

2024 / 2025



Institut für Parasitologie der Universität Bern

Co-Direktorinnen:

Prof. Caroline Frey

Prof. Britta Lundström-
Stadelmann



Nationales Referenzlabor für Beschäseuche
Nationales Referenzlabor für Besnoitiose
Nationales Referenzlabor für Echinococcose
Nationales Referenzlabor für Hypodermose
Nationales Referenzlabor für Neosporose
Nationales Referenzlabor für Surra
Nationales Referenzlabor für Toxoplasmose
Nationales Referenzlabor für Trichinellose
Nationales Referenzlabor für Tritrichomonose

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1. VORWORT DIREKTORINNE N / PREFACE DIRECTORS

Die Jahre 2024 und 2025 waren für das Institut für Parasitologie (IPA) Bern durch eine konsolidierte und erfolgreiche Entwicklung in allen Kernbereichen gekennzeichnet. Eine international kompetitive Forschung mit substanziellen Drittmiteleinahmen, wichtigen wissenschaftlichen Publikationen und einem starken, weltweit etablierten Netzwerk von Kollaborationspartnern, eine wirkungsvolle Lehre mit nachhaltiger Inspiration zahlreicher Studierender sowie eine konstant hohe Qualität und Zuverlässigkeit in der diagnostischen Dienstleistung unterstreichen die Leistungsfähigkeit und Sichtbarkeit des Instituts.

Ein besonderes Highlight im Jahr 2025 war der Tag der offenen Tür des Tierspitals, an dem das gesamte Team des Instituts mit ausserordentlichem Engagement beteiligt war. Besucherinnen und Besucher wurden auf vielfältige und kreative Weise in die Welt der Parasitologie eingeführt – mit verständlich aufbereiteten Wissensbotschaften, einem Quiz, einem Gruselkabinett, Parasiten-Bubble-Tea sowie einem spielerischen Darts-Format, bei dem Parasiten im Zentrum standen.

Weitere wichtige Höhepunkte der Berichtsperiode waren mehrere von uns organisierte wissenschaftliche Tagungen in Bern, der Schweiz und Deutschland. Dazu zählten die Joint Parasitology Spring Conference in Giessen der Schweizerischen, Deutschen und Britischen Gesellschaften für Parasitologie, das neu initiierte Bern Parasitology Meeting, das bereits zweimal erfolgreich durchgeführt wurde und Forschende aus unterschiedlichen Berner Institutionen zusammenführte, sowie das ApiCentre Meeting in Basel. Im Zentrum aller Anlässe standen der kollegiale wissenschaftliche Austausch sowie die Initiierung und Stärkung nationaler und internationaler Kollaborationen.

Ein weiterer Höhepunkt im Jahr 2025 war das Sabbatical von Prof. Dr. Emily Jenkins (University of Saskatchewan, Kanada) an unserem Institut. Ihr Aufenthalt war fachlich wie auch persönlich sehr bereichernd und vertiefte die langjährige, enge Zusammenarbeit.

Ein unerwarteter Dämpfer in der Berichtsperiode war ein Brand im benachbarten Gebäude, der glücklicherweise ohne Personenschäden verlief, das Institut jedoch kurzfristig stark forderte.

In der Berichtsperiode haben sechs neue Doktorinnen und Doktoren und acht Masterstudierende ihre Arbeiten am IPA abgeschlossen. Zudem sind wir stolz drauf, den ersten erfolgreichen Abschluss des European Veterinary Parasitology Colleges (EVPC) durch Dr. Diana Gliga zu vermelden. Wir gratulieren allen Nachwuchsforschenden ganz herzlich! Besonders hervorheben möchten wir den Preisträgern des Robin B. Gasser Awards 2024 und 2025, Dr. Kai Hänggeli und Alice Bernal.

Das kontinuierliche Wachstum des Instituts geht mit weiterhin limitierten räumlichen Kapazitäten einher. Trotz bestehender Einschränkungen setzen wir uns weiterhin dafür ein, langfristig adäquate und zukunftsfähige Platzverhältnisse auf dem Campus sicherzustellen.

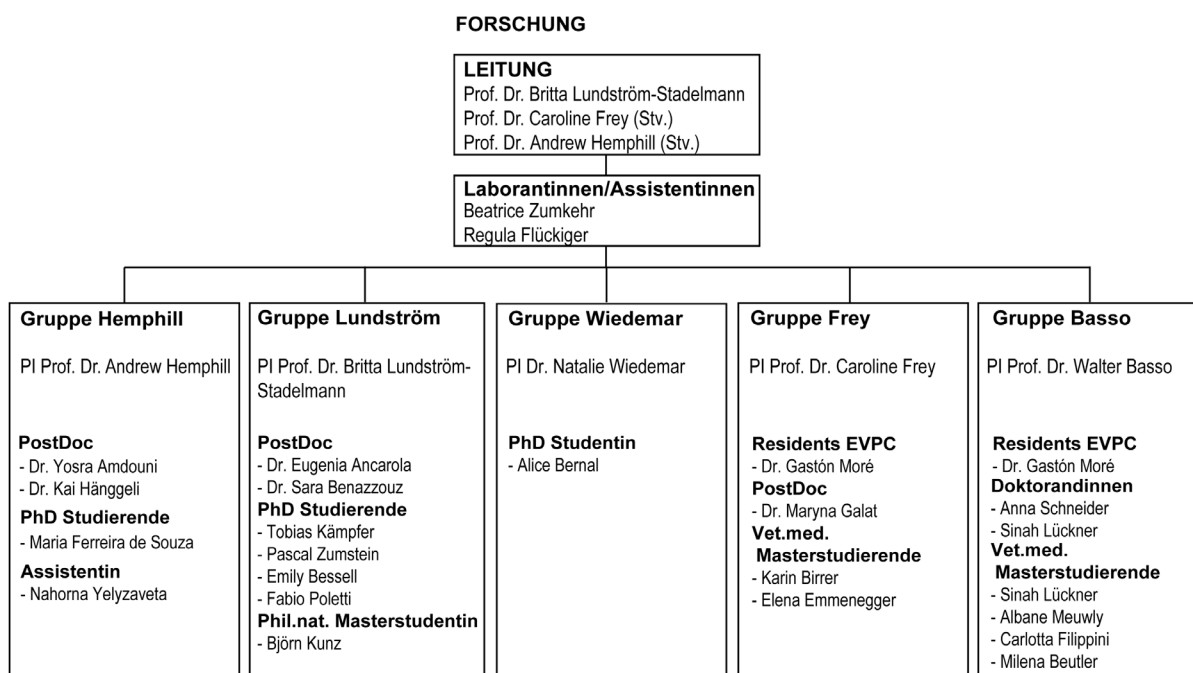
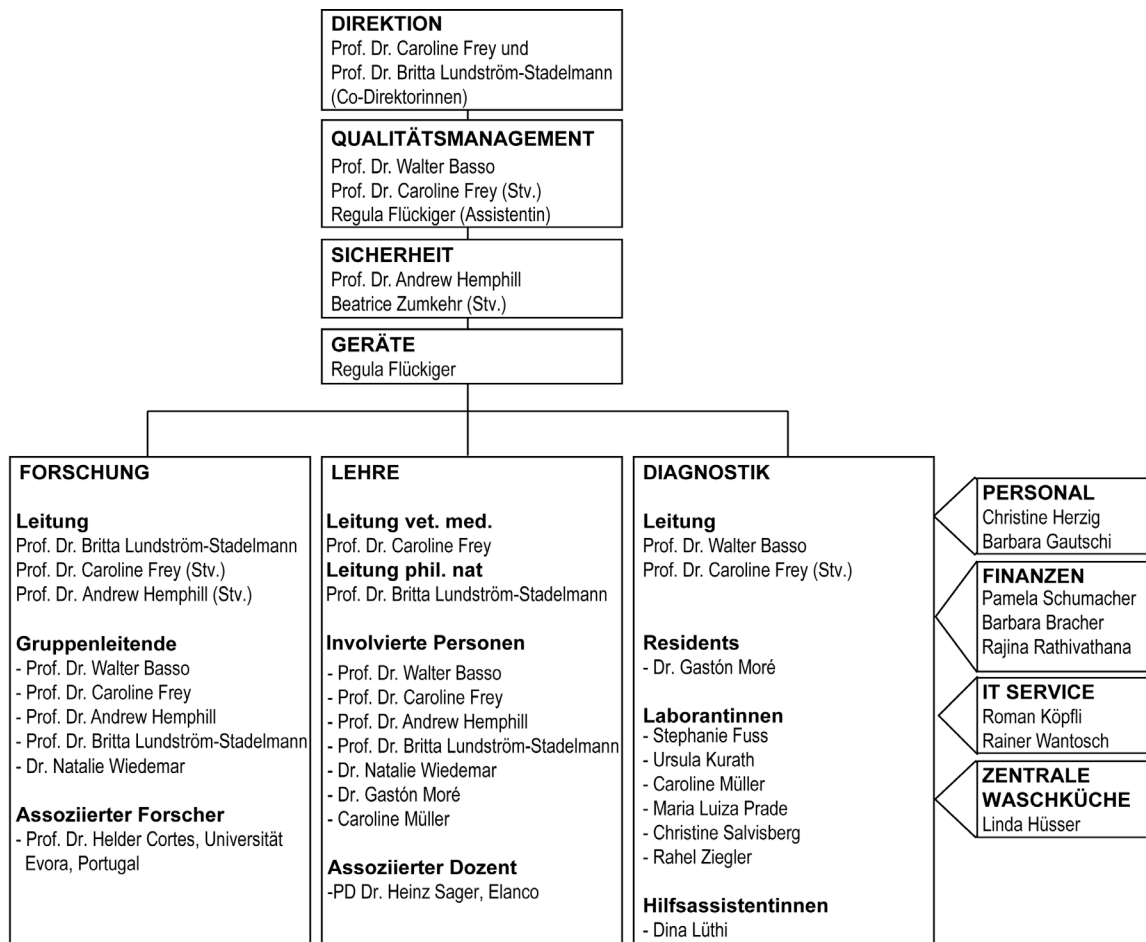
Dank des grossen Engagements des gesamten IPA-Teams blicken wir auf zwei weitere sehr erfolgreiche Jahre zurück. In dieser Berichtsperiode wurden rund 90 wissenschaftliche Publikationen veröffentlicht, knapp 3 Millionen CHF an Drittmitteln (anteilmässig für 2024/2025) eingeworben, 250 Lektionen an Lehrveranstaltungen durchgeführt und mehr als 370'000 diagnostische Untersuchungen erbracht. Diese Leistungen wurden in einer konstruktiven, kollegialen und motivierenden Arbeitsatmosphäre erzielt. Wir danken allen Mitarbeitenden sowie unseren geschätzten Kollaborationspartnerinnen und -partnern herzlich.

Caroline Frey & Britta Lundström-Stadelmann, Co-Direktorinnen



Das Team des IPA 2025.

2. ORGANIGRAMM / ORGANIGRAM (AS OF DEC. 2025)



3. MITARBEITENDE / TEAM MEMBERS (JAN. 2024 – DEC. 2025)

Forschung / Research

Gruppenleitende / Principal Investigators

Prof. Dr. Walter Basso
 Prof. Dr. Caroline Frey
 Prof. Dr. Andrew Hemphill
 Prof. Dr. Britta Lundström-Stadelmann
 Dr. Natalie Wiedemar

Wissenschaftliche Mitarbeitende / Scientific staff

PD Dr. Joachim Müller

Assistierende / Assistants

Yelizaveta Nahorna

Laborantinnen / Technicians

Regula Flückiger
 Larissa Hofmann
 Trix Zumkehr

Postdocs

Dr. Eugenia Ancarola
 Dr. Yosra Amdouni
 Dr. Sara Benazzouz
 Dr. Ghalia Boubaker
 Dr. Maryna Galat
 Dr. Diana Gliga
 Dr. Kai Hänggeli
 Dr. Gastón Moré
 Dr. Matías Preza

PhD Studierende und Doktorierende / PhD and doctoral students

Alice Bernal
 Emily Bessell
 Pia Cigler
 Maria Cristina Ferreira de Sousa
 Denise Häner-Grolimund
 Tobias Kämpfer
 Marc Kaethner
 Sinah Lückner
 Zoé Medici
 Fabio Poletti
 Anna Schneider
 Pascal Zumstein

Masterstudierende / Master students

Anissa Bartetzko
 Milena Beutler
 Karin Birrer
 Nicole Dietrich
 Elena Emmenegger
 Lea Fankhauser
 Carlotta Filippini
 Tobias Heiri
 Sinah Lückner
 Albane Meuwly
 Luis Castro Moura
 Seraina Mühlemann
 Henrique Renfer
 Fiona Schurter
 Stephanie Sollberger
 Judith Steinmann
 Laura Vetter
 Anitha Vigneswaran

Adjunct Researchers

Dr. Helder Cortes
 University of Evora, Portugal

Adjunct Lecturer

PD Dr. Heinz Sager, Elanco

Diagnostik / Diagnostic Unit

Leitung / Head

Prof. Dr. Walter Basso
Prof. Dr. Caroline Frey (Stv.)

EVPC Residents

Dr. Diana Gliga
Dr. Gastón Moré

Laborantinnen / Technicians

Stephanie Fuss
Arjeta Hasani
Ursula Kurath
Caroline Müller
Maria Luiza Rosenhaim Prade
Christine Salvisberg
Rahel Ziegler

Assistierende / Assistants

Elena Emmenegger
Sinah Lückner
Dina Lüthi



Team Lundström-Stadelmann und Wiedemar.



Team Hemphill.



Diagnostik Team – Team Frey und Basso.

4. GASTFORSCHENDE & PRAKTIKANTINNEN / GUEST RESEARCHERS

- **Dr. Rickli Charlotte**, FAMH internship; LaborVet, Reiden, Dec. 2025 to Jan. 2026
- **Prof. Dewals Benjamin**, EVPC internship, Department of Infectious and Parasitic Diseases, Faculty of Veterinary Medicine, University of Liège, Belgium, Dec. 2025
- **Ferreira Mariana**, Faculty of Veterinary Medicine, Lisbon, Portugal, Sept. to Oct. 2025
- **Colangeli Giulia**, PhD internship, Universitat de València, Spain, Jun. to Dec. 2025
- **Castaldo Elisa**, PhD internship, Department of Veterinary Medicine and Animal Production University of Naples Federico II, Italy, Apr. to Jun. 2024 and Mar. to Apr. 2025.
- **Maya Katby**, PhD Internship, University of Rennes, Jun. 2025
- **Dr. Sara Dion**, University of Rennes, Jun. and Nov. 2025
- **Selene Rubiola**, COST ACTION 22166 (SafeGameMeat) Short-Term Scientific Mission, Department of Veterinary Sciences, University of Turin, Italy, Jul. 2025
- **Zoia Thiess**, Maturaarbeit, Kantonsschule Alpenquai Luzern, CH, May 2025
- **Anastasia Flügge**, MINT internship, Gymnasium Lebermatt, Bern, CH, Aug. 2025
- **Prof. Jenkins Emily**, Research Sabbatical, University of Saskatchewan, Canada, Jan. to Jun. 2025
- **Molteni Stefania**, ERASMUS internship, Dept. Of Veterinary Medicine and Animal Sciences, University of Milan, Italy, Jan. to Mar. 2025
- **Lucia Peters**, stud. internship, Veterinary Medicine, Pontificia Universidad Católica de Chile, Nov. 2025
- **Kokila Sivabalakrisham**, PhD internship, Department of Zoology, University of Jaffna, Sri Lanka, Jan. to Feb. 2024
- **Arthiyan Sivasingham**, PhD internship, Department of Zoology, University of Jaffna, Sri Lanka, Feb. to Mar. 2024



Prof. Dr. Emily Jenkins (left) with Prof. Dr. Caroline Frey (right).

5. FORSCHUNG / RESEARCH

4.1 GRANTS

Members of IPA as main PI

Multidisciplinary Centre of Infectious Diseases (MCID)

Project title: "Immune Response during liver-stage parasitic infections"
 Principal Investigator: B. Lundström-Stadelmann, Co-PIs P. Krebs and D. Stroka, Bern
 Project Budget: 500'000 CHF
 Project Period: Dez. 2025 – Nov. 2028

Multidisciplinary Centre of Infectious Diseases (MCID)

Project title: "*Strongyloides stercoralis* – prevalence and co-infection in pet dogs and people in Switzerland"
 Principal Investigator: W. Basso, Co-PIs S. Schuller, C. Hirzel, S. Griss
 Project Budget: 395'902 CHF
 Project Period: Dez. 2025 – Nov. 2028

Swiss National Science Foundation (SNSF)

Project title: "The metabolism of *Echinococcus multilocularis* and its potential for novel, targeted treatments against alveolar echinococcosis"
 Principal Investigator: B. Lundström-Stadelmann
 Project Budget: 850'000 CHF
 Project Period: Apr. 2025 – Mar. 2029

Germaine de Stael, SATW

Project title: "Novel innovative treatments against the fox tapeworm *Echinococcus multilocularis*: Echinocide"
 Principal Investigator: B. Lundström-Stadelmann, Co-PI S. Dion, Rennes
 Project Budget: 4'500 CHF
 Project Period: Jan. 2024 – Dec. 2025

Swiss National Science Foundation (SNSF) Ambizione Grant

Project title: "Dissecting resistance mechanisms and identifying new drug targets for the liver fluke *Fasciola hepatica*"
 Principal Investigator: N. Wiedemar
 Project Budget: 1'012'204 CHF
 Project Period: Dez. 2023 – Nov. 2027

UniBe ID Grant

Project Title: "Role of IL-33 in alveolar echinococcosis"
 Principal Investigator: B. Lundström-Stadelmann and P. Krebs
 Project Budget: 150'000 CHF
 Project Period: Dec. 2023 – Nov. 2025

Swiss National Science Foundation

Project title: "Going for unexplored territory: novel drugs and their targets in *Toxoplasma* and *Neospora*"
 Principal Investigator: A. Hemphill
 Project Budget: 630'000 CHF
 Project Period: Apr. 2023 – Sept. 2026

Gottfried and Julia Bangerter-Rhyner-Stiftung

Project Title: “Novel therapy against the fox tapeworm”
 Principal Investigator: B. Lundström-Stadelmann
 Project Budget: 50'000 CHF
 Project Period: Mar. 2023 – 2027

Uniscientia Foundation

Project Title: “Novel therapy against the fox tapeworm”
 Principal Investigator: B. Lundström-Stadelmann
 Project Budget: 240'000 CHF
 Project Period: Mar. 2023 – 2027

Swiss National Science Foundation

Project Title: “Antimicrobial peptides for the treatment of *Toxoplasma* infections”
 Principal Investigator: Y. Amdouni
 Project Budget: 255'812 CHF
 Project Period: Oct. 2022 – Sept. 2024

Uniscientia Foundation

Project title: “Ocular toxoplasmosis: studies on drug susceptibility of novel field isolates and development of an animal model”
 Principal Investigator: A. Hemphill
 Project Budget: 180'000 CHF
 Project Period: April 2021 – March 2024

Swiss National Science Foundation (SNSF)

