, D.	26	13, 24
		Kibona, T.	21	Maus, D.
		Kim, S.	17	Mayer-Scholl, A.
		Kolakowski, J.	24	28
		Koudela, B.	16	Mazurek, S.
				12
				Meerburg, B. G.
				18
				Meireles, P.
				27
				Meissner, M.
				11, 15, 24

## INDEX OF AUTHORS AND SESSION CHAIRS

Melbert, F.	15	Pardini, L.	24	Rottenberg, S.	13, 24
Melerowicz, F.	28	Pastor-Fernandez, I.	17	Rubiola, S.	19, 26, 27
Mercader Huber, N.	18	Paunescu, E.	17	Rudaitytė-Lukošienė, E.	20, 23
Mesquita, L.	21	Pena, H.	13, 20	Runcu, M.	21
Mettenleiter, T.C.	11	Pérez, V.	16	Rutkowski, B.	13, 22, 24
Meylan, M.	18	Perlotti, C.	24		
Mezo, M.	16	Petermann, J.	20	<b>S</b>	
Mfarrej, S.	14	Petkevičius, S.	23	Sadrin, G.	16
Michaels, S. A.	22	Pfarrer, C.	23	Saeij, J.	15
Millán, J.	28	Pfeffer, K.	15	Saldías, B.	20
Mircean, V.	24	Pinto, A.	22, 27	Salecker, H.	22
Moore, D. P.	21	Pinto Basto, A.	22	Sanchez-Sanchez, R.	17
Moré, G.	20, 21, 24	Pitarch, A.	14	Sanchez-Vazquez, M.	20
Müller, J.	18, 25, 28	Pituco, M.	20	Santa, C.	22
Müller, N.	25	Pizarro-Díaz, M.	20	Santos, D.	22, 27
Müller, R.	28	Polack, B.	28	Saratsi, K.	24
Munhoz, A.	25	Pompej, J.	20	Saratsi, A.	24
Murillo Leon, M.	15	Pontes Chiebao, D.	13, 20	Sausset, A.	14, 16, 23
Mutengo, M. M.	28	Postigo, M.	14	Sauter-Louis, C.	22
		Pou, S.	18, 25	Schaefer, D.	21
<b>N</b>		Pourquier, P.	15, 28	Schares, G.	11, 12, 13, 16, 18, 19,
Namwiinga R., M.	28	Prakas, P.	20, 23		21, 24, 25
Nascimento, D.	18	Prevot, F.	15, 20, 28	Schmidt, E.	21
Nassar, A.	20	Primack, A.	11	Scholz, J.	28
Nedişan, M. E.	24	Putrianti, E.	28	Schott, F.	23
Ngugi, D.	24			Schouler, C.	16, 19, 26
Niepceron, A.	16, 19, 26	<b>R</b>		Schusser, B.	24
Nijhof, A.	22	R Vilela, V. L.	26	Seeber, F.	12, 21, 28
Nilsen, A.	18, 25	Rafajlovic, M.	24	Semango, G.	21
Nöckler, K.	12	Ramadhar, T.	21	Serviné, E.	20, 23
Nolan, M.	19, 26	Ramakrishnan, C.	21	Shaefer, D. A.	25
Nolasco, S.	27	Rameil, M.	15, 28	Shaw, H.	18
Norris, J.	13	Ramírez de Paz, M. Á.	26	Shiels, B.	14, 24
Nyonda, M.	14	Ranucci, D.	27	Shrestha, A.	17, 22, 24
		Rchiad, Z.	14	Sianongo, S.	28
<b>O</b>		Regidor-Cerrillo, J.	13, 14, 15, 16	Sibley, D.	14
Obijaku, I.	25		19, 23, 26	Sidler, X.	23
O'Connor, R.	21	Rehman, A.	22	Silva, L.	21, 22
Ojo, K. K.	17, 19, 22, 25, 27, 28	Rejman, E.	18	Silva, M.	22
Okuda, L. H.	20	Renteria-Solis, Z.	24	Silvestre, A.	14, 16, 19, 23, 26
Olagnon, L.	15, 28	Resende, M.	17	Singh, S.	15
Olias, P.	13, 14, 18, 21, 24	Ribeiro E Silva, A.	14, 23	Škorić, M.	16
Oliveira, B. M.	27	Richter, M.	12	Smola, J.	16
Oliveira Duarte, P.	20, 23	Rico San Román, L.	15	Soares, H.	27
Oliveira Souza Higa, L.	23	Riggs, M.	17, 21, 25	Soares, R.	13, 19
Oorburg, D.	18	Riavard, S.	18	Sokol, S.	11
Opsteegh, M.	12, 27	Riscoe, M.	18, 25	Soldati-Favre, D.	11, 14, 15
Ortega-Mora, L. M.	13, 14, 15, 16	Ritler, D.	28	Sotiraki, S.	24
	17, 19, 20, 21, 23, 26, 27, 28	Robles, M. d. R.	24	Sousa, S.	12
Osoro, K.	23	Rocha, A.	17	Soutter, F.	17, 19, 26
		Rodriguez Martins, K.	23	Spano, F.	12
<b>P</b>		Roelling, D.	26	Staubach, C.	13
P. Basto, A.	27	Romaldini, A.	20	Stefanakis, A.	24
Pain, A.	13, 14	Roozbehani, M.	18	Ştefanut, C.	24
Palencia, A.	17	Rosa, M.	20	Steinfeldt, T.	15

## INDEX OF AUTHORS AND SESSION CHAIRS

	U		W
Stollberg, K.	12	Underwood, G.	13
Strazdaitė-Žielienė, Ž.	20, 23	Unzaga, J. M.	20, 24
Su, C.	22, 27, 28	Uzēda, R.	23
Suarez, C.	22		
Sugimoto, C.	28	V	
Sultan, A.	14	Valencio, B.	26
Swai, E.	21	Vallejo, R.	16
Swale, C.	17	Van Asseldonk, M. A. P. M.	18
Swanenburg, M.	18	van der Giessen, J.	12, 27
Swart, A.	12	van Solt-Smits, C.	27
		Van Voorhis, W.	17, 19, 22, 25
			27, 28
T		Van Wagenberg, C. P. A.	18
Tabanera, E.	20	Varaschin, M.	21
Tajeri, S.	14	Vázquez, P.	26
Taubert, A.	21, 22, 27	Velásquez, Z.	21, 22
Tavares, Ale.	19, 27	Venturini, M. C.	20, 21, 24
Tavares, Ali.	19, 27	Verkleij, T.	27
Teixeira, L.	17, 27	Veronesi, F.	27
Thompson, J.	14	Vilanova, M.	17, 27
Thomson, J.	21	Villa, L.	12, 24
Thomson, S.	18	Voutzourakis, N.	24
Toma-Naic, A.	24	Vrba, V.	13
Tomley, F. M.	13, 17, 19, 26		
Tötter, J.	14, 17		
Troell, K.	18		
Tudela Zúquete, S.	22		
Tzipori, S.	25		
		X	
		Xia, D.	13, 17
		Xiao, L.	26
		Y	
		Yamamoto, M.	14
		Z	
		Zanet, S.	27
		Zanzani, S. A.	12, 24
		Zhou, E.	22, 27
		Zúquete, S.	27

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38, rue de la Calestienne  
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info@biox.com • www.biox.com

