

E W A R E O F T I C K S



F I N D T H E M A L L

XIVTH INTERNATIONAL SYMPOSIUM
ON TICKS AND TICK-BORNE DISEASES ■ 24-26 MARCH 2021

6

DIE ZECKE (GEMEINER HOLZBOCK): ÜBERTRÄGER VON FSME* UND LYME-BORRELIOSE

Impfen ist die beste Vorsorge gegen FSME.

5

7

4

- 1 Saug- und Stechwerkzeug
- 2 Kleine Messer zum Schneiden
- 3 Tasten & Fühlen
- 4 Doppelpfoten
- 5 Haller'sches Organ („Nase“ der Zecken)
- 6 Atmungsorgan
- 7 Rückenschild



*Frühsommer-Meningoenzephalitis

	FSME	Lyme-Borreliose
Erreger	FSME-Virus	Bakterium (<i>Borrelia burgdorferi</i>)
Erregerlokalisierung	Speicheldrüsen	Mitteldarm
Übertragungszeit	Sofort nach dem Stich	Ca. 12–24 Std. nach dem Stich
Therapie	Keine ursächliche	Antibiotika
Impfung	Ja	Nein

Gegen FSME kann man sich während des ganzen Jahres impfen lassen. Für die FSME-Grundimmunisierung werden insgesamt 3 Teilimpfungen benötigt. Ideal ist es, die 1. und 2. Teilimpfung während der kalten Jahreszeit durchzuführen, damit der Schutz bereits zu Beginn der folgenden Zeckensaison im Frühjahr besteht – für einen Impfschutz während der FSME-Saison gibt es auch eine Schnellimmunisierung. Die 3. Teilimpfung ist essentiell für den Langzeitschutz. Danach sind regelmäßige Auffrischimpfungen erforderlich. Es gibt FSME-Impfstoffe für Kinder sowie Erwachsene.





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ISTTBD-XIV ORGANISATION AND IMPRINT

Date

24–26 March 2021

Hosting society

German Society for Parasitology (DGP)

Conference website

www.ittbd-symposium.com

Conference chairs

Prof. Dr. Ard Nijhof

Freie Universität Berlin

Institute for Parasitology and Tropical Veterinary Medicine (Berlin/DE)

Dr. Olaf Kahl

tick-radar GmbH

Managing Editor of Ticks and Tick-borne Diseases (Berlin/DE)

Prof. (a.D.) Dr. Jochen Süss

Brehm-Gedenkstätte Renthendorf

Editor-in-Chief of Ticks and Tick-borne Diseases (Renthendorf/DE)

Scientific committee

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Olaf Kahl (tick-radar GmbH)

Ute Mackenstedt (Universität Hohenheim)

Ard Nijhof (Freie Universität Berlin)

Cornelia Silaghi (Friedrich Loeffler Institute)

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Please note: The programme takes place according to the GMT/UTC +1 time zone.



Registration

Please register online at www.ittbd-symposium.com. There you can find all information on registration fees, payment and confirmation of payment as well as the general terms and conditions.



Log-in on the digital congress page

You can access the digital congress page via www.ittbd-symposium-digital.com. On the starting page you can register for the congress at anytime by clicking on “New registration”. If you have already registered, you can reach the login portal of the congress by clicking “Login”. Now you can enter the world of the digital ISTTBD-XIV.



Conference language

The official conference language is English.



Certification

The conference is certified by the “ATF” (Akademie für tierärztliche Fortbildung der Bundestierärztekammer e. V.) with 18 hours 24–26 March 2021.

Please indicate in your profile on the digital congress platform, whether you require ATF certification. Please note that only participation in the live programme will be recognised and thus certified. Watching the on demand material will not be certified. Certificates of attendance will be send to you after the meeting via e-mail.

Please note: Certification and mailing of certificates will only be made to participants who were logged in to the digital congress platform during the live programme.



Publication of abstracts

All accepted abstracts will be published in the programme booklet on the digital congress platform. Please note that publication is linked to registration for the meeting.



Awards

A jury will select the three best presentations given during the Sinnecker-Kunz sessions for early career researchers. A second jury will also select the two best poster submissions. The Poster Awards are kindly sponsored by tick-radar GmbH. The award winners will be presented during the Closing Address on Friday, 26 March from 19:40–20:00.



Poster Discussion Sessions

Six dedicated poster discussion sessions will be held during the ISTTBD-XIV. The poster submissions have been grouped by topics. For each topic there is a discussion session (please see p. 18–23). The poster discussion sessions will be moderated and will take place via Zoom. The chairs, speakers and participants are connected live via Zoom. The poster files and videos will be available during the ISTTBD-XIV under the tab “ePoster”. **Please note: Every participant should have looked at the poster submissions before taking part in the poster discussion sessions.**



Technical requirements

To ensure the best possible transmission quality and stability, the use of a direct LAN connection (as opposed to WiFi) is recommended. Before the meeting, make sure that sound and video quality of your computer/notebook is good.

