



International Symposium on Tick-Borne Pathogens and Disease

ITPD 2017 Vienna, Austria, 24 to 26 September 2017

Under the auspices of the Austrian Society for Hygiene, Microbiology and Preventive Medicine / ÖGHMP

Organisers ÖGHMP and ESGBOR / ESCMID Study Group on Lyme Borreliosis

ITPD 2017 Programme

Sunday 24 September 2017

15.00 **Opening**

Welcome and introduction

Gerold Stanek and Ram Dessau

15:30 Key note

Hard ticks as vectors - basic science and critical considerations

Olaf Kahl, Berlin

Proteomic approaches to identify Ixodes species and its associated pathogens

Nathalie Boulanger, Strasbourg

Pandora's flying box - Borrelia burgdorferi sensu lato prevalence in Ixodes species from birds throughout Europe

Ana Claudia Norte, Coimbra

Ixodes ricinus winter survival and spring emergence in Norway

Naomi Målbakken, Kristiansand

Competition between strains of Borrelia afzelii in the rodent host and the tick vector

Maarten Voordouw, Neuchâtel

Ixodes pavlovskyi: known tick species, unknown vector

Nina Tikunova, Novosibirsk

18.00 Foyer Reception

Monday 25 September 2017

Chair: Klaus-Peter Hunfeld, Frankfurt

08.30

Key note

The outcomes of tick bites – the Scandinavian experience

Per-Eric Lindgren, Linköping

Molecular detection of tick-borne pathogens in humans with a tick bite or erythema migrans, in the Netherlands

Agnetha Hofhuis, Bilthoven

Estonia - an endemic region of major tick-borne infections: Situation over a decade

Julia Geller, Tallinn

Molecular eco-epidemiology of borreliosis in Slovakia

Marketa Derdakova, Bratislava

Estimating the risk associated with Ixodes ricinus parasitism: towards the development of serological markers for the tick bite

Chiara Bazzocchi, Milano

Chair: Jean Tsao, East Lansing, USA

10.15

Key note

Tick saliva and its role in pathogen transmission

Patricia Nuttal, Oxford

The sticky aspect of ticks – the tick cement plug for bionic bioadhesive research

Sylvia Nürnberger, Vienna

Active water vapour uptake in unfed and engorged ticks at cold temperatures and ecological implications

Olaf Kahl, Berlin

The transformation and visualization of a fully infectious fluorescent European species of Lyme disease Borrelia, Borrelia afzelii

Ryan Rego, Ceske Budejovice

Key note

Canine breed predisposition in tick-borne diseases

Michael Leschnik, Vienna

Monday 25 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P1-P11: Joppe Hovius, Amsterdam

- P1 **Genetics aspects of *Borrelia miyamotoi***
Alexander Platonov, Moscow
- P2 ***Borrelia miyamotoi* antigenic proteins and differential expression of its proteins**
Kathryn Lethbridge, Lexington
- P3 **Transovarial transmission rate and filial infection prevalence of *Borrelia miyamotoi* from *Ixodes scapularis* collected from hunter harvested white-tailed deer**
Seungeun Han, Lansing, USA
- P4 **Investigating *Borrelia miyamotoi* infection prevalence and density of infected larval, nymphal, and adult *Ixodes scapularis* in Wisconsin: implications for disease risk**
Seungeun Han, Lansing, USA
- P5 ***Borrelia miyamotoi*, a connection between Lyme disease and relapsing fever?**
Brandee Stone, Grand Forks, USA
- P6 **Long-term follow-up of patients with *Borrelia miyamotoi* disease in Russia**
Alexander Platonov, Moscow
- P7 **In vitro susceptibility of the relapsing fever spirochete *Borrelia miyamotoi* to antimicrobial agents**
Joris Koetsveld, Amsterdam
- P8 **Detection of anti-*Borrelia miyamotoi* antibodies in retrospective and prospective cohorts**
Dieuwertje Hoornstra, Amsterdam
- P9 ***Borrelia miyamotoi* infection in Austria suggested by antibodies to glycerophosphoryl diester phosphodiesterase**
Michael Reiter, Austria
- P10 **Antibody responses to GlpQ and variable major proteins in patients with *Borrelia miyamotoi* disease**
Joris Koetsveld, Amsterdam
- P11 **Antibody response in *Borrelia miyamotoi* infection studied by plane protein microarray**
Olga Stukolova, Moscow
- P12 **Structure of CRISPR / Cas-systems in the genome of the strain *Borrelia miyamotoi* LB - 2001, revealed by bioinformatics methods**
Yuri Dzhioev, Irkutsk