Project number: IZSTZ_191762
 Project title: “The molecular basis of adaptation of *Aedes* mosquitoes, vectors of viral diseases, to saltwater environments”
 Principal Investigator: A. Hemphill
 Project Budget: 132'550 CHF
 Project Period: Oct. 2020 – Sept. 2024

Swiss National Science Foundation (SNSF)

Project number: 310030_192072
 Project title: “Energy-generating pathways of the parasite *Echinococcus multilocularis* and their potential for novel, targeted treatments against alveolar echinococcosis”
 Principal Investigator: B. Lundström-Stadelmann
 Project Budget: 700'000 CHF
 Project Period: Apr. 2020 – Mar. 2024

Bundesamt für Lebensmittelsicherheit und Veterinärwesen

Project Title: “Protozoan parasites in ready-to-eat meat products”
 Principal Investigator: C. Frey
 Project Budget: 89'750 CHF
 Project Period: Aug. 2024 – Sep. 2025

Bundesamt für Lebensmittelsicherheit und Veterinärwesen

Project Title: “Seroprevalence of *Neospora caninum* in Eringer cows”
 Principal Investigator: C. Frey
 Project Budget: 2'800 CHF
 Project Period: Jan. 2024

Bundesamt für Lebensmittelsicherheit und Veterinärwesen

Project Title: "Trichinella britovi cryopreservation trials"
 Principal Investigator: W. Basso, G. Moré
 Project Budget: 4'934 CHF
 Project Period: Sep. 2025 to Dec. 2025

Boehringer-Ingelheim & Virbac

Project Titel: "Serosurveillance of pasture helminths in dairy cows"
 Principal Investigator: C. Frey
 Project Budget: 52'000 CHF
 Project Period: Jan. 2024 – Dec. 2025

UniBe Fund for the Promotion of Early Career Researchers

Project title: "SSTMP Postdoc Initiative"
 Principal Investigator: N. Wiedemar, K. Venugopal & A. Albisetti
 Project Budget: 2'770 CHF
 Project Period: Aug. 2024

Hans-Sigrist Stiftung

Project title: "Supplementary Grant for sabbatical of Prof. Emily Jenkins"
 Principal Investigator: C. Frey
 Project Budget: 6'000 CHF
 Project Period: Jan. 2025 – Jun. 2025

Specialization Board Vetsuisse Bern

Project title: "Next generation sequencing (NGS) as tool to properly identify and describe *Sarcocystis* spp. infecting domestic and wild animals"
 Principal Investigator: Gaston Moré
 Project Budget: 4'925 CHF
 Project Period: Dec. 2025 – Mar. 2027

IPA as collaborator

National Institutes of Health (NIH)

Project title: "Optimization of lead-BKIs for cryptosporidiosis therapy"
 Principal Investigator: W. Van Voorhis, University of Washington, Seattle, USA
 Collaborator at IPA: A. Hemphill
 Project Budget: 81'000 USD
 Project Period: Mar. 2021 – Feb. 2026

National Institutes of Health (NIH)

Project title: "Bumped kinase inhibitor drug development for toxoplasmosis"
 Principal Investigator: W. Van Voorhis, University of Washington, Seattle, USA
 Collaborator at IPA: A. Hemphill
 Project Budget: 147'066 USD
 Project Period: Jan. 2021 – Dec. 2025

INSERM International Project

Project title: "NANOTHERA-ECHINO Project"
 Principal Investigator: S. Dion, University of Rennes, F
 Collaborator at IPA: B. Lundström-Stadelmann
 Project Budget: 60'000 EUR
 Project Period: Jan. 2021 – Dec. 2025

Swiss Network for International Studies (SNIS)

Project title: "ParaSahel – One Health and Citizen Science approaches for contextualized community-led interventions tackling water-borne parasitic diseases in Chad"

Principal Investigator: H. Greter, Swiss Tropical and Public Health Institute; S. Dürr, Veterinary Public Health Institute, University of Bern

Collaborator at IPA: C. Frey, B. Lundström-Stadelmann

Project Budget: 280'000 CHF

Project Period: Nov. 2022 – Nov. 2024

Swisslos Aargau & Solothurn

Project title: "Trypanosomen – Gefährden Blutparasiten die Nachzucht von Alpenseglern?"

Principal Investigator: S. Keller, P. Cigler, I. Adrian-Kalchhauser (all FIWI)

Collaborator at IPA: G. Moré, W. Basso, C. Frey

Project budget: 83'000 CHF

Project Period: Aug. 2022 – Dec. 2025

KORA-Raubtierökologie und Wildtiermanagement

Project title: "*Toxoplasma gondii* infections in Eurasian wolves in Switzerland: occurrence and impact on behaviour"

Principal Investigator: P. Scherrer, N. Gerber (KORA), I. Marti (FIWI)

Collaborator at IPA: W. Basso, C. Frey

Project Budget: 4'000 CHF

Project Period: Mar. 2022 – Dec. 2024

Lehrprojekte Vetsuisse Bern

Project title: "DermaPHARM e-learning tool "

Principal Investigator: M. Mevissen, T. Schlittenlacher (Pharma), M. Walkehorst (FIBL)

Collaborator at IPA: C. Frey, G. Moré

Project Budget: 72'000 CHF (48 Personalpunkte)

Project Period: Mar. 2024 – Feb. 2025

4.2 PROJEKTZUSAMMENFASSUNGEN / PROJECTS AND SUMMARIES OF MAIN PROJECTS

ECHINOCOCCUS – DER FUCHS- UND HUNDEBANDWURM / THE FOX AND DOG TAPEWORM

A) The Epidemiology of *Echinococcus*

Researchers at IPA (PIs, then in alphabetical order):

Prof. Dr. Caroline Frey, Prof. Dr. A. Hemphill, Prof. Dr. Britta Lundström-Stadelmann, Emily Bessell, Dr. Marc Kaethner, Elena Emmenegger.

External collaborators (only PIs are listed, alphabetical order)

Prof. Dr. Guido Beldi (Inselspital Bern), Prof. Dr. Emily Jenkins (University of Saskatchewan, CA), Prof. Dr. Robin Gasser (University of Melbourne, AUS) Prof. Dr. Nina Germitsch (University of Prince Edward Island, CA), PD Dr. Anja Lachenmayer (Inselspital Bern), Prof. Dr. Ali Rostami (Babol University of Medical Sciences), Prof. Dr. Antti Oksanen (University of Helsinki, FI), Prof. Dr. Paul Torgersson (University of Zürich, CH), Dr. Jussa-Pekka Virtanen (Finnish Food Authority, FI)

Project background

Echinococcus multilocularis, the small fox tapeworm, is a zoonotic cestode maintained in wildlife cycles, primarily involving foxes and other wild canids as definitive hosts and small mammals as intermediate hosts. Humans, dogs, captive monkeys, and other animals, become accidental intermediate hosts through ingestion of parasite eggs from contaminated environments. The resulting disease, alveolar echinococcosis (AE), is characterized by slow-growing, infiltrative larval lesions, mainly affecting the liver and behaving clinically like a malignant tumor. Human AE has a long incubation period, often spanning 5–15 years, and is associated with high morbidity and mortality if untreated. Despite its severity, AE remains a rare and underdiagnosed disease, with a highly heterogeneous but evolving global distribution, accompanied by a still underestimated human disease burden.

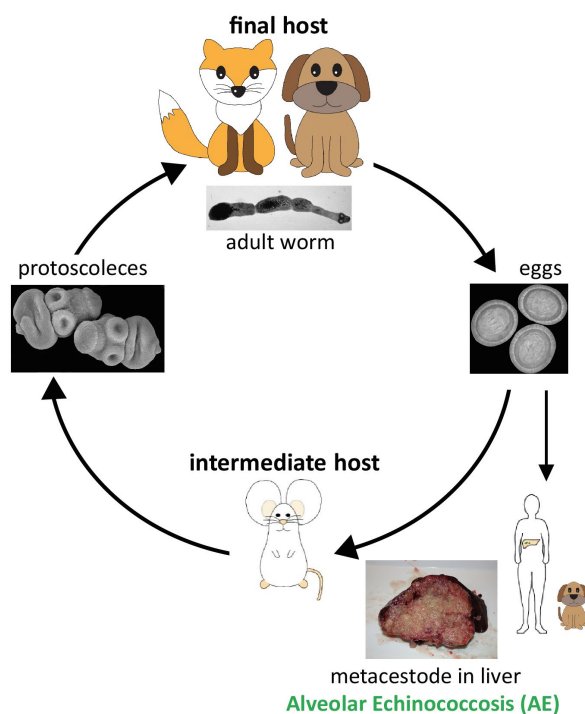
Project description

In a collaborative literature review with colleagues from the University of Saskatchewan (Canada), we found that in Europe and North America, the geographic distribution of *E. multilocularis* has expanded considerably over recent decades (Jenkins et al., 2025, Adv Parasitol). In Europe, formerly stable endemic regions in Central and Eastern countries have consolidated, while new transmission foci have been detected in Western and Northern Europe. The parasite has been identified in additional definitive and intermediate host species, including golden jackals and lagomorphs, indicating increased ecological flexibility. Urban and peri-urban transmission cycles are now well established in several countries, driven by high densities of red foxes and other wild canids adapted to human environments. In North America, *E. multilocularis* is now reported from at least nine Canadian provinces or territories and approximately 24 U.S. states, compared with much more limited known ranges in earlier decades (Jenkins et al., 2025, Adv Parasitol). Molecular data further indicate notable genetic diversity and the presence of European-like haplotypes in North America, suggesting historical and ongoing connectivity between transmission systems.

As we reviewed with colleagues from Iran and Australia, human AE continues to be underdiagnosed and underreported in many regions. Globally, current estimates suggest approximately 10 489 new AE cases per year (range ~8 191–14 409), with around 92 % occurring in China (Rostami and Lundström-Stadelmann et al., 2025, Int J Mol Sci). In highly endemic areas of western China, local prevalence rates of up to ~1.9 % have been reported. Outside China, the annual number of new cases is estimated at ~850, but incidence is increasing in several regions. Central Asia represents a particularly dynamic epidemiological setting. In Kyrgyzstan, annual AE case numbers rose dramatically from sporadic cases in the late 1990s to approximately 140–200 cases per year, corresponding to an annual incidence rate of ~2.62 per 100 000

population (Rostami and Lundström-Stadelmann et al., 2025, Int J Mol Sci). In Europe, long-term surveillance data reveal increasing incidence in countries such as Switzerland, France, Germany, and the Baltic states. Lithuania currently reports the highest annual incidence rate in Europe (~0.52 per 100 000) (Lundström-Stadelmann and Rostami et al., 2025, Clin Microbiol Infect). In Switzerland, incidence increased from ~0.15 per 100 000 in earlier decades to ~0.26 per 100 000 in the 2000s, with nearly 100–140 cases reported annually in recent years. Although absolute numbers remain low in North America, confirmed human AE cases are increasing, particularly in Canada, with sporadic but emerging cases also reported in the United States (Rostami and Lundström-Stadelmann et al., 2025, Int J Mol Sci; Lundström-Stadelmann and Rostami et al., 2025, Clin Microbiol Infect).

Collectively, our reviews emphasize that *E. multilocularis* is expanding geographically and ecologically, while the burden of human AE remains concentrated but non-static. Heterogeneous surveillance systems, underreporting, and delayed diagnosis obscure the true burden. The data consistently support the need for harmonized surveillance, integration of molecular epidemiology, and coordinated One Health approaches to better quantify risk and guide prevention and control strategies (Jenkins et al., 2025, Adv Parasitol; Rostami and Lundström-Stadelmann et al., 2025, Int J Mol Sci; Lundström-Stadelmann and Rostami et al., 2025, Clin Microbiol Infect).



***E. multilocularis* Lebenszyklus.**

B) Models, Metabolism and Drugs against *Echinococcus* and cestodes

Researchers at IPA (PI, then in alphabetical order):

Prof. Dr. Britta Lundström-Stadelmann, Anissa Bartetzko, Prof. Dr. Walter Basso, Dr. Sara Benazzouz, Prof. Dr. Caroline Frey, Dr. Diana Gliga, Prof. Dr. Andrew Hemphill, Dr. Marc Kaethner, Tobias Kämpfer, PD Dr. Joachim Müller, Dr. Matías Preza, Laura Vetter, Trix Zumkehr, Pascal Zumstein.

External collaborators (only PIs are listed, alphabetical order)

Dr. Klaus Brehm (University of Würzburg, D), PD Dr. Sarah Dion and Dr. Brice Autier (Institut de Recherche en Santé (IRSET), University of Rennes, F), Prof. Dr. Manfred Heller (University of Bern, CH), Dr. Benoît Laleu (Medicines for Malaria Venture, Geneva, CH), Prof. Dr. Martin Lochner (University of Bern), Prof. Dr. Stefan Schürch (University of Bern), Miriam Wiesner (Zoo Salzburg), Dr. Daniel Villalobos Ramírez (University of Würzburg, D).

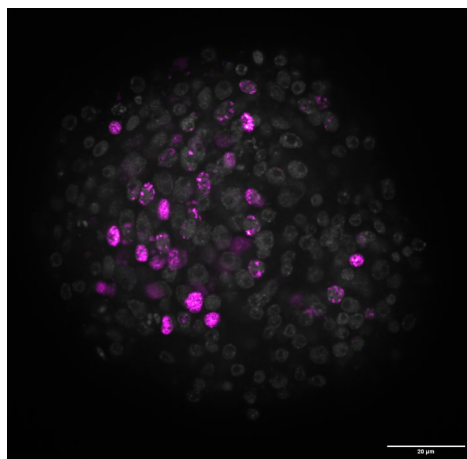
Project background

The metacestode (larval) stages of the helminths *Echinococcus multilocularis* and *E. granulosus* cause alveolar echinococcosis (AE) and cystic echinococcosis (CE), respectively, two life-threatening zoonotic diseases affecting humans and livestock worldwide. In many patients, radical curative surgery is not feasible, and long-term drug therapy with the benzimidazoles albendazole or mebendazole remains the only approved pharmacological option, providing primarily parasitostatic rather than curative effects. Thus,

novel drug treatment options against *Echinococcus* are urgently needed. In 2024, we contributed a book chapter that summarizes promising novel drug therapies against echinococcosis from a Swiss perspective (Lundström-Stadelmann et al, 2024, Springer Link). Building on markedly improved *in vitro* culture systems for *Echinococcus* metacestodes and their germinative (stem) cells, we established medium-throughput drug-screening assays with objective, quantifiable readouts of parasite viability, structural integrity, and stem cell activity. These platforms enable systematic *in vitro* evaluation of candidate compounds and support the identification of novel anti-cestodal agents beyond the current benzimidazole-based therapeutic landscape.

Project description

Due to the fact that pharmaceutical companies are reluctant to engage in preclinical drug development for AE, we have largely focused on repurposing of drug libraries and already existing drugs or compound classes that are on the market or being developed for other indications. We perform pharmacodynamic studies *in vitro* and *in vivo*, investigate the mode of action of active compounds, as well as the structure activity relationship. In 2024 and 2025, our main studies covered (a) screening of the Pandemic Response Box, and (b) improved drug delivery systems. In a more target-based approach, we dissected the threonine catabolism (c), as well as the malate dismutation pathway (d) of *Echinococcus*, and found novel potential targets.

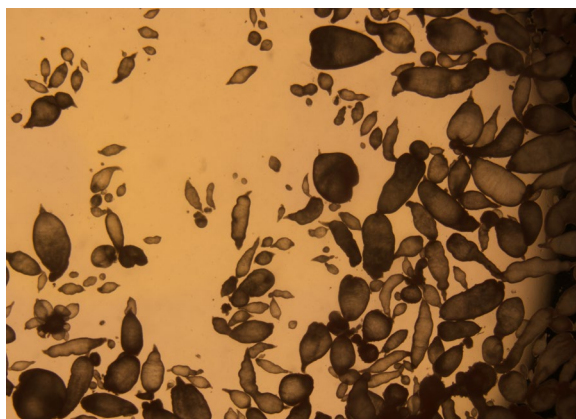


**Sieben Tage altes Germinalschicht-Zellaggregat von *E. multilocularis*.
Eingefärbt sind Zellkerne (grau) und proliferierende Stammzellkerne (pink).**

- a) Applying our established screening cascade, we expanded our medium-throughput screening framework to open-access compound libraries by profiling the Pandemic Response Box from Medicines for Malaria Venture against *E. multilocularis* (Zumstein et al., 2025, Int J Parasitol Drugs Drug Resist). This phenotypic screen identified ESI-09 as a compound with reproducible activity on parasite viability and structural integrity. Mechanistic studies showed that ESI-09 acts as a mitochondrial uncoupler. The study demonstrates the suitability of our *in vitro* assay platform for systematic repurposing campaigns and highlights its capacity to uncover non-benzimidazole chemotypes with anti-cestodal potential.
- b) To further advance our drug-screening and delivery platform, together with our collaborators from Rennes (PD Dr. S. Dion and team) we integrated nanoparticle-based pharmacological targeting into the *E. multilocularis* metacestode model (Autier et al., 2024, Exp Parasitol). Using PLGA-PEG-COOH nanoparticles, we demonstrated efficient encapsulation and delivery of mefloquine to larval parasites *in vitro*, resulting in antiparasitic activity. Toxicity against hepatocytes was not reduced when compared to free mefloquine. This work positions nanocarrier-assisted compound testing as a complementary strategy within our screening pipeline, addressing bioavailability and uptake limitations that often confound hit validation in cestode drug discovery.

- c) In a more target-based approach, we dissected threonine metabolism in *E. multilocularis* with a focus on threonine dehydrogenase as a candidate drug target. Combining metabolic profiling, gene expression analysis, enzymatic characterization, and functional perturbation in metacestode and germinative cell systems, we demonstrated that the parasite relies on an active threonine catabolic pathway to sustain growth and stem cell function (Kaethner et al., 2025, Int J Parasitology: Drugs and Drug Resistance). Pharmacological and genetic interference with threonine dehydrogenase resulted in impaired parasite viability and tissue integrity. This study links essential metabolic dependency to druggability and integrates metabolic target validation into our broader cestode drug discovery and screening pipeline.
- d) In a more targeted approach, we have identified malate dismutation (MD) as a distinctive mitochondrial energy pathway in helminths that is absent from mammals and supports parasite survival under low-oxygen conditions, making it an attractive and selective therapeutic target. To ensure robust and physiologically relevant analyses, we developed *in vitro* models under defined oxygen conditions and validated parasite growth and viability across aerobic and anaerobic environments. Targeted metabolomic and transcriptomic profiling revealed constitutive MD activity that is further enhanced during hypoxia, reflected by increased succinate production, reduced tricarboxylic acid cycle intermediates, and upregulation of enzymes involved in rhodoquinone biosynthesis. These patterns were consistent with metabolic features observed in *in vivo* material. Further investigation identified a highly expressed cytosolic malate dehydrogenase (cMDH) as a key component linked to parasite development. Functional interference with this enzyme impaired metacestode formation, supporting its relevance as a potential drug target. Recombinant expression and biochemical characterization of cMDH enabled the establishment of a cell-free screening assay, which demonstrated susceptibility to a known MDH inhibitor and confirmed pharmacological vulnerability within this pathway. Collectively, these data strengthen the case for MD-associated enzymes as promising candidates for the development of novel, parasite-specific therapies. A manuscript is in preparation.