Make sure that you are using the latest version of your browser. Using Internet Explorer as your browser is not recommended. Also make sure that you do not have too many tabs open in your browser.



To participate in the scientific programme:

Please check if your browser and operating system support the playback of Vimeo: <https://vimeo.zendesk.com/hc/en-us/articles/360001624108-System-Requirements-for-viewing-browsing-and-apps>.

More information about technical requirements and participation/active participation can be found in the user manual for the digital ISTTBD-XIV at www.ittbd-symposium.com under the tab “The digital ISTTBD-XIV”.



Procedure of Keynote Lectures, scientific Sessions and Poster Discussion Sessions

Talks and presentations for keynote lectures, scientific sessions and posters have been pre recorded.

In the keynote lectures and scientific sessions the session chairs will introduce the speakers and the recorded talk will be played afterwards. The chairs and speakers are connected live. Participants can ask questions via chat, the questions are viewed by the chairs and passed on to the speakers, who answer them live in a Q&A. The Q&As will take place at the end of each session. All poster submissions are available for self study on the digital congress platform. The video presentations of all posters will be played before the beginning of the programme on Wednesday and Thursday. Live poster discussion sessions will take place via Zoom. Before each poster discussion session the corresponding poster presentations will be played.

Please find more information on the procedure in the scientific programme in the FAQ at www.ittbd-symposium.com under the tab “The digital ISTTBD-XIV”.



On demand – congress material on demand

Congress material will be available for individual review until 26 April 2021. Please note that authors are free to decide whether their talks may be available online after the meeting. Therefore gaps in the programme may occur. Please also note that the study of the contents of the scientific programme after the meeting period is not recognized and therefore not certified.



Dear Colleagues,

It is our great pleasure to welcome you to the 14th International Symposium on Ticks and Tick-borne Diseases (ISTTBD-XIV), for the first time in a virtual meeting space due to the COVID-19 pandemic. We hope that this meeting helps to fill a gap after the cancellation and postponements of various international conferences in our field over the past 12 months.

Changing the symposium to an online format has been challenging, and we are well aware that many of the virtues of an in-person conference, such as socializing with peers or planning and discussing research collaborations, will be sorely missed. On the other hand, the elimination of travel time and expenses is an obvious advantage and seems to have led to an increase in the number of registered participants from distant countries. This is also reflected in the record number of applications for the Sinnecker-Kunz awards for early-career researchers (ECRs). Twelve selected ECRs from eleven different nationalities will present their research on Wednesday 24th March and compete for this prestigious award.

When compiling the programme, we tried to take the different time zones that participants are living in into account, as well as the fact that longer online meetings can be strenuous. We therefore tried to keep the duration of sessions limited and spaced them at least 20 minutes apart. On-demand versions of the presentations for convenient later viewing will be available for all registered participants after the meeting until 26th April 2021.

Last but not least, we would like to thank our hosting society, the German Society for Parasitology, and our sponsors, Pfizer Pharma GmbH and Bavarian Nordic, for their generous support.

We are eagerly looking forward to three days of exciting presentations and discussions and hope that all of you will have a successful and pleasant meeting.