Monday 25 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P12-P24: Olaf Kahl, Berlin

- P13 **Distribution and tick-borne pathogens of Ixodidae ticks in the Northeastern and Northern Altai (Republic of Altay, Russia)**
Natalia Livanova, Novosibirsk
- P14 **The unique combined natural foci of tick-borne infections in the territory of Ekhirit-Bulagatsky district in Irkutsk region, Russia**
Olga Sunstsova, Irkutsk
- P15 **Tick-borne infections in natural foci of the Baikal region of Russia - research in 2015-2016**
Dimitrii Kiselev, Irkutsk
- P16 **Detection of Anaplasma phagocytophilum and other pathogens in wild animals and their ectoparasites from Czech Republic**
Balátová Pavla, Prague
- P17 **Prevalence of tick-borne pathogens in questing ticks Ixodes ricinus in urban area of Prague (Czech Republic)**
Katrina Kybicová, Prague
- P18 **Europe-wide meta-analysis of Borrelia burgdorferi sensu lato prevalence in questing Ixodes ricinus ticks**
Martin Strnad, České Budějovice
- P19 **Species and subspecies diversity of Borrelia burgdorferi sensu lato strains from Serbia**
Sanja Cakic, Belgrade
- P20 **Cohabitation of Borrelia spp. and Rickettsia spp. in Ticks on the South Coast of New South Wales, Australia**
Oliver Creagh, Sydney, Australia
- P21 **Ixodes ricinus infestation in cattle and goats: host preference in a grazing herd in a mountain pasture (northern Italy)**
Sergio Zanzani, Milano
- P22 **Translating TekenNet results into tick bite prevention policy advice in Belgium: first steps and future perspectives**
Katrien Tersago, Brussels
- P23 **TekenNet: an online citizen-based platform for the reporting of tick bites in Belgium**
Tinne Lernout, Brussels
- P24 **Germany, 2012: how an extreme weather spell in the winter can influence subsequent vector tick abundance and tick-borne disease incidence**
Olaf Kahl, Berlin

Monday 25 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P25-P37: Brian Stevenson, Lexington, USA

- P25 **Altered gene expression upon infection with *Borrelia afzelii* in nymphal *Ixodes ricinus* salivary glands during feeding**
Jos Trentelman, Amsterdam
- P26 **DNA-binding proteins SpoVG and PlzA are important regulators for *Borrelia burgdorferi* to adapt to stress**
Christina Savage, Lexington, USA
- P27 **The role of glutathione metabolism in host defence against *Borrelia burgdorferi***
Mariska Kerstholt, Nijmegen
- P28 **Genomics of two sister species to understand host association in Lyme borreliosis: *Borrelia bavariensis* and *B. garinii***
Noémie S. Becker, Planegg-Martinsried
- P29 **Genotyping of *Borrelia garinii* strains isolated from CSF, skin and blood of human patients and from ticks**
Tjaša Cerar, Ljubljana
- P30 **Published data do not support the notion that *Borrelia valaisiana* is human pathogenic**
Gabriele Margos, Oberschleißheim
- P31 **In vitro susceptibility testing of antibiotics against nineteen *Borrelia burgdorferi* sensu lato strains from Republic of Serbia**
Gorana Veinović, Belgrade
- P32 **Epidemiology of *Ixodes* tick-borne borreliosis in Russia**
Anton Titkov, Moscow
- P33 **Prevalence of *Borrelia* infections in the United Kingdom and the development of an enhanced testing regime**
Daniel Carter, Porton Down
- P34 **How much Lyme borreliosis is actually seen in primary health care in Scotland?**
Evans Roger, Inverness
- P35 **The temporal and spatial dynamics of tick borne disease in Cumbria**
Jessica Hall, Salford
- P36 **Structural insights into tick attachment cement**
Johannes Suppan, Vienna
- P37 ***Amblyomma hebraeum*: Analysis of tick attachment cement**
Benedikt Engel, Vienna

Monday 25 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P38-P49: Mateusz Markowicz, Vienna