We also further developed related cestode *in vitro* models, by establishing an additional cestode *in vitro* drug-screening model that expands existing *Echinococcus*-based platforms and enables cross-species evaluation of candidate anthelmintics. Using a wild-type *Taenia crassiceps* isolate obtained from a ring-tailed lemur, we adapted established viability and damage assays, including phosphoglucose isomerase release and automated motility measurements, to metacestode cultures (Kämpfer et al., 2025, Vet Parasitol). Testing standard anthelmintics across parasite developmental stages showed praziquantel to exert stronger effects on parasite integrity and motility than benzimidazoles under identical conditions, demonstrating the suitability of this system for comparative drug profiling and IC₅₀ determination in an additional cestode model.



***T. crassiceps in vitro* Kultur.**

A better knowledge of the proteome of our parasite, including sub-fractions of the vesicle fluid, the vesicle tissue, and secreted fractions, is incremental for a better understanding of the metabolism. For this reason, we characterized the host protein repertoire associated with *E. multilocularis* metacestodes to define molecular interfaces at the host-parasite boundary (Müller et al., 2025, Int J Mol Sci). Using proteomic and biochemical analyses of *in vitro*-cultured and host-derived parasite material, we identified a broad range of host proteins that are internalized or surface-associated with the metacestode tissue, including immune-related, extracellular matrix, and transport-associated factors. This work provides a systematic map of host

protein acquisition and interaction by the parasite, establishing a molecular framework for understanding immune modulation, nutrient uptake, and microenvironmental adaptation, and generating host–parasite interface candidates for downstream functional and therapeutic targeting.

THE ROLE OF IL-33 IN ALVEOLAR ECHINOCOCCOSIS (AE)

Researchers at IPA: Prof. Dr. Britta Lundström-Stadelmann, Emily Bessell, Trix Zumkehr

External collaborators: Dr. Sarah Dion (IRSET Rennes, F), Prof. Dr. Philippe Krebs (University of Bern), Prof. Dr. Stefan Schürch (University of Bern), Prof. Dr. Deborah Stroka (University of Bern).

Project background

AE disease outcome is closely linked to the host immune responses, with inflammatory immune responses resulting in parasite remission and regulatory responses promoting parasite growth. Interleukin 33 (IL-33) is an alarmin released from damaged or stressed cells at mucosal barrier sites and has been shown to have context-dependent effects during parasitic infections, ranging from protective immune responses to disease pathology exacerbation. This project aims to characterise the role of the inflammatory pathway dependent on IL-33 in AE liver pathology and disease progression, with an additional focus on the parasite–host interactions involved in this pathway.

Project description

Our preliminary data indicate that parasite-derived molecules promote IL-33 expression in structural cells, which may have a downstream impact on host immunity and parasite persistence. Further research is warranted to evaluate the contribution of IL-33-dependent inflammation to the pathophysiology of *E. multilocularis* infection.

DRUGS AGAINST ADULT TAPEWORMS: PRAZIQUANTEL AND ITS MODE OF ACTION

Researchers at IPA: Prof. Dr. Britta Lundström-Stadelmann, Dr. Marc Kaethner.

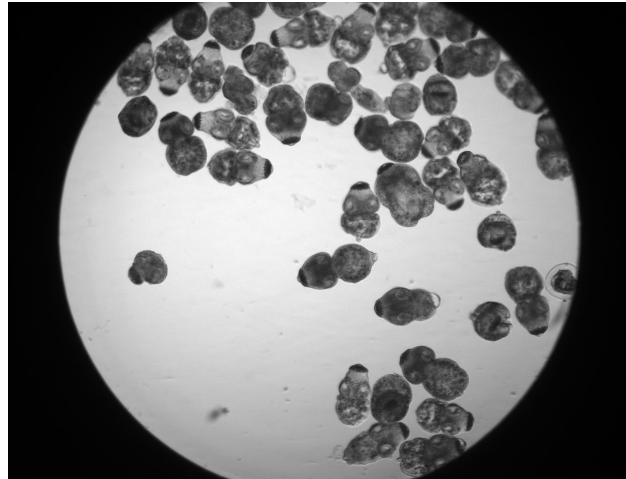
External collaborators: Prof. Dr. Jonathan S. Marchant and Dr. Daniel Sprague (Medical College of Wisconsin, USA), Dr. T. Spangenberg (Merck).

Project background

The drug praziquantel (PZQ) has been used for decades to treat clinical and veterinary infections caused by parasitic flatworms. Although PZQ is efficacious against many different types of flukes and tapeworms, PZQ activity is lower against certain types of parasites, including pseudophyllidean cestodes. The target of PZQ is a parasitic flatworm transient receptor potential ion channel (TRPM_{PZQ}).

Project description

We contributed to a collaborative, target-based drug discovery effort led by Sprague and colleagues by providing phenotypic validation in our cestode *in vitro* models. The study focused on the cestode transient receptor potential channel TRPM_{PZQ} as the molecular target of PZQ and on the structure-guided design of PZQ analogs. Our screening platforms were used to assess compound activity (Sprague et al., 2025, ACS Infectious Diseases). Target-based design across parasite TRPM_{PZQ} orthologues and related TRPM paralogues within this ion channel family offers a strategy to broaden and refine the current anthelmintic repertoire.



***E. multilocularis* Protoscolexes im Motilitätstest.**

PREVENTIVE AND THERAPEUTIC TARGETS FOR THE CONTROL OF NEOSPOROSIS, TOXOPLASMOSIS AND DISEASES CAUSED BY OTHER APICOMPLEXANS

Researchers at IPA: Prof. Dr. Andrew Hemphill, Dr. Yosra Amdouni, Dr. Ghalia Boubaker, Dr. Kai Hänggeli, Larissa Hofmann, PD Dr. Joachim Müller, Maria Cristina Ferreira de Sousa, Yelyzaveta Nahorna.

External collaborators: Prof. Dr. Stone Doggett, Prof. Dr. Julien Furrer, Prof. Dr. Gilles Gasser, Prof. Dr. Richard K. Haynes, Prof. Dr. Adrian Hehl, Prof. Dr. Manfred Heller, Prof. Dr. Alexandre Leitao, Prof. Dr. Nadia Mercader-Huber, Prof. Dr. Luis-Miguel Ortega-Mora, Prof. Dr. Wes Van Voorhis.

Project background

Apicomplexan parasites cause serious diseases in animals and man. Among these are species that are exclusively of veterinary importance such as *Neospora caninum* and *Besnoitia besnoiti*, and others exhibit a high zoonotic importance, including *Toxoplasma gondii* and *Cryptosporidium parvum*. For most apicomplexans there are no efficacious vaccines on the market, and the current drug treatments are often hampered by adverse side effects and low efficacy.

Project description

The major focus of the project lies on *N. caninum* and *T. gondii*, which cause major diseases in farm animals and have a tremendous global economic impact, most notably in ruminants. More recently, also *C. parvum* was included. Novel drugs and drug targets need to be identified in these parasites. In the last years, the parasite mitochondrion and kinase-mediated signalling have emerged as promising cellular and molecular targets, respectively. We have previously identified several compounds with profound in vitro activities, including bumped kinase inhibitors (BKIs) affecting calcium-dependent protein kinase 1 (CDPK1), and drugs targeting the mitochondrion such as endochin-like quinolones (ELQs), decoquinate (DCQ)-derivatives, artemisinin (ART)-derivatives, antimicrobial peptides and ruthenium based-organometallic complexes. However, only a subset of these drugs displayed promising activity in respective pregnant or non-pregnant mouse models, and some induced profound adverse effects, and/or impaired pregnancy outcome. None of the drugs act parasitocidal against *T. gondii* and *N. caninum* in vitro, since parasites can readily adapt to highly elevated concentrations, and continue proliferation. Additionally, preliminary studies on selected compounds have shown that several drugs with a defined mode of action bind to proteins that are different from their postulated targets, and these interactions could be responsible for adverse side effects in their host. By analysing the proteomes in drug-tolerant/resistant parasites versus wild type strains, and by identifying drug-binding proteins in both parasites and hosts through differential affinity chromatography

(DAC) coupled to mass spectrometry (MS) and proteomics (DAC-MS-proteomics), as well as by applying co-immunoprecipitation assays and phospho-proteomics, we show that anti-parasitic drugs can interact with several potential targets, and affect similar metabolic pathways or even share the same molecular targets in parasites and hosts.

We are doing this by pursuing the following experimental approaches: *T. gondii* and *N. caninum* are adapted to elevated drug pressure by stepwise increasing the compound concentration during in vitro culture. Adapted parasite populations are cloned, and the clones are phenotypically characterized in vitro, but also in vivo. Comparative proteomic analysis of drug-adapted versus non-adapted strains is used to identify differentially up- and downregulated proteins. In parallel, we identify parasite- and host drug-binding proteins using DAC-MS-proteomics. Selected proteins identified as potential targets are recombinantly expressed and antibodies are generated for further localization studies and biochemical characterization. Differentially regulated proteins and drug-binding proteins are then validated as drug targets by generating knockout strains using CRISPR-Cas9 and phenotypic characterization of mutant lines.

The capacity of the two apicomplexans to develop tolerance (physiological adaptation), and/or resistance (defined by mutations in the drug target) to anti-parasitic drugs is high, as has been shown in previous studies. Thus, by analysing the differential gene expression in drug-adapted versus non-adapted parasites, as well as in host cells, we seek to identify relevant mechanisms of action of the studied compounds. Proteins identified through DAC-MS-proteomics undergo target validation and functional characterization. Since apicomplexan parasites are eukaryotes sharing essential pathways with their hosts, resolving the mode of action of chemotherapeutics of interest is essential before undertaking extensive pre-clinical studies in animal models. This, and especially the application of DAC-MS-proteomics, allows to predict adverse side effects *in vivo*, and can contribute to the reduction of animal experimentation.



***Toxoplasma gondii* Tachyzoit (blau) in Zellkultur.
Rasterelektronenmikroskopie, gefärbt.**

DISSECTING RESISTANCE MECHANISMS AND IDENTIFYING NEW DRUG TARGETS FOR THE LIVER FLUKE *FASCIOLA HEPATICA* PZ00P3_216088

Researchers at IPA: Dr. Natalie Wiedemar, Alice Bernal, Regula Flückiger, Prof. Dr. Caroline Frey, Dr. Maryna Galat, Dr. Diana Gliga, Prof. Dr. Britta Lundström-Stadelmann, Dr. Matías Preza.

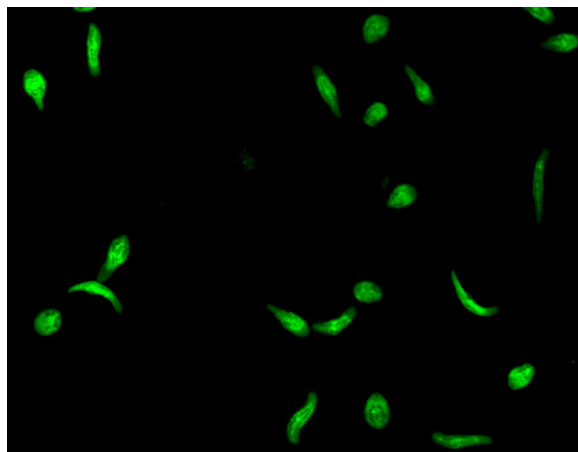
External collaborators: Dr. Miguel Cabada, Prof. Dr. Jane Hodgkinson, Prof. Dr. Jennifer Keiser, Prof. Dr. Gabriela Knubben-Schweizer, Prof. Dr. Tosso Leeb, Prof. Dr. Mar Siles-Lucas, Dr. Susan Wyllie, Dr. Neil Young.

Project background: Trematode parasites, such as the liver fluke, *Fasciola hepatica*, still cause a heavy disease burden in veterinary and human medicine. What they all have in common is a complex life cycle involving molluscs as intermediate hosts and mammals as final hosts. In the case of *Fasciola hepatica*, the intermediate host is a lymnaeid snail and the end hosts can be a range of different mammals. In the mammalian host, the parasites travel through the liver as juvenile flukes and reside in the bile ducts as adult flukes, leading to the disease fasciolosis that is characterized by inflammatory and obstructive liver symptoms. In Europe, *F. hepatica* is mostly an agricultural problem in domestic ruminants, leading to economic losses. However, the parasite also affects several million people, mostly in the Global South, and is considered a neglected tropical disease. While multiple drugs are used to treat fasciolosis in domestic animals, only one of them, triclabendazole, kills all intra-mammalian stages of the parasite and is the only drug approved to treat fasciolosis in humans. After four decades of use, resistance against triclabendazole has become increasingly prevalent in *F. hepatica*. TCBZ resistance has been linked to a 3 million base-pair locus in the parasite genome, but the nature and mechanisms of resistance are still unknown. Unravelling those mechanisms could provide us with valuable insights on the mode of drug action and drug-target binding, and identification of resistance markers could help to guide treatment and management regimes in the field. Furthermore, insights on the resistance mechanisms could provide valuable information for the development of urgently needed future drugs.

Project description: This Ambizione project focuses on two aspects in *F. hepatica*: (1) to investigate the occurrence of triclabendazole resistance in Switzerland and its underlying molecular mechanisms, and (2) to find new molecules with activity against the parasite and suitable drug targets. First, the required methodologies were established at the Institute of Parasitology. They involve the production of juvenile parasites by infection of the intermediate snail host, *in vitro* culture and drug testing of juvenile and adult parasites.

To study triclabendazole resistance (1), >20 populations of adult *F. hepatica* parasites were collected from naturally infected ruminant livers and tested *ex vivo* for their triclabendazole sensitivities. Whole genome sequencing of selected isolates was carried out and ongoing analysis investigate genomic loci associated with the TCBZ sensitivity and resistance phenotypes. Identified regions will then further be scrutinized to find candidate genes and candidate sequence variants for triclabendazole resistance and followed up with mechanistic studies.

In the second part of the project (2), we established a drug screening method with newly excysted juvenile parasites. It is based on live imaging and analysis of parasite movement. We are applying this method to screen compound libraries and identify molecules that are able to inactivate juvenile *F. hepatica*. The obtained hits are further characterized with dose-activity assays, dual life-dead staining, they are tested in adult parasites, in parasite isolates known to be triclabendazole resistant and in mammalian cells to obtain information about the selectivity window. Most interesting compounds will undergo further mechanistic studies in order to characterize the drug target and the mode of drug action.



Freshly-excysted juvenile *F. hepatica* parasites after fluorescein diacetate live-staining.

ZOONOTIC TREMATODES (*SCHISTOSOMA* SPP. AND *FASCIOLA* SPP.) IN LAKE CHAD REGION

Researchers at IPA: Prof. Dr. Caroline Frey, Prof. Dr. Britta Lundström-Stadelmann, Dr. Natalie Wiedemar.

External collaborators: Dr. Helena Greter (PI; Swiss TPH, Allschwil) & Prof. Dr. Salome Dürr (PI; VPHI, Bern), Dr. Karin Darpel (IVI, Mittelhäusern), Dr. Ramon Eichenberger (Universität Zürich), Dima Farra (VPHI, Bern), Rahila Gazida Loum (VPHI, Bern), Dr. Diana Gliga (IPA), Prof. Dr. Claudia Daubenberger (Swiss TPH), Dr. Salome Hosch (Swiss TPH).

Project background: This is a multidisciplinary project investigating the occurrence of the trematodes and their snail intermediate hosts in the lake Chad region. Schistosomes, especially hybrid forms between *S. bovis* and *S. haematobium*, and *Fasciola* spp. (*F. hepatica*, *F. gigantea*) are zoonotic parasites. Little is known about their occurrence in ruminants and equids in Lake Chad region, Chad.

Project description: Fecal samples from ruminants (sheep, goats, cattle) and equids (donkeys, horses) as well as blood samples from the same animals were collected at Lake Chad. In slaughtered animals, adult flukes were collected from the liver and the mesenteric blood vessels. Fecal sedimentation to detect eggs of trematodes as well as serological detection of antibodies in ruminants against *Fasciola* spp. has been directly performed in Chad. Fecal samples have additionally been analysed by sedimentation and flotation at IPA, to determine apparent prevalence of gastrointestinal parasites in these livestock species, and to compare coprology under field and laboratory conditions. Antibodies against *Fasciola* spp. in equids were detected using an in-house ELISA at IVI, Mittelhäusern. Adult flukes have undergone molecular analyses for species-identification. Respective manuscripts are in preparation.

THE MOLECULAR BASIS OF ADAPTATION OF Aedes MOSQUITOES, VECTORS OF VIRAL DISEASES, TO SALTWATER ENVIRONMENTS

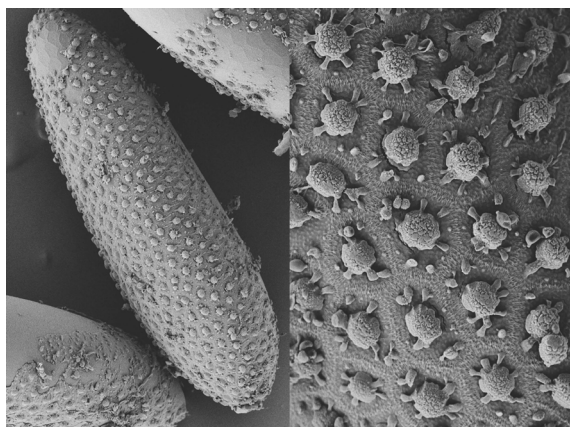
Researchers at IPA: Prof. Dr. Andrew Hemphill.

External collaborators: Prof. Dr. Noble Surendran, Sivasingham Arthiyar, Kokila Sivabalakrishnan, Dr. Arunasalam Naguleswaran, Prof. Dr. Isabel Roditi.

Project background: Vector-borne diseases constitute an enormous health burden, particularly in tropical and sub-tropical regions. Mosquitoes of the genus *Aedes* transmit the viruses responsible for yellow fever,

Dengue, Zika and Chikungunya. Dengue is rapidly reaching pandemic proportions and currently constitutes a major health problem in Sri Lanka. At the same time, cases of Chikungunya are increasing. In the absence of vaccines or drugs for these diseases, vector control is the only means of limiting their spread. Like many other mosquitoes, *Aedes* species breed in stagnant fresh water. A surprising recent finding is that *Aedes* mosquitoes in Sri Lanka have adapted to breed in brackish water as well, thereby extending the area where transmission of Dengue virus can occur.

Project description: This collaborative grant aimed to elucidate the physiological and molecular basis of adaptation using next generation sequencing (RNA-seq), proteomics, immunohistochemistry and structural investigations employing scanning and transmission electron microscopy. We performed recombinant expression of selected proteins that were either up- or downregulated in *Aedes* reared in brackish and fresh water, respectively, in bacteria, raised corresponding antibodies and studied the localization of these proteins within mosquitoes using immunofluorescence and immuno-electron microscopy. Electron microscopy showed that *Aedes* eggs obtained from mosquitoes reared in brackish water exhibited a different surface texture and increased hardness compared to freshwater *Aedes* eggs. In addition, we found that *Aedes* adults and larval stages exhibited an increased cuticle thickness, and this correlated with increased resistance against a panel of commercially available larvicidal and adulticidal insecticides. The project also contained two training components - a workshop to teach bioinformatics to students in Sri Lanka and two three-month and additional two-month stays in Swiss laboratories for Sri Lankan PhD students to learn recombinant protein technology and electron microscopy. Wells with brackish water are common in households on the Jaffna Peninsula in northern Sri Lanka and may have contributed to selection of *Aedes* mosquitoes that are tolerant to salinity. At present, national and international dengue control guidelines target only freshwater breeding sites. This knowledge gain is expected to help control dengue transmission. Furthermore, understanding the basis of adaptation has wider implications for the spread of other mosquito-borne diseases, including malaria and West Nile virus, which are transmitted by other species of mosquitoes.