Dr. Olaf Kahl
Prof. Dr. Ard Nijhof
Prof. (a. D.) Dr. Jochen Süß



ISTTTBD-XIV PROGRAMME OVERVIEW

Wednesday, 24 March

12:15–13:15
Video presentations of all posters

13:30–13:45
Conference Opening

13:45–14:15
Keynote Lecture 1

14:15–15:05
Session 1
Ticks & Others I

15:25–16:15
Keynote Lecture 2
Pfizer Keynote Lecture

16:20–16:40
Video Presentations

16:40–17:10
Poster Discussion Session 1
Ticks I

16:40–17:10
Poster Discussion Session 2
Borreliæ, Borreliosés

17:30–18:25
Session 2
Sinnecker-Kunz Award 1

18:45–19:40
Session 3
Sinnecker-Kunz Award 2

20:00–20:55
Session 4
Sinnecker-Kunz Award 3

Thursday, 25 March

12:00–13:00
Video presentations of all posters

13:15–13:45
Keynote Lecture 3

13:45–14:45
Session 5
Tick-borne Encephalitis

15:00–16:00
Satellite Symposium
Bavarian Nordic

16:30–17:20
Session 6
Ticks on the move

17:25–17:45
Video Presentations

17:45–18:15
Poster Discussion Session 3
Ticks II

17:45–18:15
Poster Discussion Session 4
Tick-borne pathogens I

18:35–19:15
Session 7
Ticks and Others II

19:35–20:25
Session 8
Ticks and Others III

Friday, 26 March

12:30–13:15
Possibility to talk to the Conference Chairs

13:30–14:00
Keynote Lecture 4

14:00–15:00
Session 9
Lyme Borreliosis

15:30–16:00
Keynote Lecture 5

16:00–17:05
Session 10
Lyme Borreliosis and ticks

17:10–17:30
Video Presentations

17:30–18:00
Poster Discussion Session 5
Ticks III

17:30–18:00
Poster Discussion Session 6
Tick-borne pathogens II

18:30–19:40
Session 11
Tick-borne pathogens

19:40–20:00
Award Ceremony & Closing Address

Keynote Lectures	Video Presentations of Posters	Satellite Symposium
Sessions	Poster Discussion Sessions	Opening & Closing



- 12:15–13:15 Video presentations of all posters
- 13:30–13:45 Conference opening
- 13:45–14:15 **Keynote Lecture 1**
Chairs Ard Nijhof, Olaf Kahl (Berlin/DE), Jochen Süss (Renthendorf/DE)
- 13:45 Gene editing in the black-legged tick, *Ixodes scapularis*, by embryo injection and ReMOT Control
Monika Gulia-Nuss (Reno, NV/US)
- 14:15–15:05 **Session 1 – Ticks and Others I**
Chairs Monika Gulia-Nuss (Reno, NV/US), Agustín Estrada-Peña (Zaragoza/ES)
- 14:15 **T&OI-1** Translational biotechnology for the control of ticks and transmitted pathogens
José de la Fuente (Ciudad Real/ES)
- 14:30 **T&OI-2** The sweet-side of tick resistance
Sukanya Narasimhan (New Haven, CT/US)
- 14:45 **T&OI-3** Integrated proteomics and metabolomics of *Coxiella*-like endosymbionts in *Rhipicephalus sanguineus* ticks suggest metabolites-based symbiosis
Balasubramanian Cibichakravarthy (Rehovot/IL)
- 14:55 Discussion
- 15:25–16:15 **Keynote Lecture 2 – Pfizer Keynote Lecture**
Chair Claudius Malerczyk (Berlin/DE)
- 15:25 Tick-borne Encephalitis (TBE) vaccination – to boost and when to boost, that is the question
Robert Steffen (Zurich/CH)
- 16:20–16:40 Video presentations of posters included in Poster Discussion Sessions 1 and 2
- 16:40–17:10 **Poster Discussion Session 1 – Ticks I**
See p. 18
- 16:40–17:10 **Poster Discussion Session 2 – Borreliae, Borrelioses**
See p. 19



ISTTBD-XIV SCIENTIFIC PROGRAMME I WEDNESDAY, 24 MARCH

17:30–18:25 Session 2 – Sinnecker-Kunz Award 1

Chairs Lesley Bell-Sakyi (Liverpool/GB), Jeremy Gray (Dublin/IE)
Ana Domingos (Lisboa/PT)

17:30 Development and characterization of recombinant tick-borne Encephalitis virus
SK1-1 expressing mCherry reporter protein
Jan Haviernik (Brno/CZ)

17:40 Variability in the PFam54 gene family in pathogenic *Borrelia burgdorferi* sensu
SK1-2 lato isolates arising from Asia and Europe
Robert E. Rollins (Planegg-Martinsried/DE)

17:50 Towards new horizons – climate trends in Europe increase the environmental
SK1-3 suitability for permanent populations of *Hyalomma marginatum* (Ixodidae)
Natalia Fernández-Ruiz (Zaragoza/ES)

18:00 Ticks infesting one-humped camels (*Camelus dromedarius*) in the Tunisian
SK1-4 Saharan bioclimatic zone and investigation of infection with Crimean-Congo
haemorrhagic fever virus
Khawla Elati (Berlin/DE)

18:10 Discussion

18:45–19:40 Session 3 – Sinnecker-Kunz Award 2

Chairs Lesley Bell-Sakyi (Liverpool/GB), Jeremy Gray (Dublin/IE)
Ana Domingos (Lisboa/PT)

18:45 Global diversity of tick-borne viruses
SK2-1 Stephen C. Sameroff (New York, NY/US)

18:55 Mitogenome single nucleotide polymorphisms distinguish between buffalo and
SK2-2 cattle transmissible *Theileria parva* strains
Micky Mwamuye (Berlin/DE)

19:05 Targeted next-generation sequencing and informatics as an effective tool to
SK2-3 establish the composition of bovine piroplasm populations in endemic regions
Abdul Ghafar (Werribee/AU)

19:15 Tick-borne pathogens in African cattle – novel molecular tools for diagnostics in
SK2-4 epizootiology and the genetics of resistance
Babette Abanda (Tübingen/DE)