- P38 **LymeProspect: ongoing prospective study into long-term effects of Lyme borreliosis and determinants for persisting symptoms in the Netherlands**
Jeanine Ursinus, Amsterdam
- P39 **LymeMAP: A European collaborative project to investigate the feasibility of producing a real-time, interactive app containing tick maps and current information on Lyme borreliosis**
Evans Roger, Inverness
- P40 **Course and outcome of erythema migrans in pregnant women**
Vera Maraspin, Ljubljana
- P41 **Erythema migrans: course and outcome in patients treated with rituximab**
Vera Maraspin, Ljubljana
- P42 **Comparison of antibody response to immunodominant borrelial antigens in pediatric Lyme arthritis**
Lenka Krbková, Brno
- P43 **Asymptomatic Lyme borreliosis is common in Sweden and may be distinguished from Lyme neuroborreliosis by sex, age and specific immune marker patterns**
Hanna Carlsson, Kalmar
- P44 **Neuroborreliosis - 23 years of experience**
Johanna Zajkowska, Białystok
- P45 **Clinical and imaging findings in patients with Lyme neuroborreliosis**
Johanna Zajkowska, Białystok
- P46 **Occurrence of erythema migrans in children with Lyme neuroborreliosis and association to outcome**
Babro H Skogman, Falun
- P47 **Characteristics of patients with peripheral facial palsy due to Borrelia burgdorferi sensu lato infection**
Tereza Rojko, Ljubljana
- P48 **Depressive symptoms in patients referred to a tertiary Lyme center: high prevalence in those without evidence of Lyme borreliosis**
Tizza Zomer, Apeldoorn
- P49 **Children suspected of Lyme borreliosis referred to a tertiary Lyme center: prevalence of severe fatigue and depressive symptoms**
Tizza Zomer, Apeldoorn

Monday 25 September 2017

Chairs: Hannes Stockinger and Gerold Stanek, Vienna

15:15

Key note

Immune responses in the pathogenesis of Lyme disease and its post-Lyme complications

Klemen Strle, Boston, USA

The complement binding and inhibitory protein CbiA of *Borrelia miyamotoi* degrades extracellular matrix components by interacting with plasmin(ogen)

Peter Kraiczy, Frankfurt

Novel approaches shed light on transcriptome architecture and gene regulation in *Borrelia burgdorferi*: A new look at an old picture

Will Arnold, Lexington

Experimental infection of voles from nature with *Borrelia miyamotoi*

Nadezhda Kolyasnikova, Moscow

REV-A-lutions: Contributions of fibronectin-binding adhesins to distinct aspects of *Borrelia burgdorferi* pathogenesis

Catherine Brissette, Grand Forks, USA

In vitro cultivation of *Candidatus Neoehrlichia mikurensis* from clinical isolates

Christine Wennerås, Göteborg

Key note

***Borrelia* - are there benefits from dividing the genus *Borrelia*?**

Gabriele Margos, Oberschleißheim

19.30

Symposium Dinner

Tuesday 26 September 2017

Chair: Wolfgang Kristoferitsch, Vienna

08.30

Key note

Management approaches for suspected and established Lyme borreliosis used at the diagnostic center of the medical campus, University of Strasbourg

Benoit Jaulhac, Strasbourg

Probabilistic diagnostics of neuroborreliosis (NB) without “Possible NB”

Dag Nyman, Aland Island

Antibiotic treatment and long-term outcomes of patients with disseminated early Lyme borreliosis

Daša Stupica, Ljubljana

Lyme neuroborreliosis in cases of non-specific neurological symptoms

Erlend Roaldsnes, Oslo

Acrodermatitis chronica atrophicans – clinical and laboratory characteristics of 609 Slovenian patients

Katarina Ogrinc, Ljubljana

Chair: Volker Fingerle, Oberschleißheim

10.15

Key note

When to order laboratory testing for the diagnosis of Lyme borreliosis and which test to use?