**Eier der *Aedes*-Mücken im Scanning Elektronenmikroskop.
Links ganzes Ei, rechts Detailansicht der Ei-Oberfläche.**

***TRYPANOSOMA BOUFFARDI*-LIKE INFECTION IN ALPINE SWIFTS**

Researchers at IPA: Dr. Gastón Moré, Prof. Dr. Walter Basso, Prof. Dr. Caroline Frey.

External collaborators: Dr. Saskia Keller (PI; FIWI, Bern), Dr. Pia Cigler (FIWI, Bern), Prof. Dr. Irene Adrian-Kalchhauser (FIWI, Bern), Dr. Pierre Bize (Schweiz. Vogelwarte), Dr. Christoph Meier (Schweiz. Vogelwarte).

Project background: Alpine swifts are a monitored species in Switzerland, present only in the breeding season in summer. There was a marked drop in fledglings observed in the last years. Necropsied dead nestlings presented with haemorrhages and high *Trypanosoma* burdens were detected in their blood.

Project description: *Trypanosoma* sp. from blood could be cultured *in vitro* and molecular characterization including whole genome sequencing is underway. Morphometrically, it resembled *T. bouffardi* first described in songbirds from Africa, but no molecular data from this species is available. Louse flies, namely *Crataerina melbae*/*C. acutipennis*, were shown to be competent vectors for these *Trypanosoma* sp. Monitoring of Alpine swift colonies is ongoing with the Swiss Ornithological Institute and intervention strategies for louse fly control will be investigated.

EPIDEMIOLOGY OF MAJOR PASTURE-BORNE HELMINTHS OF RUMINANTS AND HORSES

Researchers at IPA: Prof. Dr. Caroline Frey, Dr. Maryna Galat, Karin Birrer, Tobias Heiri, Lea Fankhauser

External collaborators: Prof. Dr. Christina Strube (TiHo Hannover), PD Dr. Lucia Unger (PFK, Bern), Dr. Nelson Marreros (HAFL, Zollikofen), Dr. Darius Weber (Rodorsdorf), Dr. Martina Meyer (Tierarztpraxis Zugerberg AG), Dr. Manfred Lang und Dr. Stephan Willi (Boehringer-Ingelheim), Dr. Patrick Dahl (Virbac)

Project background: Pasture-borne helminths (gastrointestinal strongylids such as *Haemonchus* spp., *Ostertagia* spp.; *Fasciola hepatica*, *Dictyocaulus viviparus*) have major impact on the health and performance of grazing ruminants. Strongylid infection in horses is widespread and can cause severe health impairment. Anthelmintic resistance is widespread in gastrointestinal strongylids of small ruminants and in strongylids of horses, while the situation cattle is still more favorable.

Project description: In a multiyear surveillance project, we monitor antibodies to *Ostertagia ostertagi*, *Fasciola hepatica*, and *Dictyocaulus viviparus* in bulk milk samples of Swiss dairy herds. Farmers annually send milk samples and a questionnaire to IPA, after the grazing period, when antibody levels are at their peak. Thus, we observe changes in apparent prevalence, identify geographic areas with higher risk of infection, and assess further risk factors for infections. We also counsel farmers on options to mitigate infection risks. In small ruminants, we assessed the effects of a newly licensed biological helminth control (BioWorma®) in sheep herds. We compared internal parasites of European bison to those of a nearby cattle herd and found that levels in bison are much more elevated, despite rotational grazing on the same pastures. Furthermore, we monitored donkeys for internal parasites and found that their level of infection is much higher than that of the domestic horse population.

DIAGNOSIS AND EPIDEMIOLOGY OF INFECTIONS BY CYST-FORMING COCCIDIAN PARASITES IN DOMESTIC AND WILD ANIMALS

Researchers at IPA: Prof. Dr. Walter Basso, Dr. Gastón Moré, Prof. Dr. Caroline Frey, Dr. Diana Gliga, Zoe Medici, Denise Häner-Grolimund, Sinah Lückner, Carlotta Filippini, Albane Meuwly, Milena Beutler, Henrique Renfer.

External collaborators: Dr. Patrick Scherrer (FIWI), Dr. Iris Marti (FIWI), Dr. Selene Rubiola (University of Turin, Italy), Prof. Dr. Gabi Hirsbrunner (NTK Bern), Dr. Patrik Zanolari (NTK Bern), Dr. Gereon Schares (FLI, Germany), Dr. Maja Ruetten (Pathovet AG), Dr. Radu Blaga (ANSES, France), Dr. Filip Damek (ANSES, France), Dr. Nathalia Scioscia (CONICET, Argentina), Dr. Dadin P Moore (CONICET, Argentina), Dr. Lucia M

Campero (CONICET, Argentina), Maria C. Venturini (LAINPA, Argentina), Dr. Ragab Fereig (South Valley University, Egypt), Dr. Julia Schwarz (BFH, Zollikofen), Dr. Danja Wiederkehr (BFH, Zollikofen).

Project background: The cyst-forming coccidia (Apicomplexa, Sarcocystidae) are a group of protozoan parasites including species of major importance in veterinary and human medicine, such as *Neospora caninum*, *Toxoplasma gondii*, *Besnoitia* spp. and *Sarcocystis* spp.

Toxoplasma gondii is able to infect all warm-blooded animals and humans, causing one of the most common zoonoses worldwide. While infections may have a subclinical course, under special circumstances they can cause life-threatening disease both in animals and humans. Chronically infected meat-producing animals such as pigs, ruminants, and game, play an important role in public health because they represent important sources of *T. gondii* infection for humans through consumption of undercooked meat. In addition, both *T. gondii* and *N. caninum* infections represent major causes of abortion in small ruminants and cattle, respectively.

Besnoitia besnoiti is the causative agent of bovine besnoitiosis, a chronic debilitating skin disease that may have a fatal outcome and can be associated with orchitis and infertility in bulls. In Switzerland, it is a reportable disease, within a national eradication program.

Sarcocystis spp. infections may be subclinical or associated with fever, weakness, cyanosis, dyspnea, neurological signs, abortion, eosinophilic myositis and/or death depending on the *Sarcocystis* and host species. Some *Sarcocystis* species are zoonotic.

The high clinical and economical significance of these parasites as cause of disease in animals and humans encouraged the research on their biology, epidemiology, and clinical implications, and pointed out the need for development of immunological and molecular tools to improve routine diagnosis and epidemiological research.

Project description:

Aims of this research project are (i) to estimate the occurrence and distribution of *T. gondii*, *N. caninum*, *Sarcocystis* spp. and/or *Besnoitia* spp. infections in South American camelids, goats, sheep, cattle, pigs, and different wild animal species; (ii) to optimize serological and molecular tests for diagnosis; (iii) to identify risk factors, which may favour infection with these protozoa; (iv) to assess the association of infection with cases of abortion and/or disease in these animal species, and (v) to investigate the epidemiology and molecular aspects of these parasites.

STRONGYLOIDES STERCORALIS IN DOGS

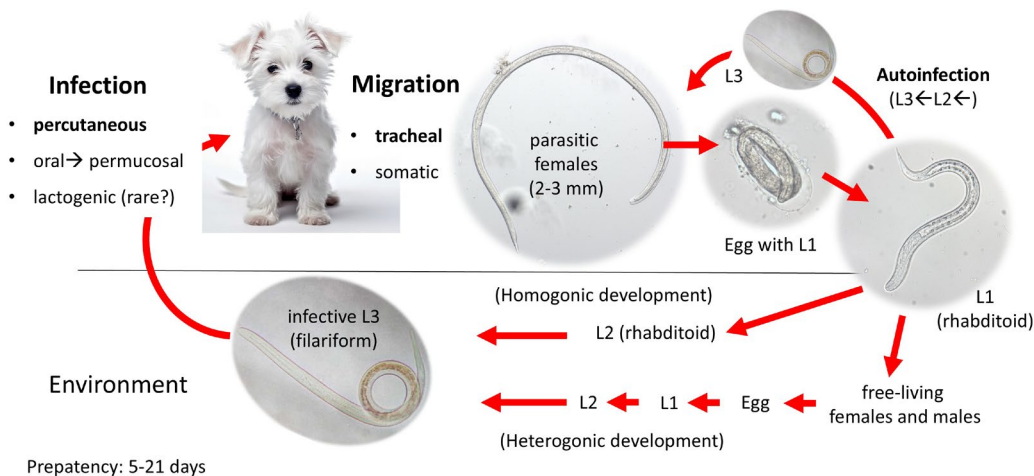
Researchers at IPA: Prof. Dr. Walter Basso, Dr. Gastón Moré, Prof. Dr. Caroline Frey

External collaborators: Prof. Dr. Simone Schuller, Dr. Anne Tesseraux, Milena Sanches Fortes, PD Dr. Cédric Hirzel, Dr. Silja Griss.

Project background: *Strongyloides stercoralis*, a soil-transmitted helminth, mainly infects humans, non-human primates and canids. Infections can cause gastrointestinal, respiratory and cutaneous signs. In immunocompromised individuals, a life-threatening hyperinfection syndrome can occur. Canine infections with potentially zoonotic *S. stercoralis* haplotypes have been increasingly detected in Switzerland and may represent an emerging disease threat to humans. So far, no study has systematically addressed the prevalence of strongyloidiasis in dogs and humans and the potential for dog-human transmission in Switzerland. In humans, serology is currently used to screen patients for strongyloidiasis. In dogs *S. stercoralis* diagnosis currently relies on the Baermann technique which has limited sensitivity.

Project description: In this study, we will establish molecular methods for diagnosis and genetic characterization of *S. stercoralis* in faeces from dogs and serological methods. Using a cross-sectional study

design, we will use these tools in addition to direct detection methods to estimate the prevalence of *S. stercoralis* infections in dog and human populations in Switzerland. We will assess risk factors for canine and human infection and co-infection based on risk factor questionnaires in the participants of two large Swiss health studies: the BReady cohort and the Swiss Transplant Cohort Study.



TREATMENT OF EUROPEAN POND TURTLES BY PRAZIQUANTEL

Researchers at IPA: Prof. Dr. Caroline Frey, Prof. Dr. Britta Lundström-Stadelmann, Marion Stettler.

External collaborators: Dr. Stefan Hoby (Tierpark Bern), Prof. Dr. Jennifer Keiser (Swiss TPH), Dr. Nelson Marreros (HAFL, Zollikofen).

Project background: Spirorchiidosis, caused by blood flukes of the genus *Spirorchis*, is a disease of great concern for the critically endangered European pond turtle (*Emys orbicularis*) in Switzerland. The endogenous life cycle of the parasite often leads to systemic granulomatous inflammatory reactions, thrombosis, and death. Praziquantel (PZQ) is the treatment of choice against adult *Spirorchis* spp. in green (*Chelonia mydas*) and in loggerhead (*Caretta caretta*) sea turtles and is therefore considered for the treatment of *E. orbicularis*.

Project description: This study evaluated safe and practical praziquantel (PZQ) treatment protocols for *E. orbicularis* using pharmacokinetics and tolerability data. Twelve adult turtles received 75 mg/kg PZQ via intramuscular (IM, $n = 3$), subcutaneous (SC, $n = 3$), or oral (PO, $n = 6$) administration. Plasma PZQ concentrations were measured 3, 6, 24, and 48 h after treatment. Peak R-PZQ concentrations occurred after 6 h, with the PO group reaching a mean C_{max} of 1,929 ng/ml; IM and SC administration produced significantly higher concentrations. Transient adverse effects occurred after IM injection, while PO and SC administration were well tolerated. Due to its safety and practicality, SC administration of PZQ at 25 mg/kg every 3 h for three doses appears most promising for future treatment (Stettler et al., J Zoo Wildl Med, 2024).

6. ABSCHLÜSSE / DEGREES

5.1 DOKTORARBEITEN ABSCHLÜSSE / DOCTORAL AND PHD THESES

2024

Marc Kaethner, thesis title: “Food for thought: Investigation and inhibition of the threonine metabolism of *Echinococcus multilocularis* and further approaches towards novel treatment options for echinococcosis”. (PhD)

2025

Kai Hänggeli, thesis title: “Characterisation and validation of putative targets for intervention in *Toxoplasma gondii* and *Neospora caninum* infection. (PhD)

Denise Iris Häner-Grolimund, thesis title: “Resistance concerns and coccidiosis management in rabbit farming: Insights from robenidine, diclazuril and feed evaluations”. (Dr. med. vet.)

Sinah Lückner, thesis title: “High prevalence of *Sarcocystis* spp. in the Eurasian wolf (*Canis lupus lupus*): Third-generation sequencing resolves mixed infections”. (Dr. med. vet.)

Zoe Rosa Medici, thesis title: “High frequency of DNA detection of *Toxoplasma gondii* and zoonotic *Sarcocystis* spp. in ready-to-eat meat products purchased in Switzerland”. (Dr. med. vet.)

Anna Schneider, thesis title: "Cestodes in Eurasian wolves (*Canis lupus lupus*) and domestic dogs (*Canis lupus familiaris*) in Switzerland". (Dr. med. vet.)



Defence von Dr. Marc Kaethner (links) und Dr. Kai Hänggeli (rechts).

5.2 MASTERARBEITEN ABSCHLÜSSE / MASTER THESES

2024

Anissa Bartetzko, project title: “Two-sided approach for drug discovery against alveolar echinococcosis: Screening of the MMV Pandemic Response Box and characterization of the anaerobic energy metabolism in *Echinococcus multilocularis* as a potential therapeutic target”, May 2024. (MSc Biology)

Anitha Vigneswaran, project title: “CRISPR/Cas9-Mediated Genetic Engineering in *T. gondii*: Complementation and phenotypic characterization of TgShSp1Δtim10 and knock-in of bfd1 into TgRH”, Feb. 2024. (MSc Biology)

Nicole Dietrich, project title: “New treatment options against the fox tapeworm”, Nov. 2024. (MSc vet. med.)

Carlotta Filippini, project title: “Detection of *Sarcocystis* spp. and *Toxoplasma gondii* in muscles of wild boars (*Sus scrofa*) in Switzerland”, Nov. 2024. (MSc vet. med.)

Tobias Heiri, project title: “Magen-Darm Parasiten beim Wisent“, Nov. 2024. (MSc vet. med.)

Sinah Lückner, project title: “*Sarcocystis* spp. Infektionen bei Wölfen (*Canis lupus lupus*) in der Schweiz“, Nov. 2024. (MSc vet. med.)

Albane Meuwly, project title: “*Toxoplasma gondii* infection in cattle: seroprevalence and vertical transmission of the parasite”, Nov. 2024. (MSc vet. med.)

Henrique Renfer, project title: “Seroprävalenz von *Neospora caninum* bei Eringerkühen im Kanton Wallis“, Nov. 2024. (MSc vet. med.)

Judith Steinmann, project title: “Screening of novel compounds against the fox tapeworm *Echinococcus multilocularis*“, Nov. 2024. (MSc vet. med.)

2025

Milena Beutler, project title: “*Toxoplasma gondii* infections in wild animals in captivity“, Nov. 2025. (MSc vet. med.)

Lea Fankhauser, project title: “Endoparasiten-Befall bei Eseln in der Schweiz - wie ist der Status quo?“, Nov. 2025. (MSc vet. med.)

Seraina Mühlemann, project title: “Drug screening on *Echinococcus multilocularis* - Testing new treatment options for Alveolar Echinococcosis“, Nov. 2025. (MSc vet. med.)

Fiona Schurter, project title: “Cultivation and drug testing of *Fasciola hepatica*“, Nov. 2025. (MSc vet. med.)

Laura Vetter, project title: “Novel drug treatments for alveolar echinococcosis: Investigation of potential drug targets in the energy metabolism of *Echinococcus multilocularis*“, Aug. 2025. (MSc Biology)

7. PREISE UND EHRUNGEN / AWARDS AND HONORS

2024

Zumstein Pascal: Best oral presentation award “Response to alveolar echinococcosis? Screening of the MMV Pandemic Response Box revealed a promising novel compound”. Annual meeting of the Swiss Society of Tropical Medicine and Parasitology (SSTMP), Mendrisio (SUPSI).

Hänggeli Kai: Robin B. Gasser Award to attend the Concepts in Parasitology course in Australia. Awarded through the Swiss Society of Tropical Medicine and Parasitology (SSTMP), CH/AUS.

2025

Dr. Marc Kaethner: SNSF Postdoc Mobility (for 2025-2027), to former PhD student Marc Kaethner, “Harnessing advanced technologies to elucidate the apoptosis pathway of *Haemonchus contortus* as a target for next-generation anthelmintics”, host lab: Melbourne University, AUS.

Zumstein Pascal: Honorary mention of oral presentation “No Oxygen, No Problem: Investigation of the malate dismutation pathway as a potential drug target in *Echinococcus multilocularis*”. Joint Spring Meeting of the German (DGP), British (BSP) and Swiss Society of Parasitology (SSTMP), Würzburg, GER.

Anna Schneider: Best oral student presentation award «Cestoden in domestizierten und wildlebenden Kaniden in der Schweiz». Schweizer Tierärztetage, Basel, CH.

Alice Bernal: Robin B. Gasser Award for a research internship in the labs of N. Young and N. Calvani, Australia. Awarded through the Swiss Society of Tropical Medicine and Parasitology (SSTMP), CH/AUS.



Oben: Dr. Kai Hänggeli mit Preisstifter Robin B. Gasser, Melbourne, AUS. Kai Hänggeli im Concepts in Parasitology Kurs (links). Der Award von Anna Schneider (rechts). Unten: Alice Bernal bei der Feldarbeit in Australien.