19:25 Discussion



- 20:00–20:55 **Session 4 – Sinnecker-Kunz Award 3**
 Chairs Lesley Bell-Sakyi (Liverpool/GB), Jeremy Gray (Dublin/IE)
 Ana Domingos (Lisboa/PT)
- 20:00
SK3-1 The artificial feeding of all successive life stages of *Ixodes ricinus*
 Nina Militzer (Berlin/DE)
- 20:10
SK3-2 Molecular characterization of ticks and tick-borne pathogens of one-humped
 camels (*Camelus dromedarius*) in Nigeria
 Onyiche E. ThankGod (Insel Riems, Greifswald/DE)
- 20:20
SK3-3 What's in the wildlife? Surveillance of ticks and their associated microbes in
 Australian wildlife
 Siobhon L. Egan (Murdoch/AU)
- 20:30
SK3-4 Ticking off the ungulate box – the role of different ungulate species in the ecology
 of tick-borne pathogens
 Nannet D. Fabri (Umeå/SE, Utrecht/NL)
- 20:40 Discussion



ISTTBD-XIV SCIENTIFIC PROGRAMME | THURSDAY, 25 MARCH

12:00–13:00 Video presentations of all posters

13:15–13:45 **Keynote Lecture 3**

Chairs Karin Stiasny (Vienna/AT), Gerhard Dobler (Munich/DE)

13:15 Changing epidemiology of tick-borne Encephalitis in Austria
Karin Stiasny (Vienna/AT)

13:45–14:45 **Session 5 – Tick-borne Encephalitis**

Chairs Karin Stiasny (Vienna/AT), Gerhard Dobler (Munich/DE)

13:45 Tick populations from endemic and non-endemic areas in Germany show
TBE-1 differential susceptibility to TBEV
Stefanie Becker (Hanover/DE)

14:00 Comparison of three serological methods for the epidemiological investigation
TBE-2 of TBE in dogs
Philipp Groll (Munich/DE)

14:10 Comparative mapping of protein-protein interactions between tick-borne flaviviruses
TBE-3 and their mammalian hosts reveals virus-specific interactions
Marion Sourisseau (Maisons-Alfort/FR)

14:20 Baikalian subtype of tick-borne Encephalitis virus
TBE-4 Sergey Tkachev (Kazan/RU)

14:35 Discussion

15:00–16:00 **Satellite Symposium Bavarian Nordic**
See p. 24



- 16:30–17:20 **Session 6 – Ticks on the move**
 Chairs Katharina Brugger (Vienna/AT), Christina Strube (Hanover/DE)
- 16:30 Tick density in different land cover classes in Germany
TM-1 Ute Mackenstedt (Stuttgart/DE)
- 16:40 The occurrence of *Hyalomma* spp. in Germany – results of a citizen science study
TM-2 Alexander Lindau (Stuttgart/DE)
- 16:50 Likely geographic distributional shifts among medically important tick species
TM-3 and tick-borne diseases under climate change in North America
 Abdelghafar Alkische (Lawrence, KS/US)
- 17:00 *Dermacentor* ticks in Germany – continuing range expansion of
TM-4 *Dermacentor reticulatus*
 Andrea Springer (Hanover/DE)
- 17:10 Discussion
- 17:25–17:45 **Video presentations of posters included in Poster Discussion Sessions 3 and 4**
- 17:45–18:15 **Poster Discussion Session 3 – Ticks II**
 See p. 20
- 17:45–18:15 **Poster Discussion Session 4 – Tick-borne pathogens I**
 See p. 21
- 18:35–19:15 **Session 7 – Ticks and Others II**
 Chair Stefanie Becker, Andrea Springer (Hanover/DE)
- 18:35 When mitochondrion and nucleus disagree – inconsistency in genetic results for
T&OII-1 species delineation of *Ixodes inopinatus* and *I. ricinus*
 Noémie S. Becker (Planegg-Martinsried/DE)
- 18:45 Replication kinetics and transstadial transmission of West Nile virus lineage 1 in
T&OII-2 *Ixodes ricinus* ticks
 Cristian Răileanu (Insel Riems, Greifswald /DE)
- 18:55 Could ticks become infected with *Wolbachia*?
T&OII-3 Lesley Bell-Sakyi (Liverpool/GB)
- 19:05 Discussion