Ram Dessau, Denmark

Borrelia miyamotoi infection in vitro, in mice and men: understanding its pathogenesis and implications for diagnosis and treatment

Joppe Hovius, Amsterdam

Clinical overview of acute Borrelia miyamotoi disease: 239 new cases

Alexander Platonov, Moscow

Relapsing fever borreliae

Sven Bergström, Umea

Development of a multivalent OspA based vaccine candidate for prevention of Lyme borreliosis

Urban Lundberg, Vienna

Tuesday 26 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P50-P62: Ram BC Dessau, Slagelse

- P50 **Borrelia burgdorferi sensu lato in cerebrospinal fluid – can the sensitivity of molecular diagnostics in neuroborreliosis be improved?**
Malin Lager, Jönköping
- P51 **Immunological biomarkers in the cerebrospinal fluid and the association to clinical presentation and recovery in children with Lyme neuroborreliosis**
Barbro H Skogman, Falun
- P52 **The recomBead Borrelia antibody index, CXCL13 and total IgM index for laboratory diagnosis of Lyme neuroborreliosis in children**
Anna J Henningsson, Jönköping
- P53 **CXCL13 detected in CSF of patients suffering from tick-borne encephalitis, aseptic meningitis, neuroborreliosis and etiologically not identified neurologic disorder**
Mateusz Markowicz, Vienna
- P54 **Retrospective evaluation of various serological assays for the detection of neuroborreliosis**
Tamara van Gorkom, Utrecht
- P55 **Borrelia bacteriophages for diagnosis and treatment of Lyme disease and Relapsing Fever**
Jinyu Shan, Leicester
- P56 **Comparison of Borrelia antibody levels in serum, cerebrospinal and synovial fluid samples using various diagnostic kits and methods with different antigenic composition**
Michal Šteffl, Brno
- P57 **Diagnosis of borreliosis (Lyme disease and relapsing fever) in US and Europe by immune- blots**
Jyotsna Shah, Palo Alto, USA
- P58 **Comparison of relative sensitivities of two commercially available tests for detection of Borrelia burgdorferi-specific antibodies**
Tina Danielzik, Abingdon
- P59 **Multiplex Lyme IgG and IgM Assays for Improved Detection of Early Lyme Disease in a European Endemic Population**
Chisanga Lwatula, Hercules, USA
- P60 **Evaluation of a new microarray for detection of Borrelia burgdorferi specific antibodies in human serum samples**
Volker Fingerle, Oberschleißheim
- P61 **Comparison of LIAISON and Luminex tests for IgM and IgG detection in patients with Lyme borreliosis**
Eva Ruzic-Sabljic, Ljubljana
- P62 **Improving diagnosis of Borrelia infection through identification of Borrelia-specific T cells**
Liselotte Brix, Copenhagen

Tuesday 26 September 2017 Poster Sessions 12.45 to 15.00

Chairs for posters P63-P75: Michael Reiter & Michiel Wijnveld, Vienna

- P63 **The cost of Lyme borreliosis**
Cees C. van den Wijngaard, Bilthoven
- P64 **Lyme borreliosis as “the overlap syndrome”**
Barbara Oczko-Grzesik, Bytom
- P65 **Dissecting the human immune response toward Borrelia**
Verena Mündler, Vienna
- P66 **Attachment of Borrelia burgdorferi to Vero cells**
Katarina Schwarzova, Bratislava
- P67 **Design of a prospective study on Lyme borreliosis and other tick-borne (co-)infections in patients with erythema migrans or fever after a recent tick-bite in Belgium**
Laurence Geebelen, Brussels
- P68 **Human infection with Rickettsia raoultii in Slovakia**
Eva Spitalska, Bratislava
- P69 **Diversity of Rickettsiae and rickettsial endosymbionts in ectoparasites from small mammals**
Eva Spitalska, Bratislava
- P70 **The inhibitory effect of mint essential oils on growth of Rickettsia slovaca**
Katarína Štefanidesova, Bratislava
- P71 **First cases of molecular detection of Rickettsia raoultii and Rickettsia aeschlimannii in patients in Russia**
Nina Tikunova, Novosibirsk
- P72 **Detection of CRISPR / Cas structures in the genome of the Rickettsia bellii strain by bioinformatics methods**
Yuri Dzhioev, Irkutsk
- P73 **Prevalence of infection with Rickettsia helvetica in Ixodes ricinus ticks feeding on non-rickettsiemic hedgehogs (Erinaceus europaeus) in sylvatic habitats of west-central Poland**
Joanna Stanczak, Gdansk
- P74 **Transmission of Rickettsia raoultii and Rickettsia massiliae by in vitro feeding Dermacentor reticulatus and Rhipicephalus sanguineus ticks**
Emanuela Olivieri, Perugia
- P75 **Molecular detection of tick-borne microbes within ticks collected from hosts in Zimbabwe**
Michiel Wijnveld, Vienna