8. ÖFFENTLICHKEITSARBEIT / PUBLIC RELATIONS

8.1 PUBLIKATIONEN / PUBLICATIONS

Peer-reviewed scientific articles (chronologically backwards)

2025

1. Moré G, Cigler P, Bize P, Hemphill A, Keller SA, Frey CF, Basso W. *Crataerina melbae* louse flies are competent vectors of *Trypanosoma* sp. associated with nestling mortality in Alpine swifts (*Tachymarptis melba*). *Int J Parasitol Parasites Wildl.* 2025 Nov 27;28:101170. <https://doi.org/10.1016/j.ijppaw.2025.101170>
2. Geisen V, Pantchev N, Zablotski Y, Globokar Vrhovec M, Hartmann K, Bergmann M, Moré G, Basso W. Molecular characterization of *Hepatozoon* spp. in cats living in Germany and other European countries. *Ticks Tick Borne Dis.* 2026 Jan;17(1):102583. <https://doi.org/10.1016/j.ttbdis.2025.102583>
3. Bentancourt Rossoli JV, Campero LM, Moré G, Soto-Cabrera A, Moore DP, Morrell EL, Scioli MV, Basso W, Hecker YP, Scioscia NP. *Toxoplasma gondii* and *Neospora caninum* in naturally infected synanthropic (Muridae) and wild (Cricetidae) rodents from Argentina. *Parasitol Int.* 2026 Jun;112:103204. <https://doi.org/10.1016/j.parint.2025.103204>
4. Medici Z, Marreros N, Molteni S, Ferreira de Sousa MC, Basso W, Moré G, Frey CF. High frequency of DNA detection of *Toxoplasma gondii* and zoonotic *Sarcocystis* spp. in ready-to-eat meat products purchased in Switzerland. *Food Waterborne Parasitol.* 2025 Nov 12;41:e00301. <https://doi.org/10.1016/j.fawpar.2025.e00301>
5. Sánchez-Sánchez R, Calero-Bernal R, Velasco-Jiménez N, Gallego-Moreno I, Pérez-Díaz C, Bustamante R, Choi R, Hulverson MA, Hemphill A, Van Voorhis WC, Ortega-Mora LM. Dose-dependent tissue tropism and efficacy of early BKI-1748 treatment in chronic *Toxoplasma gondii* infection in sheep. *Food Waterborne Parasitol.* 2025 Oct 26;41:e00297. <https://doi.org/10.1016/j.fawpar.2025.e00297>
6. Hänggeli KPA, Müller J, Heller M, Uldry AC, Braga-Lagache S, Arranz-Solís D, Ortega-Mora LM, Hemphill A. Pleiotropic Effects on Tachyzoite and Host Cell Proteomes in Knock-Out Clones of the Open Reading Frames 297720 and 319730 Constitutively Expressed in *T. gondii* ShSp1 Tachyzoites. *Int J Mol Sci.* 2025 Oct 27;26(21):10433. <https://doi.org/10.3390/ijms262110433>
7. Häner-Grolimund D, Stucki D, Schwarz J, Wiederkehr D, Frey CF. Resistance concerns and coccidiosis management in rabbit farming: Insights from robenidine, diclazuril and feed evaluations. *Vet Parasitol.* 2026 Jan;341:110651. <https://doi.org/10.1016/j.vetpar.2025.110651>
8. Renfer H, Frey CF, Studer E, Dürr S, Pralong M, Zanolari P, Hirsbrunner G. Seroprevalence of *Neospora caninum* in Hérens cows in the canton Valais - A prospective, representative field study. *Schweiz Arch Tierheilkd.* 2025 Nov;167(11):619-624. <https://doi.org/10.17236/sat00467>
9. Amieva R, Rico-San Román L, Pastor-Fernández I, Hemphill A, Boubaker G, Collantes-Fernández E, Ortega-Mora LM, Horcajo P. Loss of NcBPK1 impairs bradyzoite differentiation and enhances virulence in *Neospora caninum*. *Parasit Vectors.* 2025 Oct 21;18(1):422. <https://doi.org/10.1186/s13071-025-07076-4>
10. Bravo P, Diamanti E, Hamed MM, Bizzarri L, Wiedemar N, Passecker A, Brancucci NMB, Albisetti A, Gump C, Illarionov B, Fischer M, Witschel M, Schehl T, Hahne H, Mäser P, Rottmann M, Hirsch AKH. A Novel Antimalarial Agent that Inhibits Protein Synthesis in *Plasmodium falciparum*. *Angew Chem Int Ed Engl.* 2025 Dec 1;64(49):e202514085. doi: <https://doi.org/10.1002/anie.202514085>
11. Lückner S, Moré G, Marti I, Frey CF, Fernandez JE, Belhout C, Basso W. High prevalence of *Sarcocystis* spp. in the Eurasian wolf (*Canis lupus lupus*): Third-generation sequencing resolves mixed infections. *Int J Parasitol Parasites Wildl.* 2025 Sep 22;28:101140. <https://doi.org/10.1016/j.ijppaw.2025.101140>

12. Müller J, Regidor-Cerrillo J, Arranz-Solís D, Braga-Lagache S, Uldry AC, Heller M, Calero-Bernal R, Hemphill A, Ortega-Mora LM. Proteome changes during in vitro culture adaptation of *Toxoplasma gondii* archetypal II and III field isolates. *Front Cell Infect Microbiol*. 2025 Sep 16;15:1633384. <https://doi.org/10.3389/fcimb.2025.1633384>
13. Castaldo E, Buono F, Scarcelli S, Ciaramelli A, Capasso M, Tonon S, Sgroi G, Cassini R, Basso W, Veneziano V. Helminth infections in alpacas (*Vicugna pacos*), husbandry and worm control practices in South American Camelids in Italy. *Vet J*. 2025 Dec;314:106445. <https://doi.org/10.1016/j.tvjl.2025.106445>
14. Steffen KD, Gortari Castillo L, Gos ML, Venturini MC, Arias RO, Moré G. *Neospora caninum*, *Sarcocystis* spp. and *Toxoplasma gondii* infections and their relationship with milk production in goats from Argentina. *Parasitol Int*. 2026 Apr;111:103165. <https://doi.org/10.1016/j.parint.2025.103165>
15. Kronenberg PA, Fouché N, Sekiya M, Liechti P, Frey CF, Mulcahy G, Eichenberger RM. A serological test based on mutated recombinant *Fasciola hepatica* cathepsin L protease for the diagnosis of equine fasciolosis. *Vet Parasitol*. 2025 Dec;340:110592. <https://doi.org/10.1016/j.vetpar.2025.110592>
16. Semeraro M, Boubaker G, Scaccaglia M, Imhof D, de Sousa MCF, Hänggeli KPA, Löwe A, Genchi M, Kramer LH, Vismarra A, Pelosi G, Bisceglie F, Ortega-Mora LM, Müller J, Hemphill A. In Vivo Safety and Efficacy of Thiosemicarbazones in Experimental Mice Infected with *Toxoplasma gondii* Oocysts. *Biomedicines*. 2025 Aug 1;13(8):1879. <https://doi.org/10.3390/biomedicines13081879>
17. Zumstein P, Bartetzko A, Kaethner M, Vetter L, Hemphill A, Zumkehr T, Laleu B, Preza M, Lundström-Stadelmann B. In vitro screening of the open-access Pandemic Response Box reveals ESI-09 as a compound with activity against *Echinococcus multilocularis*. *Int J Parasitol Drugs Drug Resist*. 2025 Dec;29:100609. <https://doi.org/10.1016/j.ijpddr.2025.100609>
18. Sprague DJ, Park SK, Kaethner M, Rohr CM, Ghobrial MR, Barth DC, Maillard D, Spangenberg T, Lundström-Stadelmann B, Marchant JS. Target-Based Design of Praziquantel Analogs at Cestode TRPMPZQ. *ACS Infect Dis*. 2025 Sep 12;11(9):2383-2390. <https://doi.org/10.1021/acsinfecdis.5c00449>
19. Choi R, Hulverson MA, Schaefer DA, Betzer DP, Riggs MW, Huang W, Sun V, Whitman GR, McCloskey MC, Marsh K, Buck WR, Wagner DS, Yang J, Bowman AP, Ciurlionis R, Ajiboye J, Hemphill A, Sigalapalli DK, Arnold SLM, Barrett LK, Ojo KK, Fan E, Van Voorhis WC. Anti-*Cryptosporidium* efficacy of BKI-1708, an inhibitor of *Cryptosporidium* calcium-dependent protein kinase 1. *PLoS Negl Trop Dis*. 2025 Jul 30;19(7):e0013263. <https://doi.org/10.1371/journal.pntd.0013263>
20. Moré G, Filippini C, Oehm AW, Ruetten M, Hemphill A, Frey CF, Basso W. *Sarcocystis* spp. and *Toxoplasma gondii* in muscles from wild boars (*Sus scrofa*) consumed in Switzerland. *Int J Parasitol Parasites Wildl*. 2025 Jul 9;27:101114. <https://doi.org/10.1016/j.ijppaw.2025.101114>
21. Pikalo J, Sychra O, Peña-Espinoza M, Galat M, Unterköfler MS, Heddergott M, Glawischnig W, Fuehrer HP. Chewing lice (Phthiraptera) on a wild Golden eagle (*Aquila chrysaetos*) and a zoo-kept Eurasian griffon vulture (*Gyps fulvus*) in Tyrol, Austria. *Parasitol Res*. 2025 Jul 21;124(7):85. <https://doi.org/10.1007/s00436-025-08531-y>
22. Galat M, Gliga D, Storozhuk V, Paraska O, Semenko O, Honcharov S, Fuehrer HP, Moré G, Basso W, Lundström-Stadelmann B, Frey CF. First case of clinical canine hepatozoonosis in Ukraine. *Parasitol Int*. 2026 Feb;110:103125. <https://doi.org/10.1016/j.parint.2025.103125>
23. Steffen KD, Gos ML, Helman E, Unzaga JM, Arias RO, Moré G. Identifying *Sarcocystis* spp. infection in goats: a combined morphological, serological, and molecular approach. *Parasitol Res*. 2025 Jun 27;124(6):71. <https://doi.org/10.1007/s00436-025-08519-8>
24. Tavares-Gomes L, Polidori M, Monney C, Neuhaus G, Vidondo B, Witz G, Hemphill A, Oevermann A. Divergent host-pathogen interactions in neurolisteriosis: cytosolic replication vs. phagosomal dormancy of *Listeria monocytogenes* in CNS macrophages. *Acta Neuropathol*. 2025 Jun 16;149(1):63. <https://doi.org/10.1007/s00401-025-02900-8>
25. Kämpfer T, Gliga DS, Wiesner M, Kaethner M, Basso W, Frey CF, Lundström-Stadelmann B. Cultivation of a wild type *Taenia crassiceps* isolate from a zoo-kept Lemur and its application in anthelmintic

- drug testing. *Vet Parasitol.* 2025 Aug;338:110527. <https://doi.org/10.1016/j.vetpar.2025.110527>.
[Epub 2025 Jun 6](#)
26. Castaldo E, Basso W, Moré G, Ciaramelli A, D'Alessio N, Capasso M, Sgroi G, Tonon S, Humak F, Gazzonis A, Schares G, Veneziano V. Nationwide serological survey and risk factors for *Toxoplasma gondii* and *Neospora caninum* infections in alpacas (*Vicugna pacos*) and llamas (*Lama glama*) in Italy. *Res Vet Sci.* 2025 Aug;192:105729. <https://doi.org/10.1016/j.rvsc.2025.105729>
 27. Wiedemar N, Milne R, Carvalho S, Patterson S, Bodkin M, Masurier N, Lisowski V, Primas N, Verhaeghe P, Sloan GM, Wyllie S. The Thienopyrimidinone Gamhépithiopine Targets the Q_o Site of *Plasmodium falciparum* Cytochrome b. *ACS Infect Dis.* 2025 Jun 13;11(6):1719-1728. <https://doi.org/10.1021/acsinfecdis.5c00259>
 28. Frey CF, Vasilev S, Rosenthal BM. Special Issue: 16th International Conference on Trichinellosis. *Vet Parasitol.* 2025 Jul;337:110510. <https://doi.org/10.1016/j.vetpar.2025.110510>
 29. Khordadmehr M, Sazmand A, Oryan A, Almasi P, Ranjbar V, Hemphill A, Otranto D. Respiratory and intestinal zoonotic cryptosporidiosis in symptomatic domestic pigeons (*Columba livia domestica*) in Tabriz, Iran. *Iran J Vet Res.* 2025;25(4):326-332. <https://doi.org/10.22099/ijvr.2024.49762.7335>
 30. Bentancourt Rossoli JV, Moré G, Soto-Cabrera A, Moore DP, Morrell EL, Campero LM, Basso W, Hecker YP, Scioscia NP. First report of natural *Besnoitia akodonti* infection in synanthropic (Muridae) and wild (Cricetidae) rodents from Argentina. *Vet Parasitol Reg Stud Reports.* 2025 May;60:101245. <https://doi.org/10.1016/j.vprsr.2025.101245>
 31. Müller J, Zumkehr B, Heller M, Uldry AC, Braga-Lagache S, Lundström-Stadelmann B. Host Proteins in *Echinococcus multilocularis* Metacestodes. *Int J Mol Sci.* 2025 Apr 1;26(7):3266. <https://doi.org/10.3390/ijms26073266>
 32. Basso W, Moré G, Gliga D, Marti I, Müller N, Lundström-Stadelmann B, Frey CF. Detection of *Trichinella* spp. in free-ranging carnivores and wild boars in Switzerland. *Vet Parasitol.* 2025 Jun;336:110454. <https://doi.org/10.1016/j.vetpar.2025.110454>
 33. Bagatella S, Monney C, Gross N, Bernier Gosselin V, Schüpbach-Regula G, Hemphill A, Oevermann A. Intravacuolar persistence in neutrophils facilitates *Listeria monocytogenes* spread to co-cultured cells. *mBio.* 2025 Apr 9;16(4):e0270024. <https://doi.org/10.1128/mbio.02700-24>
 34. Sivabalakrishnan K, Hemphill A, Karunaratne SHPP, Naguleswaran A, Roditi I, Surendran SN, Ramasamy R. Preimaginal development of *Aedes aegypti* L. (Diptera: Culicidae) in brackish water gives rise to adult mosquitoes with thicker cuticles and greater insecticide resistance. *Med Vet Entomol.* 2025 Mar 7. <https://doi.org/10.1111/mve.12799>
 35. Basso W, Moré G, Pischon H, Merz S, Beres A, Norkus P, Frey CF, Pantchev N. Cutaneous abdominal biopsy enabled the diagnosis of clinical *Trichinella britovi* infection in a hunting dog. *Vet Parasitol.* 2025 Apr;335:110433. <https://doi.org/10.1016/j.vetpar.2025.110433>
 36. Gliga DS, Zumthor JP, Frey CF, Basso W. Enhancing farmer awareness: Vertical transmission of *Neospora caninum* in aborting cattle and the value of diagnostics tools. *Vet Parasitol.* 2025 Feb;334:110403. <https://doi.org/10.1016/j.vetpar.2025.110403>
 37. Kaethner M, Zumstein P, Müller J, Preza M, Grossenbacher P, Bartetzko A, Vetter L, Lochner M, Schürch S, Regnault C, Ramírez DV, Lundström-Stadelmann B. Investigation of the threonine metabolism of *Echinococcus multilocularis*: The threonine dehydrogenase as a potential drug target in alveolar echinococcosis. *Int J Parasitol Drugs Drug Resist.* 2025 Apr;27:100581. <https://doi.org/10.1016/j.ijpddr.2025.100581>
 38. Schneider A, Moré G, Pewsner M, Frey CF, Basso W. Cestodes in Eurasian wolves (*Canis lupus lupus*) and domestic dogs (*Canis lupus familiaris*) in Switzerland. *Int J Parasitol Parasites Wildl.* 2024 Nov 30;26:101027. <https://doi.org/10.1016/j.ijppaw.2024.101027>
 39. Sánchez-Sánchez R, Huertas-López A, Largo-de la Torre A, Ferre I, Dini FM, Re M, Moreno-Gonzalo J, Choi R, Hulverson MA, Ojo KK, Arnold SLM, Hemphill A, Van Voorhis WC, Ortega-Mora LM. Treatment with BKI-1748 after *Toxoplasma gondii* systemic dissemination in experimentally infected pregnant sheep improves fetal and lamb mortality and morbidity and prevents congenital

infection. Antimicrob Agents Chemother. 2025 Feb 13;69(2):e0144824. <https://doi.org/10.1128/aac.01448-24>

40. Wildi N, Bagatella S, Zhang X, Hawes MC, Dawson KLD, Chen H, Walker S, Harvey G, van der Heide B, Williams DT, Hemphill A, Gurtner C, Wang J, Seuberlich T. Discovery and rescue of porcine bastroviruses associated with polioencephalomyelitis in domestic pigs. J Virol. 2025 Sep 23;99(9):e0113025. <https://doi.org/10.1128/jvi.01130-25>

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41. Gupta A, de Araujo LS, Hemphill A, Khan A, Rosenthal BM, Dubey JP. Parasit Vectors. 2024 Dec 28;17(1):543. <https://doi.org/10.1186/s13071-024-06628-4>

42. Sazmand A, Khordadmehr M, Önder Z, Oryan A, Jigari-Asl F, Katiraei F, Namavari M, Bahiraei Z, Hemphill A, Otranto D. Novel zoonotic *Enterocytozoon* and *Encephalitozoon* genotypes in domestic pigeons (*Columba livia domestica*) in Iran: Public health implications. Curr Res Parasitol Vector Borne Dis. 2024 Nov 23;7:100232. <https://doi.org/10.1016/j.crvbd.2024.100232>

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44. Arrabal JP, Moré G, Orozco MM, Helman E, Notarnicola J, Basso W, Hartmann BB, Schapira A, Minatel L. A putative new *Besnoitia* species in the southern black-eared opossum *Didelphis aurita*. Int J Parasitol Parasites Wildl. 2024 Sep 21;25:100998. <https://doi.org/10.1016/j.ijppaw.2024.100998>

45. Moré G, Rüegg-van den Broek P, Glardon OJ, Gliga DS, Frey CF, Basso W. Identification and management of infections caused by *Giardia* sp., *Trichuris* sp. and *Demodex* sp. in captive Brazilian porcupines (*Coendou prehensilis*). Int J Parasitol Parasites Wildl. 2024 Aug 30;25:100976. <https://doi.org/10.1016/j.ijppaw.2024.100976>

46. Semeraro M, Boubaker G, Scaccaglia M, Müller J, Vigneswaran A, Hänggeli KPA, Amdouni Y, Kramer LH, Vismarra A, Genchi M, Pelosi G, Bisceglie F, Heller M, Uldry AC, Braga-Lagache S, Hemphill A. Transient Adaptation of *Toxoplasma gondii* to Exposure by Thiosemicarbazone Drugs That Target Ribosomal Proteins Is Associated with the Upregulated Expression of Tachyzoite Transmembrane Proteins and Transporters. Int J Mol Sci. 2024 Aug 21;25(16):9067. <https://doi.org/10.3390/ijms25169067>

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49. Arthiyan S, Eswaramohan T, Hemphill A, Surendran SN. Predatory Potential of Nymphal Odonates on *Aedes aegypti* Developing in Freshwater and Brackish Water Habitats. Insects. 2024 Jul 19;15(7):547. <https://doi.org/10.3390/insects15070547>

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52. Rico-San Román L, Hänggeli KPA, Hemphill A, Horcajo P, Collantes-Fernández E, Ortega-Mora LM, Boubaker G. TaqMan-quantitative PCR assays applied in *Neospora caninum* knock-outs generated through CRISPR-Cas9 allow to determine the copy numbers of integrated dihydrofolate reductase-thymidylate synthase *drug selectable markers*. *Front Cell Infect Microbiol*. 2024 Jun 21;14:1419209. <https://doi.org/10.3389/fcimb.2024.1419209>
53. de Sousa MCF, Imhof D, Hänggeli KPA, Choi R, Hulverson MA, Arnold SLM, Van Voorhis WC, Fan E, Roberto SS, Ortega-Mora LM, Hemphill A. Efficacy of the bumped kinase inhibitor BKI-1708 against the cyst-forming apicomplexan parasites *Toxoplasma gondii* and *Neospora caninum* in vitro and in experimentally infected mice. *Int J Parasitol Drugs Drug Resist*. 2024 Aug;25:100553. <https://doi.org/10.1016/j.ijpddr.2024.100553>
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Peer-reviewed Reviews and book-chapters