ISTTBD-XIV SCIENTIFIC PROGRAMME I THURSDAY, 25 MARCH

- 19:35–20:25** **Session 8 – Ticks and Others III**
Chair Stefanie Becker, Andrea Springer (Hanover/DE)
- 19:35 Danger on the track? Tick densities within woodland plots with respect to forest infrastructure
T&OIII-1 Mats Van Gestel (Antwerp/BE)
- 19:45 Effect of abiotic factors on the distribution of *Rhipicephalus sanguineus* sensu lato in Tunisia
T&OIII-2 Médiha Khamassi Khbou (Sidi Thabet/TN)
- 19:55 Characterization of the bacterial microbiota of Tunisian *Hyalomma* ticks gained with Next Generation Sequencing
T&OIII-3 Hayet Benyedem (Sidi Thabet/TN)
- 20:05 Risk factors for tick exposure in a temperate forest during a 6-days orienteering competition in the east of France
T&OIII-4 Laure Bournez (Malzéville/FR)
- 20:15 Discussion



- 12:30–13:15 Possibility to talk to the Conference Chairs Prof. Dr. Ard Nijhof, Dr. Olaf Kahl & Prof. (a.D.) Dr. Jochen Süß
- 13:30–14:00 **Keynote Lecture 4**
Chairs Joppe W. Hovius (Amsterdam/NL), Maarten Voordouw (Saskatoon/CA)
- 13:30 *Borrelia miyamotoi* – From bedside to bench and back?
Joppe W. Hovius (Amsterdam/NL)
- 14:00–15:00 **Session 9 – Lyme Borreliosis**
Chairs Maarten Voordouw (Saskatoon/CA)
- 14:00 **LB-1** Comparing life history strategies among strains of *Borrelia burgdorferi* in a model Lyme disease system
Christopher Zinck (Saskatoon/CA)
- 14:10 **LB-2** Analyzing molecular adaption factors in *Borrelia burgdorferi* sensu lato using comparative genomics
Sabrina Hepner (Oberschleissheim/DE)
- 14:20 **LB-3** Co-infection and competition between strains of *Borrelia afzelii* in the host tissues, and consequences for transmission to ticks
Maarten Voordouw (Saskatoon/CA)
- 14:30 **LB-4** Antibodies profiles to individual *B. burgdorferi* s.l and *B. miyamotoi* antigens in serum samples of patients with erythema migrans studied by microarray
Olga Stukolova (Moscow/RU)
- 14:40 **LB-5** Introduction of IgM testing for the diagnosis of acute Lyme borreliosis in Scotland: A study of the benefits, limitations and costs
Greg Joyner, Sally Mavin (Inverness/GB)
- 14:50 Discussion
- 15:30–16:00 **Keynote Lecture 5**
Chairs Lars Eisen (Fort Collins, CO/US), Nathalie Boulanger (Strasbourg/FR)
- 15:30 Vector competence of ixodid ticks for Lyme borreliosis spirochetes
Lars Eisen (Fort Collins, CO/US)



ISTTBD-XIV SCIENTIFIC PROGRAMME I FRIDAY, 26 MARCH

- 16:00–17:05** **Session 10 – Lyme Borreliosis and Ticks**
Chairs Lars Eisen (Fort Collins, CO/US), Nathalie Boulanger (Strasbourg/FR)
- 16:00** Immunoprofiling of patients with Lyme neuroborreliosis identifies a unique
LBT-1 adaptive immune cytokine signature and increased frequency of a mutation in
the TLR1 gene in patients with Bannwarth syndrome
Klemen Strle (Albany, NY/US)
- 16:10** Nordic consensus on the assessment and follow-up of persons with long-term
LBT-2 ailments after suspected tick-borne diseases
Randi Eikeland (Arendal/NO)
- 16:20** Impact of different anthropogenic environments on ticks and tick-associated
LBT-3 pathogens in Alsace, a French region highly endemic for tick-borne diseases
Nathalie Boulanger (Strasbourg/FR)
- 16:30** Citizen science inform on heterogenous geographical distribution of tick-borne
LBT-4 pathogens in ticks biting humans in France
Jonas Durand (Champenoux/FR)
- 16:40** Presence of *Borrelia* species are linked to the composition of tick microbiomes
LBT-5 in two German counties
Angeline Hoffmann (Coburg/DE)
- 16:50** Discussion
- 17:10–17:30** **Video presentations of posters included in Poster Discussion Sessions 5 and 6**
- 17:30–18:00** **Poster Discussion Session 5 – Ticks III**
See p. 22
- 17:30–18:00** **Poster Discussion Session 6 – Tick-borne pathogens II**
See p. 23