Tuesday 26 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P75-P86: Per-Eric Lindgren, Linköping

- P76 **Detection of Ehrlichia, Candidatus Neoehrlichia and Rickettsia spp. in Estonian ticks**
Kairi Värvi, Tallinn
- P77 **Molecular detection of Babesia and Theileria species in Australian ticks**
Storey-Lewis Brooke, Sydney, Australia
- P78 **Molecular screening for Midichloria in hard and soft ticks reveals different prevalences and horizontal transmission**
Alessandra Cafiso, Pavia
- P79 **Reverse Line Blot-based detection approaches of microbial pathogens in Ixodes ricinus ticks collected in Austria and impact of the chosen method**
Anna-Margarita Schötta, Vienna
- P80 **Prevention of tick-borne diseases in northwestern Italy: diagnostic approach on ticks collected from humans**
Alessandra Pautasso, Turin
- P81 **Tick-borne diseases in Russia**
Anton Titkov, Moscow
- P82 **Identification of novel Ixodes vaccine candidates using Yeast Surface Display technology**
Jos Trentelman, Amsterdam
- P83 **Screening for novel I. ricinus vaccine candidates by probing a novel I. ricinus salivary gland Yeast Surface Display with sera from Forestry workers**
Jos Trentelman, Amsterdam
- P84 **Tick-tattoo: DNA vaccination against tick proteins**
Michelle Klouwens, Amsterdam
- P85 **Tick-borne encephalitis virus strains of Western subtype isolated in Western and Eastern Siberia of Russia: the genetic and biological properties**
Oksana Lisak, Irkutsk
- P86 **Bioinformation detection of the structures of recombination sites in genomes of strains of the Siberian subtype of tick-borne encephalitis virus**
Yuri Dzhioev, Irkutsk

Tuesday 26 September 2017 Poster Sessions 12.45 to 15.00

Chair for posters P85-P96: Wolfgang Kristoferitsch, Vienna

- P87 **Early detection of TBE infection using Reagent vs Virion/Serion TBEV ELISA tests**
Justyna Dunaj, Bialystok
- P88 **Long-term persistence of antibody response to tick-borne encephalitis vaccine: 10-year follow-up after first booster dose following different primary vaccination schedules**
Ilaria Galgani, Siena
- P89 **Comparative analysis of the antigenic properties of the tick-borne encephalitis virus strain used for vaccination**
Irina Kozlova, Irkutsk
- P90 **Specific IgM and IgG antibodies against tick-borne encephalitis virus in blood and cerebrospinal fluid**
Oktavija Đaković Rode, Zagreb
- P91 **Sequelae of tick-borne encephalitis in retrospective analysis of 1072 patients**
Anna Moniuszko-Malinowska, Bialystok
- P92 **Assessment of one dose mannitol influence on hydration and electrolytes concentration in patients with tick-borne encephalitis**
Anna Moniuszko-Malinowska, Bialystok
- P93 **Tick transmission and dissemination of *Borrelia crocidurae*, relapsing fever agent: analysis on a murine model**
Emilie Talagrand-Reboul, Strasbourg
- P94 **Hard ticks (*Acari: Ixodidae, Amblyomidae*) - potential vectors of *Toxoplasma gondii*?**
Beata Biernat, Gdansk
- P95 **IgE reactivity to α -Gal in relation to Lyme borreliosis**
Ivar Tjernberg, Kalmar
- P96 **Co-infection of patients with acute Babesiosis with Lyme disease**
Wolfgang Pieken, Norwood, USA

Tuesday 26 September 2017

Chair: Gerold Stanek, Vienna

15.15

Key note

The long-term outcome of tick-borne encephalitis

Franc Strle, Ljubljana

Identification of human genes predetermining susceptibility/resistance to tick-borne encephalitis virus

Andrey Barkhash, Novosibirsk

Occurrence and genetic diversity of tick-borne encephalitis and Kemerovo viruses in ixodid tick of Western Siberia, Russia and Kazakhstan

Sergey Tkachev, Novosibirsk

An unusual case of tick-borne encephalitis in a chamois (*Rupicapra rupicapra*), Austria, 2017

Norbert Nowotny, Dubai

17.30

Closing of the Symposium