2025

1. Jenkins, Emily, Taylor Volappi, Cody J Malone, Nina Germitsch, Jussa-Pekka Virtanen, Antti Oksanen, Emily Bessell, Britta Lundström-Stadelmann, and Caroline F. Frey. "Changing Distribution, Diversity, and Health Impact of *Echinococcus multilocularis* in Europe and North America: Comparison, Connections, and Opportunities." *Adv Parasitol.* 2025;128:159-253. <https://doi.org/10.1016/bs.apar.2025.07.003>
2. Lundström Stadelmann, Britta, Ali Rostami, Caroline F. Frey, Paul R Torgerson, Seyed Mohammad Riahi, Kimia Bagheri, Marc Kaethner, et al. "Human Alveolar Echinococcosis - Global, Regional and National Annual Incidence and Prevalence Rates." *Clin Microbiol Infect.* 2025 Jul;31(7):1139-1145. <https://doi.org/10.1016/j.cmi.2025.01.034>
3. Rostami, Ali, Britta Lundström-Stadelmann, Caroline F. Frey, Guido Beldi, Anja Lachenmayer, Bill C H Chang, Mohammad Mobin Norouzian, Andrew Hemphill, and Robin B Gasser. "Human Alveolar Echinococcosis-A Neglected Zoonotic Disease Requiring Urgent Attention." *Int J Mol Sci.* 2025 Mar 19;26(6):2784. <https://doi.org/10.3390/ijms26062784>

2024

4. Lundström-Stadelmann B, Preza M, Kaethner M, Hemphill A. "Novel Chemotherapeutical Approaches Against Echinococcosis: A Swiss Perspective." Springer Nature Switzerland, 2024. https://doi.org/10.1007/978-3-031-54479-8_13
5. Müller J, Boubaker G, Müller N, Uldry AC, Braga-Lagache S, Heller M, Hemphill A. Investigating Antiprotozoal Chemotherapies with Novel Proteomic Tools-Chances and Limitations: A Critical Review. *Int J Mol Sci.* 2024 Jun 24;25(13):6903. <https://doi.org/10.3390/ijms25136903>
6. Imhof D, Hänggeli KPA, De Sousa MCF, Vigneswaran A, Hofmann L, Amdouni Y, Boubaker G, Müller J, Hemphill A. Working towards the development of vaccines and chemotherapeutics against neosporosis-With all of its ups and downs-Looking ahead. *Adv Parasitol.* 2024;124:91-154. <https://doi.org/10.1016/bs.apar.2024.01.001>
7. Müller J, Hemphill A. In vitro screening technologies for the discovery and development of novel drugs against *Toxoplasma gondii*. *Expert Opin Drug Discov.* 2024 Jan-Jun;19(1):97-109. <https://doi.org/10.1080/17460441.2023.2276349>
8. Basso W. Neosporosis canina. In Borrás P. (Ed.) *Manual Práctico de Enfermedades Infecciosas y Parasitarias del Perro*, Multimedica Ediciones Veterinarias, Spain, pp. 281-290. Book Chapter.
9. Basso W, Cassini R. Parasites present in meat and viscera of terrestrial farmed animals. In: Dikeman M (Ed.), *Encyclopedia of Meat Sciences III*, vol. 1. Elsevier, pp. 50–64. <https://doi.org/10.1016/B978-0-323-85125-1.00200-3>. Book Chapter.

Outreach articles and activities

1. Nacht der Forschung Universität Bern, ProfBAR, Sept. 6, **2025**.
2. Parasiten im Visier, Vetsuisse Bern Open Day, Jun. 28, **2025**.
3. Mit Tierversuchen und Zellkulturen gegen Parasiten, Uniaktuell, University of Bern, Feb. 17, **2025**.

4. Frey CF: Von Katzen, Kindern und Parasiten. Schweizer Katzen Magazin 5/2025.
5. Frey CF: Goldhamster und Co. und ihre Parasiten. Welt der Tiere 6/2025.
6. Frey CF: Podcast zur Entwurmung beim Hund. Mar. 2025 www.vetgate.ch/podcast.
7. Frey CF: Zecken, Flöhe & Co. bei Hunden. Mar. 2025 www.vetgate.ch/podcast.
8. Basso W. Zum aus der Haut fahren: Katzenflöhe – lästig und gefährlich für Tier und Mensch, Schweizer Katzen-Magazin 02/2025.
9. Basso W. Würmer bei Hunden – Gefahr für Tier und Mensch? Schweizer Hunde Magazin 09/2024.
10. Frey CF: Die häufigsten Parasiten bei Kleinsäugetern. Welt der Tiere 5/2024.
11. Frey CF: Toxoplasmose bei der Katze – was ist das und wie kann man die Katze davor schützen? Schweizer Katzen Magazin 3/2024.

Tag der Offenen Tür und unser Stand «Parasiten im Visier» im Juni 2025.



8.2 VORTRÄGE UND POSTER / ORAL PRESENTATIONS AND POSTERS

2025

Annual student's meeting of the Swiss Society of Tropical Medicine (SSTMP), Schwarzenberg, CH, Dec. 4-5, 2025.

- Bernal A, Gliga DS, Colangeli G, Preza M, Irobalieva RN, Frey CF, Hemphill A, Lundström-Stadelmann B, Wiedemar N: Drug screening on newly excysted juvenile from *Fasciola hepatica*. (oral presentation)
- de Sousa MCF, Müller J, Hänggeli KPA, Heller M, Uldry AC, Braga-Lagache S, Leitao A, Ortega-Mora LM, Ojo KK, Van Voorhis WC, Hemphill A: Effects of bumped-kinase inhibitor BKI-1708 on host cells and *Toxoplasma gondii*. (oral presentation)



SSTMP students' meeting 2024, Schwarzenberg, Luzern.

European Wildlife Disease Association (EWDA) Network for Wildlife Health Surveillance in Europe, Meeting 2025, online, Nov. 24, 2025.

- DeSoye P, Moré G, Basso W, Cigler P, Pewsner M, Pisano S, Imlau M, Keller S: Rising detections of fatal haemoparasite infections in free-ranging wild birds in Switzerland. (oral presentation)

Multidisciplinary Center for Infectious Diseases (MCID) Annual Event 2025, Bern, Nov. 21, 2025

- Schlachet A, Peters L, Hiller LA, Oberli A, Burg-Personnaz JB, Basso W, Schuller S: Pleural effusion associated with *Strongyloides stercoralis* hyperinfection in a splenectomised dog. (poster)

30th WAAVP Conference, Curitiba, Brazil, Aug. 17-21, 2025.

- Borrás P, Zapata F, Risso M, Miro G, Basso W, Pérez M, Repetto S, Ruybal P (2025) Emerging *Strongyloides stercoralis* infections in dogs from Buenos Aires, Argentina: a case series with molecular and therapeutic insights. (poster)

35th Annual European Congress of Veterinary Internal Medicine for Companion Animals (ECVIM-CA), Maastricht, The Netherlands, Sept. 18 - 20, 2025.

- Geisen V, Pantchev N, Zablotski Y, Globokar Vrhovec M, Hartmann K, Bergmann M, Basso W. *Hepatozoon* spp. infections in cats living across Europe: Molecular characterization and association with origin, clinical signs, coinfections, and clinicopathological abnormalities. (oral presentation)

2nd European South American Camelid Congress, Cambridge, UK, Sept. 5 – 6, 2025

- Basso W, Castaldo E., Kramer A., Moré G., Frey CF. *Eimeria* spp. infections in South American camelids bred in Switzerland. (oral presentation)
- Castaldo E, Scarcelli S, Buono F, Varriale N, Ciaramelli A, Basso W, Cassini R, Veneziano V. Nationwide survey on helminth infections in alpacas and worm control practices in Italy. (oral presentation)
- Luginbühl C, Moré G, Bilotta T, Zanolari P, Basso W. An eye-opening case: South American camelids are new hosts for *Parafilaria bovicola* - Intraocular infection in an alpaca. (oral presentation)

Zoo and Wildlife Health Conference, Győr, Hungary, May 14-17, 2025.

- Cigler P, Moré G, Keller S, Basso W, Bize P, Peters L. Weekly blood sampling and analysis of Alpine swift (*Tachymarptis melba*) nestlings from *Trypanosoma bouffardi*-like infected colonies: a proof-of-concept study. (oral presentation) - **1st Prize student presentation.**

Tagung der DVG-Fachgruppe "Parasitologie und parasitäre Krankheiten", Giessen, GER, Jun. 30 – Jul. 2, 2025

- Keynote: Lundström-Stadelmann B. The metabolism of *Echinococcus* and novel Targets for the Treatment of Echinococcosis. (oral presentation)
- Medici Z, Molteni S, Basso W, Moré G, Frey CF. *Toxoplasma gondii* and *Sarcocystis* spp. in ready-to-eat meat products purchased in Switzerland. (oral presentation)

8th ESDA Days and 2025 Annual EVPC Scientific Meeting, Thessaloniki, Greece, May 22 – 24, 2025

- Meister S, Moré G, Bousmar J, Wenker C, Wyss F, Rüttener M, Frey CF, Basso W. Cotton-top tamarins (*Saguinus oedipus*) may develop fatal infections and are definitive hosts of the metastrongyloid rodent parasite *Angiostrongylus dujardini*. (oral presentation)
- Moré G, Gliga D, Frey CF, Basso W. Spreading of *Parafilaria bovicola* cases in Switzerland. (oral presentation)

Graduate School for Cellular and Biomedical Sciences (GCB) Symposium, Bern, May 26, 2025

- Cigler P, Peters LM, Bize P, Basso W, Keller S, Moré G. *Trypanosoma bouffardi*-like Understanding an Emerging Disease in the Alpine Swift. (oral presentation)

Schweizer Tierärztetage, Basel, Apr. 24 – 25, 2025.

- Schneider A, Frey CF, Moré G, Pewsner M, Basso W. Cestoden in domestizierten und wildlebenden Kaniden in der Schweiz. (oral presentation) - **Best student presentation SVVLD track.**
- Frey CF, Lundström-Stadelmann B, Moré G, Basso W, Schuller S, Rohrbach H, Forterre F. Der Hund als End- und Zwischenwirt für den Fuchsbandwurm - wie schütze ich mich in der Praxis? (oral presentation)
- Frey CF. Altbekanntes und Neues über Parasiten im Kot von Hund und Katze. (oral presentation)

Joint Spring Meeting of the German (DGP), British (BSP) and Swiss Society of Parasitology (SSTMP), Würzburg, GER, Mar. 11-14, 2025

- Benazzouz S, Kaethner M, Preza M, Kaempfer T, Zumstein P, Hemphill A, Umhang G, Lundström-Stadelmann B. *In vitro* drug screening cascade for *E. granulosus*: Screening of the MMV pandemic response box. (poster)
- Bernal A, Schurter F, Pardo Gil M, Gliga D, Galat M, Preza M, Frey C, Lundström-Stadelmann B, Wiedemar N. Triclabendazole resistance in Swiss *Fasciola hepatica*. (poster)
- Preza M, Zumstein P, Dietrich N, Steinmann J, Hiller L, Vetter L, Lundström-Stadelmann B. *In vitro* and *In vivo* characterization of niclosamide ethanolamine against the fox tapeworm, *Echinococcus multilocularis*. (oral presentation)
- Zumstein P, Bartetzko A, Preza M, Lundström-Stadelmann B. Screening of the MMV pandemic response box reveals a promising novel compound for the treatment of alveolar echinococcosis.
- Bessel E, Müller J, Zumkehr B, Krebs P, Lundström-Stadelmann B. Role of IL-33 in alveolar echinococcosis. (oral presentation)
- de Sousa MCF, Imhof D, Hänggeli KPA, Choi R, Hulverson MA, Arnold SLM, Van Voorhis WC, Fan E, Roberto SS, Ortega-Mora LM, Hemphill A. Activity and efficacy of bumped-kinase inhibitor BKI-1708 *in vitro* and in non-pregnant and pregnant toxoplasmosis and neosporosis mouse models. (oral presentation)
- Zumstein P, Bartetzko A, Preza M, Mathis D, Nyffeler C, Lundström-Stadelmann B. No Oxygen, No Problem: Investigation of the malate dismutation pathway as a potential drug target in *Echinococcus multilocularis*. (oral presentation) – **honorary mention of presentation.**



**Busreise der Schweizer Delegation an das Joint Spring Meeting 2025 (links).
Organisationskomitee des Meetings (rechts).**

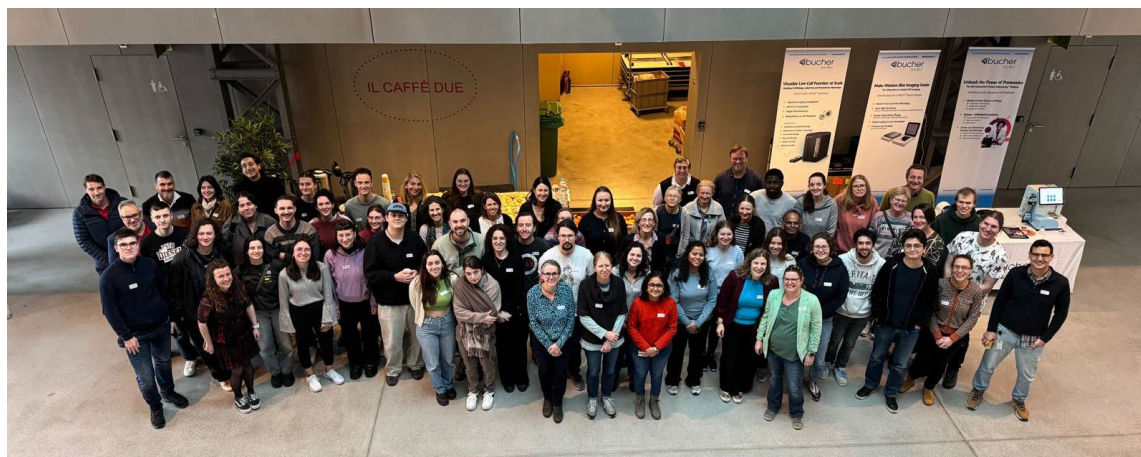
15th Boehringer Ingelheim Animal Health Parasitology and Vector Borne Disease Symposium Latest epidemiological data on major parasites of dogs and cats, Dubai, UAE, Mar. 10-12

- Frey CF. The difficulty of diagnosing taeniosis. Invited oral presentation.

Bern Parasitology Meeting (BPM) II, Bern, CH, Feb. 11, 2025

- Kämpfer T, Preza M, Zumkehr B, Kaethner M, Hayoz M, Aebi Y, Largiader C, Brehm K, Lundström-Stadelmann B. Assessment of triclabendazole treatment against *Echinococcus multilocularis*. (oral presentation)
- Preza M, Dietrich N, Zumstein P, Steinmann J, Hiller L, Vetter L, Lundström-Stadelmann B. *In Vitro* and *In Vivo* Characterization of Niclosamide Ethanolamine Against the Fox Tapeworm, *Echinococcus multilocularis*. (poster)
- Bessell E, Müller J, Zumkehr B, Krebs P, Lundström-Stadelmann B. Role of IL-33 in Alveolar Echinococcosis. (poster)

- Bernal A, Gliga DS, Preza M, Frey CF, Lundström-Stadelmann B, Wiedemar N. Investigating triclabendazole resistance and screening new drug treatments in *Fasciola hepatica*. (oral presentation)
- Galat M, Storozhuk V, Shahi Barogh B, Fuehrer HP, Frey CF. Blood parasites of a few species of mouse-like rodents in the conditions of the radioactive contamination zone. (poster)
- Cigler P, Castro Moura L, Sollberger S, Keller S, Basso W, Moré G. Postmortem and parasitological examinations of Alpine swifts in 2024. (oral presentation)
- Moré G, Filippini C, Oehm A, Ruetten M, Lundström-Stadelmann B, Frey CF, Basso W. *Sarcocystis* spp., *Trichinella* spp. and *Toxoplasma gondii* in muscles from wild boars (*Sus scrofa*). (oral presentation).



Teilnehmende des BPM II, 2025.

2024

Annual student's meeting of the Swiss Society of Tropical Medicine, La Rouvraie, CH, Oct. 24, 2024

- Zumstein P, Bartetzko A, Kaethner M, Vetter L, Dion S, Hemphill A, Zumkehr T, Preza M, Lundström-Stadelmann B. *In vitro* screening of the open-source MMV Pandemic Response Box reveals a novel compound with activity against *Echinococcus multilocularis*. (oral presentation)
- Kämpfer T, Preza M, Zumkehr B, Zumstein P, Kaethner M, Grossenbacher P, Lochner M, Lundström-Stadelmann B. Alternative modes of action of benzimidazoles. (oral presentation)
- Bernal A, Gliga DS, Preza M, Frey CF, Lundström-Stadelmann B, Wiedemar N. Triclabendazole resistance in Swiss *Fasciola hepatica*. (oral presentation)

17th Congress on Toxoplasmosis, Berlin, May 26-30

- de Sousa MCF, Imhof D, Hänggeli KPA, Choi R, Hulverson MA, Arnold SLM, Van Voorhis WC, Fan E, Roberto SS, Ortega-Mora LM, Hemphill A. Activity and efficacy of bumped-kinase inhibitor BKI-1708 *in vitro* and in non-pregnant and pregnant toxoplasmosis and neosporosis mouse models. (poster)
- Galat M, Moré G, Ovchinnikova A, Joeres M, Schares G, Basso W, Lundström-Stadelmann B, Frey CF. First data of *Toxoplasma gondii* genotyping from animals in Ukraine. (poster)
- Galat M, Moré G, Frey CF, Kovalenko G, Sytiuk M, Lundström-Stadelmann B, Jokelainen P. Estimating *Toxoplasma gondii* seroprevalence in wild boars (*Sus scrofa*) hunted in Ukraine, using three serological methods. (poster)



IPA Team am Toxoplasma Meeting in Berlin, 2024.

EVPC Meeting, Bucharest, ROM, Jun. 27-28, 2024

- Gliga DS, Hosch S, Frey CF, Dürr S, Daubenberger C, Greter H. *Schistosoma bovis* amplicon sequencing using Oxford Nanopore Technology. (oral presentation)
- Gliga DS, Kramer A, Moré G, Frey CF, Basso W. Early detection and management of *Lamanema chavezii* infection in a llama (*Lama glama*) in Switzerland. (poster)
- Moré G, Cigler P, Eulenberger U, Schürch S, Keller S, Frey CF, Basso W. *Trypanosoma bouffardi*-like, associated with high mortalities in Alpine swifts, has high specificity for its avian host and vector. (poster)
- Schneider A, Frey CF, Moré G, Pewsner M, Basso W. Cestodes in domestic dogs (*Canis lupus familiaris*) and Eurasian wolves (*Canis lupus lupus*) in Switzerland. (oral presentation)

Annual meeting of the Swiss Society of Tropical Medicine and Parasitology, Mendrisio (SUPSI), CH, Jun. 6/7, 2024

- Zumstein P, Bartetzko A, Preza M, Kaethner M, Scorrano N, Kämpfer T, Lundström-Stadelmann B. Response to alveolar echinococcosis? Screening of the MMV Pandemic Response Box revealed a promising novel compound. (oral presentation)
- Preza M, Hiller L, Dietrich N, Lundström-Stadelmann B. Niclosamide ethanolamine against the fox tapeworm, *Echinococcus multilocularis*. (oral presentation)
- de Sousa MCF, Müller J, Hänggeli KPA, Heller M, Uldry AC, Braga-Lagache S, Leitao A, Ortega-Mora LM, Ojo KK, Van Voorhis WC, Hemphill A. Activity and efficacy of bumped-kinase inhibitor BKI-1708 *in vitro* and in non-pregnant and pregnant toxoplasmosis and neosporosis mouse models. (poster)
- Moré G, Cigler P, Eulenberger U, Schürch S, Basso W. Identification of louse flies and their *Trypanosoma* spp. from different avian species submitted to a wildlife rehabilitation center in Switzerland. (oral presentation)
- Galat M, Storozhuk V., Fuehrer HP, Caroline CF. Blood parasites of mouse-like rodents in the conditions of the radioactive contamination zone. (oral presentation)



Teilnehmende des SSTMP Meetings in Mendrisio, 2024.