- 18:30–19:40** **Session 11 – Tick-borne pathogens**
Chairs Cornelia Silaghi (Greifswald/DE), Benjamin Cull (Saint Paul, MN/US)
- 18:30** High reproducibility and sensitivity of nPCR detection of *B. bovis* and *B. bigemina*,
TBP-1 causative agents of bovine babesiosis
 Sabrina Ganzinelli (Buenos Aires/AR)
- 18:40** Phylogenetic relationships between *Rickettsia* and hard ticks in the Neotropical
TBP-2 region
 Agustín Estrada-Peña (Zaragoza/ES)
- 18:55** Antibiotic gene clusters in the *Ixodes scapularis* symbiont *Rickettsia buchneri*
TBP-3 and their potential role in exclusion of pathogenic bacteria from the tick
 Benjamin Cull (Saint Paul, MN/US)
- 19:10** Mitochondria-dependent apoptosis is essential for *Rickettsia parkeri* infection
TBP-4 and replication in vector cells
 Xinru Wang (Saint Paul, MN/US)
- 19:25** Discussion
- 19:40–20:00** **Award Ceremony & Closing Address**



ISTTBD-XIV POSTER DISCUSSION SESSION 1 | WEDNESDAY, 24 MARCH

16:40–17:10

Poster Discussion Session 1 – Ticks I

Chairs

Maxime Madder (Tamarin/MU), Snorre Stuen (Sandnes/NO)

P1-1

Survey on risk perceptions, knowledge, and behaviour related to ticks and tick infestation among livestock owners in Punjab, Pakistan

Sabir Hussain (Kowloon/HK)

P1-2

Monitoring of expansion of *Dermacentor reticulatus* and occurrence of canine babesiosis in Poland in 2016–2018

Dorota Dwuznik-Szarek (Warsaw/PL)

P1-3

Microbial communities associated with the camel tick, *Hyalomma dromedarii*: 16S rRNA gene-based analysis

Mohammad A. Al-Deeb (Al-Ain/AE)

P1-4

Population Dynamics of *Hyalomma dromedarii* on Camels in the United Arab Emirates

Nighat Perveen (Al-Ain/AE)

P1-5

Inability of adult ticks (*Rhipicephalus sanguineus* and *Dermacentor variabilis*) to survive and re-infest other hosts after short contact with Seresto® treated dog

Maxime Madder (Tamarin/MU)

P1-6

The first occurrence of *Rhipicephalus sanguineus* in Bratislava, the Slovak Republic

Yuliya Didyk (Bratislava/SK)

P1-7

Rhipicephalus sanguineus in Germany

Katrin Facht (Stuttgart/DE)

P1-8

Current national survey about tick infestation in shelter, hunting and owner dogs from Spain

Rocío Checa, Ana Montoya (Madrid/ES)

P1-9

Tick and tick-borne pathogens detected on cattle in Corsican wetlands (French Corsican island)

Baptiste Defaye (Corte/FR)

P1-10

Ticks infestation and piroplasms infection in Barbarine and Queue Fine de l'Ouest autochthonous sheep breeds in Tunisia, North Africa

Médiha Khamassi Khbou (Sidi Thabet/TN)



- 16:40–17:10 **Poster Discussion Session 2 – Borreliae, Borrelioses**
 Chairs Randi Eikeland (Arendal/NO), Klemen Strle (Albany, NY/US)
- P2-1** Citizen science informed tick and tick-borne disease Epidemiology in New Hampshire
 Kaitlyn Morse (Salisbury, MD/US)
- P2-2** Co-infections with multiple strains of *B. burgdorferi* in female mice and transmission of maternal antibodies to offspring
 Alexandra Foley-Eby (Saskatoon/CA)
- P2-3** Avian serum bactericidal activity – contribution to understand *Borrelia burgdorferi* sensu lato host reservoir competence
 Ana C. Norte (Coimbra/PT)
- P2-4** Genetic markers of persistent spirochetal infection – molecular tools to study latent or chronic Lyme disease
 Natalie Rudenko (Ceske Budejovice/CZ)
- P2-5** *Borrelia* Seroprevalence in individuals at high risk of rabies infection
 Pavle Banović (Novi Sad/RS)
- P2-6** Update of the *Borrelia* PubMLST database – user submission and genome data
 Sabrina Hepner (Oberschleissheim/DE)
- P2-7** #alltheOMICS – a systems biology approach to tick-borne diseases
 Wenna Lee (Western Australia/AU)
- P2-8** *Borrelia Bavariensis* – Cause of Erythemic form of Ixodid tick-borne Borrelioses (infection of the Lyme disease group) in Russia
 Kristina A. Golidonova (Moscow/RU)
- P2-9** Incompetence of North American reptiles as Lyme borreliae reservoirs: Spirochete OspE proteins facilitate genotypically distinct reptile complement evasion
 Tristan A. Nowak (New York, NY/US)
- P2-10** The seroprevalence of *Borrelia burgdorferi* sensu lato and tick-borne Encephalitis virus in Danish hunters and blood donors
 Nanna S. Andersen (Odense C/DK)
- P2-11** *Borrelia* species in Ixodes ricinus ticks collected from dogs and cats of the city o Poznań, west-central Poland
 Justyna Liberska (Poznań/PL)