Tagung der DVG-Fachgruppe "Parasitologie und parasitäre Krankheiten", Hannover, Jul. 8 – Jul. 10, 2024

- Galat M, Ovchinnikova A, Moré G, Basso W, Frey CF. Prevalence of *Sarcocystis* spp. and *Toxoplasma gondii* in free-range chicken in Ukraine (oral presentation)
- Galat M, Gliga D, Paraska O, Storozhuk V, Moré G, Basso W, Lundström-Stadelmann B, Frey CF. First case of clinical canine hepatozoonosis in Ukraine (poster)

Graduate School for Cellular and Biomedical Sciences (GCB) Symposium 2024, Bern Jun27, 2024

- Muchaamba G, Venugopal K, Dervas E, Meister S, Bohner D, Meier N, Huwiler M, Mathis A, Basso W, Davis L, Hetzel U, Hatt J-M, Marti M. Avian malaria: an emerging threat to zoo-kept and wild birds. (oral presentation)

7th International Swift Conference, Trieste, I, May 29-31, 2024

- Cigler P, Moré G, Bize P, Meier C, Frey CF, Basso W, Keller S. Avian trypanosomiasis: An emerging disease in the Swiss Alpine swift (*Tachymarptis melba*) population. (oral presentation)

SVEPM Conference, Uppsala, SWE, Mar. 2024

- Farra D, Loum Gazida R, Greter H, Adoum Batil A, Naingam Djeria R, Ngandolo Bongo Naré R, Frey C, Lundström-Stadelmann B, Darpel K, Rezullo S, Ruedin Y, Eichenberger RM, Dürr S. Assessing Fascioliasis Prevalence and Diagnostic Accuracy in Lake Chad's Nomadic Livestock: a Bayesian Approach. (oral presentation)

Schweizerische Tierärztetage, Basel, Apr. 25 – 26, 2024

- Frey CF, Moré G, Basso W. *Toxoplasma* und *Neospora* als Abortursache resp. Ursache für gesundheitliche Beeinträchtigung bei Welpen. (oral presentation)
- Frey CF, Gliga DS, Galat M, Strube C, Bodmer M, Eicher R, Lang M, Joekel D, Marreros N. Was sagt uns die Milch über den Befall mit Weideparasiten? (oral presentation)

Drug Design and Development Seminar (DDDS) of the German Society for Parasitology, Würzburg, GER, Mar. 12-15, 2024

- Wiedemar N, Gliga DS, Galat M, Preza M, Kaethner M, Frey CF, Lundström-Stadelmann B. Tools for investigation of drug resistance and screening of new compounds in the liver fluke *Fasciola hepatica*. (poster)

- Preza M, Hiller L, Dietrich N, Lundström-Stadelmann B. Niclosamide ethanolamine against the fox tapeworm, *Echinococcus multilocularis*. (poster)
- Benazzouz S, Kaethner M, Preza M, Kaempfer T, Zumstein P, Tamponi C, Varcasia A, Hemphill A, Brehm K, Lundström-Stadelmann B. *In vitro* drug screening cascade for *Echinococcus granulosus*. (oral presentation)
- Bartetzko A, Zumstein P, Preza M, Lundström-Stadelmann B. Response to alveolar echinococcosis: Screening of the MMV Pandemic Response Box revealed a novel promising compound. (poster)
- Zumstein P, Bartetzko A, Preza M, Nyffeler C, Mathis D, Lundström-Stadelmann B. Investigation of the malate dismutation pathway as a potential drug target in *Echinococcus multilocularis*. (poster)
- Kaempfer T, Preza M, Hayoz M, Aebi Y, Kaethner M, Zumstein P, Largiader C, Brehm K, Lundström-Stadelmann B. Assessment of triclabendazole treatment against *E. multilocularis*. (oral presentation)
- Kaethner M, Zumstein P, Preza M, Bartetzko A, Grossenbacher P, Lochner M, Schürch S, Regnault C, Villalobos Ramirez D, Lundström-Stadelmann B. Investigation of the threonine metabolism of *Echinococcus multilocularis*: EmTDH as a potential drug target against alveolar echinococcosis. (oral presentation)
- Hänggeli K. Evaluation of the Trithiolato-Bridged Arene Ruthenium Complex Conjugated to 9-(2-hydroxyethyl)-Adenine (OD62-18) as a Potential Treatment for *Toxoplasma gondii* Infection. (oral presentation)

Bern Parasitology Meeting (BPM), Bern, CH, Feb. 2, 2024

- Kämpfer T, Preza M, Hayoz M, Kaethner M, Zumstein P, Largiader C, Brehm K, Lundström-Stadelmann B. Assessment of triclabendazole treatment against *E. multilocularis*. (poster)
- Bartetzko A, Zumstein P, Preza M, Lundström-Stadelmann B. Screening of the MMV Pandemic Response Box against *Echinococcus multilocularis* reveals novel potential chemotherapeutics. (poster)
- Zumstein P, Bartetzko A, Preza M, Nyffeler C, Mathis D, Lundström-Stadelmann B. Investigation of the malate dismutation pathway as a potential drug target in *Echinococcus multilocularis*. (poster)
- Kaethner M, Zumstein P, Preza M, Bartetzko A, Grossenbacher P, Lochner M, Schürch S, Regnault C, Villalobos Ramirez D, Lundström-Stadelmann B. The Achilles' heel of the fox tapeworm? - Investigation of the threonine metabolism of *Echinococcus multilocularis*. (poster)
- Wiedemar N, Gliga DS, Galat M, Preza M, Kaethner M, Frey CF, Lundström-Stadelmann B. A toolset to investigate drug resistance and screen new drugs in the liver fluke *Fasciola hepatica*. (poster)
- Wiedemar N, Gliga DS, Galat M, Preza M, Kaethner M, Frey CF, Lundström-Stadelmann B. Dissecting resistance mechanisms and identifying new drug targets for *F. hepatica*. (oral presentation)

Science & Lunch, Vetsuisse Faculty, Bern

- Wiedemar N, Gliga DS, Galat M, Preza M, Kaethner M, Frey CF, Lundström-Stadelmann B. Studying drug resistance and exploring new treatment options for the liver fluke *Fasciola hepatica*. Feb. 20, 2024. (oral presentation)
- Moré G. A story about humans told by parasitic protozoa. Apr. 29, 2025. (oral presentation)
- Zumstein P. New drugs for the treatment of alveolar echinococcosis, Oct. 22, 2024. (oral presentation)

ApicoWplexa 2024: 7th International Meeting on Apicomplexan Parasites in Farm Animals. La Plata, Argentina Oct. 23-25, 2024

- de Sousa MCF, Müller J, Hänggeli KPA, Heller M, Uldry AC, Braga-Lagache S, Leitao A, Ortega-Mora LM, Ojo KK, Van Voorhis WC, Hemphill A. Effects of bumped-kinase inhibitor BKI-1708 on host cells and *Toxoplasma gondii*. (oral presentation)

- Hemphill A. Current and potentially novel treatments for the control of diseases caused by apicomplexan parasites affecting farm animals. Invited talk
- Hemphill A. ApicoWplexa: history, achievements and consequences. Invited talk
- Moré G, Filippini C, Oehm A, Ruetten M, Frey CF, Basso W. *Sarcocystis* spp. and *Toxoplasma gondii* in muscles from wild boars (*Sus scrofa*) in Switzerland. (oral presentation)
- Bentancourt Rossoli J, Moré G, Soto-Cabrera A, Moore DP, Morrell EL, Campero L, Basso W, Pedrana J, Hecker YP, Scioscia NP. Natural infection with *Besnoitia akodoni* (Protozoa: Sarcocystidae) in synanthropic (Muridae) and wild (Cricetidae) rodents of Argentina. (oral presentation)
- Bentancourt Rossoli JV, Campero LM, Moré G, Soto-Cabrera A, Moore DP, Basso W, Morrell E L, Pedrana J, Hecker YP, Scioscia NP. *Neospora caninum* and *Toxoplasma gondii* in naturally infected synanthropic (Muridae) and wild (Cricetidae) rodents from Argentina. (oral presentation)
- Arrabal JP, Orozco MM, Helman E, Minatel L, Notarnicola J, Basso W, Hartmann BB, Schapira A, Moré G. A putative new *Besnoitia* species in the southern black-eared opossum *Didelphis aurita*. (oral presentation)

8.3 INVITED PRESENTATIONS

2025

Basso W. Parasitäre Erkrankungen durch Einzeller beim Schaf: Kokzidiose, Toxoplasmose und Neosporose, Webinar-Reihe für Schafhaltende - Aktuelles aus Forschung und Praxis, Forschungsinstitut für biologischen Landbau (FiBL), 3. Dec. Invited Webinar.

Frey CF. Toxoplasmose, Fuchsbandwurm und anderes? Wichtige parasitäre Zoonosen in der Schweiz. Labmed Tagung, Bern, Nov. 15. Invited talk.

Frey CF. Von Würmern und Wirkstoffen. Herbsttagung Berner Tierärzte, Schönbühl, Nov. 11. Invited talk.

Frey CF. Fuchsbandwurm und Co. welche Krankheiten des Fuchses können auf den Menschen übergehen? Öffentlicher Vortrag am Bündner Naturmuseum, Sept. 3, Chur. Invited talk.

Lundström-Stadelmann B. The metabolism of Echinococcus and novel Targets for the Treatment of Echinococcosis. Tagung der DVG-Fachgruppe "Parasitologie und parasitäre Krankheiten", Giessen, GER, Jun. 30 – Jul. 2. Keynote.

Frey CF. Altbekanntes und Neues über Parasiten im Kot von Hund und Katze. Schweizer Tierärztetage, Basel, Apr 25. Invited talk.

Frey CF. Der Hund als End- und Zwischenwirt für den Fuchsbandwurm – wie schütze ich mich in der Praxis? Schweizer Tierärztetage, Basel, Apr. 25. Invited talk.

G. More. SSTMP zoom seminar. Diagnostics in veterinary parasitology: a walk through clinical cases Mar. 26. Invited Webinar.

Frey CF. The difficulty of diagnosing teniosis. 15th Boehringer Ingelheim Animal Health Parasitology and Vector Borne Disease Symposium, Dubai, UAE, Mar. 10-12. Invited talk.

Basso W, Moré G, Schuller S, Frey CF. Canine strongyloidosis in Central Europe: clinics, diagnostics, genetics and the risk of zoonotic transmission, Second international Strongyloides meeting, Würzburg, Germany, Mar. 10-11. Invited presentation.

Hemphill A. Drugs for toxoplasmosis and neosporosis: tales of success and frustration. Seminar Institute of Parasitology, Zürich. April 22. Invited talk.

de Sousa MCF, Müller J, Hänggeli KPA, Heller M, Uldry AC, Braga-Lagache S, Leitao A, Ortega-Mora LM, Ojo KK, Van Voorhis WC, Hemphill A. Comparative proteomics analysis of three closely related cyst forming apicomplexans treated with BKI-1708. Basel, Swiss Apicentre Conference, Jun. 11. Invited talk.

Hemphill A. Wirkstoffe zur Bekämpfung von chronischer Toxoplasmose, verursacht durch *Toxoplasma gondii* Gewebezysten. Uniscientia Stiftung, Nov. 27. Invited talk.

Hemphill A. Visualizing parasites and host-parasite interactions. MIC Research day, University of Bern. Jun. 25. Invited talk.

Galat M. Chewing lice of birds: diversity and host association. SSTMP Online seminar series, Oct. 29. Invited Webinar.

Hemphill A. Small things with a big impact: Apicomplexans in the electron microscope. Institute of Anatomy, Vetsuisse Faculty, TEM/SEM Inauguration meeting, Dec. 8. Invited talk.

2024

Frey CF. Diagnostic Dilemmas: Unraveling the Complexities of Feline Tapeworm Detection. Oct. 24. Boehringer-Ingelheim facilitated Webinar. Invited talk.

Lundström-Stadelmann B. Metabolism in Parasitic Helminths, Seminar day and user meeting on live-cell metabolic profiling, Bucher Biotec, Bern, Oct. 16. Keynote.

Lundström-Stadelmann B. The quest for new compounds for the treatment of alveolar echinococcosis, Conference on Tropical Medicine and Global Health, Düsseldorf, Germany, Sept. 19-21. Invited talk.

Frey CF. When "healthy" food makes you sick: Outbreaks caused by protozoans in produce. 3rd Microbiological Risk Assessment Seminar, Jun. 7, BLV, Bern. Invited talk.

Basso W. *Toxoplasma gondii* infections in domestic and wild animals: from unnoticed to deadly. XXXIII Congresso Nazionale della Società Italiana di Parassitologia (SolPa), Padova, Jun. 18-21. Keynote.

Wiedemar N. CRISPR/Cas Gentechnik. Amt für Landwirtschaft und Natur INFORAMA, May 14. Invited seminar for continuing education of agronomic consultants.

Frey CF. New (and not so new) players in the epidemiology of *Echinococcus multilocularis* in Switzerland. EVPC Webinar, May 1. Invited talk.

Frey CF. Was sagt uns die Milch über den Befall mit Weideparasiten? Schweizer Tierärztetage, Basel, Apr. 26. Invited talk.

Frey CF. *Toxoplasma* und *Neospora* als Abortursache resp. Ursache für gesundheitliche Beeinträchtigung bei Welpen. Schweizer Tierärztetage, Basel, Apr. 25. Invited talk.

Lundström-Stadelmann B. Novel drug treatments against alveolar echinococcosis, what is going on *in vitro* and in mouse models. Swiss Echinococcosis network, online meeting, Apr. 16. Invited talk.

Boubaker G. Application of novel proteomic tools in *Toxoplasma* research: recent trends and approaches for developing novel and efficient chemotherapies. Apicentre: Swiss Apicomplexan Meeting, University of Bern, May 14.

Hemphill A. Vaccination against *Neospora caninum* infection using a novel attenuated *Listeria monocytogenes* vaccine vector: proof-of-concept in the mouse model. Associate laboratory for Animal and Veterinary Sciences, Faculty of Veterinary Medicine, University of Lisbon. April 9. Invited talk.

Hemphill A. Toxoplasmosis: in vivo treatments with novel compounds in animal models. One day meeting on toxoplasmosis, Universidad Complutense Madrid, Jun. 7. Invited talk.

9. AUS-, FORT-, UND WEITERBILDUNG / TEACHING AND CONTINUING EDUCATION

9.1 VETSUISSE CURRICULUM

2025

FS25: 473087 Parasitologie. 2. Studienjahr, 26 Lektionen, Referenten: Caroline Frey, Walter Basso, Gastón Moré.

FS25: 473096 Schwerpunkt Nutztiere. 4. Studienjahr, 4 Lektionen. Referenten: Caroline Frey, Walter Basso.

HS25: 473087 Parasitologie. 3. Studienjahr, 32 Lektionen, Referenten: Caroline Frey, Walter Basso, Natalie Wiedemar.

HS25: 472667 Praktische Fertigkeiten IV, Parasitologie-Kurs, 4. Studienjahr, 30 Lektionen, Referenten Walter Basso, Gastón Moré, Caroline Müller.

2024

FS24: 473087 Parasitologie. 2. Studienjahr, 26 Lektionen, Referenten: Caroline Frey, Walter Basso, Natalie Wiedemar.

FS24: 473096 Schwerpunkt Nutztiere. 4. Studienjahr, 4 Lektionen. Referenten: Caroline Frey, Walter Basso.

HS24: 473087 Parasitologie. 3. Studienjahr, 32 Lektionen, Referenten: Caroline Frey, Walter Basso.

HS24: 472667 Praktische Fertigkeiten IV, Parasitologie-Kurs, 4. Studienjahr, 30 Lektionen, Referenten Walter Basso, Gastón Moré, Caroline Müller.

9.2 PHILNAT CURRICULUM / MEDIZINISCHE PARASITOLOGIE / MEDICAL PARASITOLOGY LECTURES

2025

HS25: 2804 Medizinische Parasitologie und tropische Parasitosen, Vorlesung für Studierende der Naturwissenschaften, der Veterinärmedizin oder der Medizin: Britta Lundström-Stadelmann, Andrew Hemphill, Carmen Faso (IZB), Kerry Woods (ITPA), Walter Basso, Matías Preza, Heinz Sager, Magali Roques (IZB), Christof Grüring (IZB), Natalie Wiedemar, 3 Stunden / Woche.

FS25: 2806 Molekulare Parasitologie, Britta Lundström-Stadelmann, Andrew Hemphill. (Teilpensum)

HS25: Cestodes of medical importance, 4 lessons. Referentin: Caroline Frey. Swiss Tropical and Public Health Institute, Allschwil.

2024

HS24: 2804 Medizinische Parasitologie und tropische Parasitosen, Vorlesung für Studierende der Naturwissenschaften, der Veterinärmedizin oder der Medizin: Britta Lundström-Stadelmann, Andrew Hemphill, Norbert Müller, Carmen Faso (IZB), Kerry Woods (ITPA), Walter Basso, Matías Preza, Heinz Sager, Magali Roques (IZB), Christof Grüring (IZB), 3 Stunden / Woche.

FS24: 2806 Molekulare Parasitologie, Britta Lundström-Stadelmann, Andrew Hemphill. (Teilpensum)

FS24: 2221 Colloquium on Host-Pathogen Interactions, Natalie Wiedemar (Teilpensum)

HS24: Cestodes of medical importance, 4 lessons. Referentin: Caroline Frey. Swiss Tropical and Public Health Institute, Allschwil.

9.3 FORT- UND WEITERBILDUNG / CONTINUING EDUCATION

Für die institutsinterne Fort- und Weiterbildung wurden wöchentlich alternierend Forschungsseminare und Journal-Clubs gehalten.

Es fanden regelmässige DIP-Seminare statt mit Forschungsvorträgen von internen und externen Gästen.

Diagnostische Kolloquien fanden regelmässig statt und beinhalteten die Besprechung interessanter und lehrreicher Fälle.