ISTTBD-XIV POSTER DISCUSSION SESSION 3 | THURSDAY, 25 MARCH

17:45–18:15

Poster Discussion Session 3 – Ticks II

Chairs

Sukanya Narasimhan (New Haven, CT/US), Martin Pfeffer (Leipzig/DE)

P3-1

Masting by beech trees predicts the abundance of *Ixodes ricinus* nymphs two years later

Maarten Voordouw (Saskatoon/CA)

P3-2

The long flight of ticks and tick-borne pathogens – from Africa to Europe with migratory birds – a 4-years study on Italian islands

Elisa Mancuso (Teramo/IT)

P3-3

iXoSCAN – a scalable machine learning based application for real-time detection of ticks to prevent tick-borne diseases

Anika Puri (New York, NY/US)

P3-4

An insight into the mialome of the soft tick *Ornithodoros moubata*

Mandy Schäfer (Greifswald/DE)

P3-5

The many faces of the factor temperature and its effects on individuals and populations – using the example of the tick species *Ixodes ricinus*

Denise Boehnke (Karlsruhe/DE)

P3-6

The Tick Cell Biobank – generating new arthropod cell lines

Lesley Bell-Sakyi (Liverpool/GB)

P3-7

Heterogeneity in tick abundance and tick-borne pathogens in a peri-urban forest of Belgium

Raphael Rousseau (Louvain-la-Neuve/BE)



- 17:45–18:15 **Poster Discussion Session 4 – Tick-borne pathogens I**
 Chairs Oxana A. Belova (Moscow/RU), Sergey Tkachev (Kazan/RU)
- P4-1** Pathogen detection in *Hyalomma* spp. from Germany – results of a citizen science study
 Alexander Lindau (Stuttgart/DE)
- P4-2** Influence of tick-borne Encephalitis (TBE) risk area designation on the TBE vaccination rate
 Jessica Wohlleben, Claudius Malerczyk (Berlin/DE)
- P4-3** Detection of Crimean-Congo hemorrhagic fever virus (CCHFV) in blood-fed *Hyalomma* ticks collected from Mauritanian livestock
 Ansgar Schulz (Greifswald/DE)
- P4-4** A One Health approach to study the epidemiology of tick-borne pathogens
 Adrian A. Díaz-Sánchez (Saskatoon/CA)
- P4-5** *Rickettsia* spp. in *Ixodes ricinus* (L., 1758) ticks collected in the forest and pastures area in Lower Silesia, SW Poland
 Dagmara Dyczko (Wrocław/PL)
- P4-6** Experimental infection of *Ixodes ricinus* ticks with different *Bartonella* species via artificial feeding
 Nina Król (Leipzig/DE)
- P4-7** Cases of Q fever detected in residents of the Novosibirsk region, western Siberia, Russia hospitalized with suspicion of infections transmitted by ticks
 Sergey Tkachev (Kazan/RU)
- P4-8** Infection of small mammals with Ixodid ticks pre-imaginal and tick-borne Encephalitis virus in Novosibirsk city suburbs (2006–2014)
 Chicherina Galina (Novosibirsk/RU)
- P4-9** The prevalence of infection of *Anaplasma phagocytophilum* among blacklegged ticks and mammalian hosts in central Wisconsin, USA
 Vishvapali Kobbekaduwa (East Lansing, MI/US)
- P4-10** Yanggou and Alongshan viruses in Russia
 Oxana A. Belova (Moscow/RU)



ISTTBD-XIV POSTER DISCUSSION SESSION 5 | THURSDAY, 25 MARCH

17:30–18:00

Poster Discussion Session 5 – Ticks III

Chairs

Kirby Stafford (New Haven, CT/US), Olaf Kahl (Berlin/DE)

P5-1

A climate-based model for tick life cycle

Slimane Ben Miled (Tunis/TN)

P5-2

Conceptual agent-based model for ticks control strategies

Cyrine Chenaoui (Tunis/TN)

P5-3

Arguments in favor of the taxonomic reinstatement of *Amblyomma superbum*

Dias, 1953 as a valid species

Sara T. Zúquete (Lisbon/PT)

P5-4

Comparative efficacy of insect repellents against adult *Hyalomma marginatum* ticks

Daniel Geuss (Berlin/DE)

P5-5

Ixodes ricinus seasonal questing in the south-west of Berlin – long-term data from 2010–2020

Olaf Kahl (Berlin/DE)

P5-6

Interbreeding experiments between European and north-African populations of *Ixodes ricinus* (Acari: Ixodidae)

Rita Velez (Águas de Moura/PT)

P5-7

Acaricidal and insect antifeedant effects of essential oils from selected aromatic plants

Felix Valcárcel (Madrid/ES)



- 17:30–18:00 **Poster Discussion Session 6 – Tick-borne pathogens II**
 Chairs Annetta Zintl (Dublin/IE), Leonhard Schnittger (Hurlingham/AR)
- P6-1** FISHing for *Trypanosoma noyesi* in Australian questing ticks – an integration of microscopy and molecular techniques
 Anna-Sheree Krige (Perth/AU)
- P6-2** Screening of vector-borne pathogens in Icelandic arctic foxes, *Vulpes lagopus*
 Gábor Á. Czirájk (Berlin/DE)
- P6-3** *Anaplasma phagocytophilum* detection and first report of *Anaplasma ovis* in sheep from Germany
 Cristian Răileanu (Insel Riems, Greifswald/DE)
- P6-4** *In vivo* assessment of *Babesia bigemina* vaccine strain throughout comparison against the virulent parental strain
 Carla Pertile (Mercedes/AR)
- P6-5** Ticks and tick-borne agents in European rabbits, Portugal
 Rita Velez (Águas de Moura/PT)
- P6-6** A novel *Theileria* species infecting the Sumatran Rhinoceros (*Dicerorhinus sumatrensis*) – evidence for piroplasmid-host cospeciation
 Leonhard Schnittger (Buenos Aires/AR)
- P6-7** Seasonal prevalence of *Coxiella burnetii* among wild rabbits and the tick *Hyalomma lusitanicum* in a Meso-Mediterranean Ecosystem
 Felix Valcárcel (Madrid/ES)



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Satellite Symposium

Thursday, 25 March, 15:00–16:00

Bavarian Nordic A/S

Did measures to reduce COVID-19 also reduce the incidence of all infectious diseases? The special case of TBE

Chair Ute Mackenstedt (Stuttgart/DE)



15:00 Bavarian Nordic: a new key player in the vaccine space
Bernard Hoet (Hellerup/DK)

15:05 Welcome
Ute Mackenstedt (Stuttgart/DE)

15:10 Impact of the spring 2020 lockdown in Switzerland – TBE vs. other notified infectious diseases
Robert Steffen (Zurich/CH)

15:20 TBE in Germany: Epidemiology of the record year 2020
Gerhard Dobler (Munich/DE)

15:30 TBE epidemiology during the pandemic in 2020 – a Swedish perspective
Per-Eric Lindgren (Linköping/SE)

15:40 Live Q&A chaired by
Ute Mackenstedt (Stuttgart/DE)

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Bavarian Nordic's Virtual Symposium

at the 14th International Symposium on Ticks and Tick-borne Diseases (ISTTBD)

Did measures to reduce COVID-19
also reduce the incidence of all
infectious diseases?
The special case of TBE



Virtual live event 15:00 – 16:00 CET | Thursday 25th March 2021

Programme

15:00 - 15:05	Bavarian Nordic: a new key player in the vaccine space	Bernard Hoet, MD, FFPM, VP Medical Affairs at Bavarian Nordic
15:05 - 15:10	Welcome	Prof. Dr. Ute Mackenstedt, Germany
15:10 - 15:20	Impact of the spring 2020 lockdown in Switzerland — TBE vs. other notified infectious diseases	Prof. Robert Steffen, MD, Switzerland
15:20 - 15:30	TBE in Germany: Epidemiology of the record year 2020	Prof. Dr. Gerhard Dobler, Germany
15:30 - 15:40	TBE epidemiology during the pandemic in 2020 — a Swedish perspective	Prof. Dr. Per-Eric Lindgren, Sweden
15:40 - 16:00	Live Q&A	Chaired by Prof. Dr. Ute Mackenstedt, Germany

Join us and learn about the latest TBE epidemiology from our panel of renowned experts

About the Speakers



Prof. Dr. Ute Mackenstedt is Head of the Department of Parasitology at the University of Hohenheim, Stuttgart, Germany. Topics of her research include the ecology and the distribution of ticks, as well as the detection of tick borne pathogens. Additionally, she develops strategies to use biological agents against ticks.



Prof. Robert Steffen, MD, works with the Epidemiology, Biostatistics and Prevention Institute, the WHO Collaborating Center on Travelers' Health at the University of Zurich. The Department of Epidemiology, Human Genetics and Environmental Sciences, at the University of Texas School of Public Health.



Prof. Dr. Gerhard Dobler is Head of the National Consultant Laboratory for TBE at the Institut für Mikrobiologie der Bundeswehr in Neuherbergstrasse, München.



Prof. Dr. Per-Eric Lindgren is Professor and Chair of Medical and Clinical Microbiology at the Department of Biomedical and Clinical Sciences at Linköping University in Sweden.



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