Das Institut hat 2024/2025 folgende Weiterbildungsveranstaltungen organisiert und durchgeführt:

- De Sousa Maria (IPA), Kodzo Atchou (IZB) (hosts and chairs). Zoom seminar series of the Swiss Society of Tropical Medicine and Parasitology, insgesamt 10 Seminare 2024/2025.
- Basso W. Toxoplasmosis y Neosporosis: Importancia en pequeños animales y salud pública. Course: Actualización en el diagnóstico, tratamiento y control de protozoarios de pequeños animales de interés en medicina veterinaria, Facultad de Veterinaria, Universidad de la República, Uruguay, Nov. 14, 2025. Invited Webinar.
- More G. Infecciones producidas por *Sarcocystis* spp. Course: Actualización en el diagnóstico, tratamiento y control de protozoarios de pequeños animales de interés en medicina veterinaria, Facultad de Veterinaria, Universidad de la República, Uruguay, 14. Nov. 2025. Invited Webinar.
- Frey CF (IPA), Sonja Kittl (IVB): Labor für TPA's und TierärztInnen – Kotparasitologie und Milchbakteriologie. Theorie und Praxis, Sept. 3-4, 2025.
- Basso W, Parasitologie, ITB III Aufbaukurs Interpretation von Laborbefunden. Schweizerische Vereinigung für Schweinemedizin (SVSM), Bern, Jun. 5, 2025.
- Basso W, More G, Frey CF, Lundström-Stadelmann B, Wiedemar N (all IPB), Schnyder Manuela, Öehm Andreas, Hertzberg Hubertus (all IPZ): Very Important Parasites in Zurich and Berne – from fundamental to applied research. EVPC summer school, Jun. 1 to 7, 2025.
- Galat M. Toxoplasmosis (seroprevalence and diagnostic methods). Institute for the Retraining and Further Training of Teaching Staff and Specialists in the Fields of Veterinary Medicine and Animal Husbandry in Uzbekistan, Samarkand, 17 May, 2025. Invited lecture.
- Basso W. Canine strongyloidosis, Continuing Education for EVPC Residents and Diplomates, Apr. 3, 2025. Invited Webinar.
- Frey CF, Galat M. Parasitology visit to Switzerland. Lectures and lab visit. Basel, Bern, Zürich, 25 Nov. 2024. The "Public Health Systems Recovery and Resilience Activity" (PHS R&R) - Swiss TPH project for national and regional Public Health experts in Ukraine. Basel, Bern, Zürich, Nov. 25, 2024.
- Galat M. Parasitology. Online lectures for students of the Faculty Veterinary Medicine National University of Life and Environmental Sciences of Ukraine. Kyiv, Feb.-May, Sept.-Nov. 2024 & 2025. 240 hours.

9.4 SEMINARE EXTERNER GÄSTE / SEMINARS OF GUESTS

2025

Prof. Dr. M. A. Cusher, Conicet, Buenos Aires, Argentina: "Extracellular small RNAs in cestode diseases", Nov. 28, 2025.

Dr. S. Specht, Bayer AG Switzerland: "The Role of Public and Private Partnerships in NTDs: Delivering Innovative Treatments in Challenging Times", Nov. 26, 2025.

Dr. C. Ramakrishnan, Institute of Parasitology Zürich: "Complex Apicomplexa: Decoding stage progression in Coccidian parasites", Nov. 12, 2025.

Prof. Dr. V. Marugan-Hernandez, Royal Veterinary College, UK: "Advances in Eimeria Cell Biology and Their Implications for Coccidiosis Control", Sept. 17, 2025.

C. Volz, Ludwig Maximilian Universität München, Germany: "Detection and characterization of *Giardia* and *Cryptosporidium* in ranches North American bison", Aug. 13, 2025.

Dr. S. Shaw, University of Pennsylvania, USA: "The Genetic Basis of Virulence & Persistence in *Cryptosporidium*", July 9, 2025.

Prof. Dr. P. Mäser, Swiss TPH: "Parasites that turn the wheel of history", Jun. 18, 2025.

Prof. Dr. T. Barth, Universitätsklinikum Ulm, Germany: "Echinococcosis- thoughts of a pathologist", May 16, 2025.

Prof. Dr. D. Stroka, University of Bern: "Liver regeneration and malaria", May 14, 2025.

Prof. Dr. E. Jenkins, University of Saskatchewan, Canada: "A charcuterie board of parasites from the Canadian wild", Apr. 2, 2025.

2024

Prof. Dr. Maria Tera Armua Fernandez, Universidad de la Republica, Montevideo, Uruguay: "Veterinary Parasitology in Uruguay, what are we studying?", Jun. 14, 2024.

Prof. Dr. Pie Müller, Swiss TPH: "Climate change, environmental drivers and range expansion of invasive mosquitoes: implications for public health, surveillance and control", May 20, 2024.

Dr. Sara Murer, Beratungs- und Gesundheitsdienst für Kleinwiederkäuer, Niederösterreich, Schweiz: "Fruchtbarkeitsprobleme durch Neosporose in Hirschgehegen", May 15, 2024.

Dr. Gabi Müller, Fachstelle Schädlingsprävention Stadt Zürich: "Bed bugs, fleas and other pests", Apr. 24, 2024.

Prof. Dr. Y. Nishikawa, Obihiro University of Agriculture and Veterinary Medicine, Hokkaido, Japan: "Control strategies for Toxoplasma infection in humans and animals", Mar. 20, 2024.

Prof. Dr. J. G. Garweg, Berner Augenklinik: "Immune Response in Ocular Toxoplasmosis: Clinical Signs of Immunosenescence and Inflammaging", Mar. 6, 2024.

9.5 ORGANISATION VON SYMPOSIEN / KONFERENZEN / ORGANISATION OF SYMPOSIA / CONFERENCES

2025

Lundström-Stadelmann B: **students' meeting**, co-organizer, Swiss Society of Tropical Medicine and Parasitology (SSTMP), Schwarzenberg, CH, December **2025**.

Wiedemar N. **Postdoc Initiative improvisation workshop**, co-organizer, Swiss Society of Tropical Medicine and Parasitology (SSTMP), Basel, CH, November 2025

Frey C, Basso W, Moré G, Lundström-Stadelmann B, Wiedemar N co-organized with Institute of Parasitology Zürich: **Continuing Education for European Veterinary Parasitology College (EVPC) Residents and Diplomates**: "Very important Parasites in Zurich and Bern: from fundamental to applied research", Bern/Zürich, CH, June **2025**.

Lundström-Stadelmann B, Frey C, Basso W, Moré G: **Anses (France) - Bern meeting on Echinococcus**, Bern, CH, April/May **2025**.

Lundström-Stadelmann B: **Joint spring meeting of the German (DGP), British (BSP) and Swiss Societies of Parasitology (SSTMP)**, co-organizer, Würzburg, GER, March **2025**.

Lundström-Stadelmann B: **Bern Parasitology Meeting II**, co-organizer, Bern, CH, February **2025**.

2024

Lundström-Stadelmann B: **students' meeting**, co-organizer, Swiss Society of Tropical Medicine and Parasitology (SSTMP), La Rouvraie, CH, October **2024**.

Wiedemar N. **Postdoc Initiative kick-off event**, co-organizer, Swiss Society of Tropical Medicine and Parasitology (SSTMP), Bern, CH, August 2024

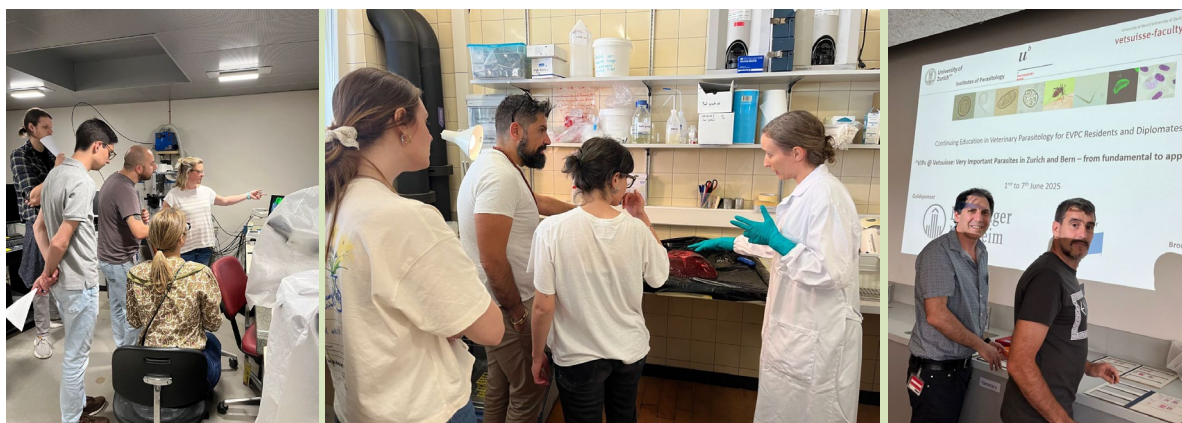
Lundström-Stadelmann B: **Ethical, scientific and emotional challenges of Animal Experimentation**, Bern, CH, August **2024**.

Lundström-Stadelmann B. **Annual meeting of the Swiss Society of Tropical Medicine and Parasitology (SSTMP)**, co-organizer, Mendrisio, CH, June **2024**.

Lundström-Stadelmann B. **Bern Parasitology Meeting I**, co-organizer, Bern, CH, February **2024**.



EVPC Kurs 2025.



10. DIENSTLEISTUNG / DIAGNOSTICS

10.1 AKKREDITIERUNG / ACCREDITATION

Die veterinärparasitologische **Diagnostik** ist durch die Schweizerische Akkreditierungsstelle (SAS) unter der **STS-Nummer 0678 nach ISO/IEC 17025:2017 akkreditiert**.

Das Institut für Parasitologie Bern (IPB) nimmt regelmässig an folgenden internationalen Ringversuchen zur Leistungs- und Qualitätskontrolle teil:

- Ringversuche zum Nachweis von ***Trichinella*-Larven im Fleisch**, zur **molekularen Bestimmung von *Trichinella*-Arten**, zum **Nachweis von *Echinococcus* spp. in der Darmschleimhaut** des Endwirtes, und zur molekularen Diagnose von Cestoden, organisiert vom European Union Reference Laboratory for Parasites (EURLP), Istituto Superiore di Sanità (ISS), Rome, Italien.
- Ringversuche zum **Nachweis von Antikörper gegen *Toxoplasma gondii*, *Neospora caninum*, *Besnoitia besnoiti*, *Babesia caballi*, und *Theileria equi*** im Serum von Wiederkäuern, bzw. von Pferden, organisiert vom UK VETQAS Proficiency Testing Service, London, England, vom EURLP, ISS, Rome, Italien, und/oder vom Friedrich-Loeffler Institut (FLI), Riems, Deutschland.
- Ringversuche zum Nachweis von ***Toxoplasma gondii*-DNA mittels qPCR**, organisiert vom EU Quality Control for Molecular Diagnostic, (QCMD), Glasgow, Schottland und vom FLI, Riems, Deutschland.
- Ringversuch zur **Dourine-Serologie** organisiert durch das ANSES, Dozulé, Frankreich.

Das IPB organisiert jährlich eine Qualitätskontrolle zum *Trichinella*-Nachweis im Fleisch und führt diese auch durch. Die Qualitätskontrolle besteht aus einem Haupt- und einem Nachversuch (für Teilnehmende mit suboptimalen Ergebnissen im Hauptversuch).

10.2 REFERENZLABOR / REFERENCE LABORATORY

Labor für Veterinärparasitologie* (*BLV-bewilligtes Labor für Tierseuchendiagnostik)
(Beteiligung per 31.12.2025): Prof. Dr. W. Basso (Leitung), Prof. Dr. C. Frey, Dr. G. Moré, Dr. Maryna Galat, M.L. Prade Rosenhaim, S. Fuss, C. Salvisberg., C. Müller, U. Kurath, D. Lüthi, E. Emmenegger.
QS-Leitung: Prof. Dr. W. Basso.

Das IPB amtiert als **Nationales Referenzlabor für folgende Tierseuchen: Trichinellose, Toxoplasmose, Neosporose, Besnoitiose, Tritrichomonose, Hypodermose, Echinococcose, Surra und Beschälseuche (Dourine)**.

Trichinellose: In den Jahren 2024-2025 erhielt das IPB mehrere Fälle von verdächtigen *Trichinella*-Larven von *Trichinella*-Untersuchungsstellen zur weiteren diagnostischen Abklärung.

In den Jahren 2024 - 2025 wurden Infektionen mit *Trichinella britovi* bei 4 Wölfen und 19 Luchsen nachgewiesen.

Beratungstätigkeit: Zahlreiche telefonische Beratungen für Veterinärämter, Tierärzte, Labors und Schlachthöfe bei Fragen zur Durchführung der *Trichinella*-Diagnostik.

Versand von Referenzmaterialien für interne Kontrolle und Training an Labors, welche die *Trichinella*-Untersuchung durchführen

Das IPB organisiert alle drei Jahren eine Weiterbildungsveranstaltung: "Trichinellose und Trichinendiagnostik: Theorie und Praxis" für das Laborpersonal und Fleischkontrolleure, welche in der *Trichinella*-Diagnostik tätig sind organisiert.

Toxoplasmose: In den Jahren 2024 - 2025 wurden *Toxoplasma gondii* Oozysten bei 1 Hauskatze mittels Flotation + real-time PCR nachgewiesen. Darüber hinaus wurde *T. gondii*-DNA im Gewebe von 1 Ziege, 1 Katze, 1 Fuchs, und 2 abortierten Ziegen-Föten nachgewiesen.

Beratungstätigkeit: Erläuterungen zur differentialdiagnostischen Bedeutung der Toxoplasmose im Rahmen parasitär bedingter Aborte bei Wiederkäuern sowie von Neuropathien beim Kleintier. Beratungen betreffend vorbeugender Massnahmen zur Verhinderung einer kongenitalen Toxoplasmose bei seronegativen schwangeren Frauen.

Neosporose: 2024 - 2025: *Neospora caninum* DNA wurde mittels real-time PCR bei 3 abortierten Rinderföten und 8 Hirschföten nachgewiesen.

Beratungstätigkeit: Erläuterungen zur Bedeutung des Hundes bei der Übertragung von *N. caninum* auf Wiederkäuer, insbesondere das Rind. Zahlreiche telefonische Beratungen von TierärztInnen und TierhalterInnen im Zusammenhang mit *Neospora*-bedingten Rinderaborten sowie mit neurologischen Problemen beim Hund.

Besnoitiose: 2024 - 2025 wurde der Parasit in der Schweiz nicht festgestellt.

Beratungstätigkeit: Beratung bezüglich Importuntersuchungen von Rindern, Rentieren und Hirschen und zur differentialdiagnostischen Abklärung bei Hautproblemen.

Beschälseuche (*Trypanosoma equiperdum*) und Surra (*Trypanosoma evansi*): Die Parasiten wurde 2024 - 2025 in der Schweiz weder serologisch noch direkt nachgewiesen. Beratungstätigkeit: Beratung bezüglich Import- bzw. Exportuntersuchungen von Pferden

Tritrichomonose (*Tritrichomonas foetus*): 2024 - 2025 wurden beim Rind keine Fälle gemeldet. Der Parasit tritt jedoch gehäuft bei der Katze auf.

Beratungstätigkeit: Erläuterungen zur Bedeutung der Tritrichomonose des Rindes im Rahmen parasitär bedingter Fruchtbarkeitsstörungen und Aborte beim Rind, im In- und Ausland. Beratungen in Bezug auf Epidemiologie, Diagnostik, Klinik und Behandlung von Tritrichomonas-Durchfällen bei Katzen.

Echinococcose (*Echinococcus* spp.): 2024 – 2025 wurde alveoläre Echinococcose mit Leberbefall bei 7 Hunden, 2 Bibern, 1 Nutria und 2 Wildschweinen nachgewiesen. Ausserdem wurde ein intestinaler Befall mit *E. multilocularis* bei 1 Rotfuchs und 1 Hund diagnostiziert.

Beratungstätigkeit: Zahlreiche telefonische Beratungen für Veterinärämter, Tierärzt:innen und Labore zur Bedeutung und Durchführung der Diagnostik von *Echinococcus*-spp.-Infektionen bei Haus-, Wild- und Zootieren sowie beim Menschen. Beratung zur Behandlung der alveolären Echinokokkose beim Hund. Beratungen bezüglich vorbeugender Massnahmen zur Verhinderung von Infektionen bei Tieren und Menschen sowie zum Vorgehen nach Kontakt mit potenziell infektiösem Material.

Hypodermose (*Hypoderma* spp.): 2024 – 2025 wurde Hypodermose bei 3 Rindern serologisch diagnostiziert.

Beratungstätigkeit: Beratung bezüglich Diagnostik und Bedeutung der Hypodermose beim Rind und bei Wildwiederkäuern.

10.3 DIAGNOSTIKAUFTRÄGE / DIAGNOSTIC SERVICES

2024 - 2025 wurden insgesamt 20'134 Untersuchungen durchgeführt. Davon waren 14'201 Direktnachweise (Koprologie, Kultur, Verdauung u.a.), 5'137 Serologien (AK- oder AG Nachweis) und 796 molekularbiologische Untersuchungen (PCR & Sequenzierungen).

11. WEITERE FUNKTIONEN TÄTIGKEITEN DER GRUPPENLEITENDEN / FURTHER FUNCTIONS OF THE GROUP LEADERS

11.1 GESELLSCHAFTEN UND KOMMISSIONEN / SOCIETIES AND COMMITTEES

Walter Basso

Board Member EVPC, European Veterinary Parasitology College.

Member of the Executive Committee ESCCAP Schweiz, European Scientific Counsel Companion Animal Parasites.

Member of the Working Group "Veterinary Parasitology" SSTMP, Swiss Society of Tropical Medicine and Parasitology.

Member ICT, International Commission on Trichinellosis.

Caroline Frey

Vizepräsidentin ESCCAP Schweiz, European Scientific Counsel Companion Animal Parasites.

Member ICT, International Commission on Trichinellosis.

Member EVPC, European Veterinary Parasitology College.

Mitglied SGTP, Schweizerische Gesellschaft für Tropenmedizin und Parasitologie (Swiss Society of Tropical Medicine and Parasitology).

Mitglied SVVLD, Schweizerische Vereinigung für Veterinär-Labordiagnostik.

Mitglied GST, Gesellschaft Schweizer Tierärzte und Tierärztinnen.

HERminthology.

Andrew Hemphill

Mitglied, Schweizerische Gesellschaft für Tropenmedizin und Parasitologie (Swiss Society of Tropical Medicine and Parasitology).

Mitglied des Vorstandes der DGP, Deutsche Gesellschaft für Parasitologie (German Society for Parasitology).

Member, British Society for Parasitology.

Member, American Society for Parasitology.

Britta Lundström-Stadelmann

Präsidentin SGTP/SSTMP, Schweizerische Gesellschaft für Tropenmedizin und Parasitologie (Swiss Society of Tropical Medicine and Parasitology).

Mitglied BSP, British Society for Parasitology.

Mitglied DGP, Deutsche Gesellschaft für Parasitologie (German Society for Parasitology).

Mitglied SFM, Svenska föreningen för mikrobiologi (Swedish Society for Microbiology).

Mitglied SGV, Schweizerische Gesellschaft für Versuchstierkunde (Swiss Laboratory Animal Science Association).

HERminthology.

Natalie Wiedemar

Vorstandsmitglied Schweizerische Gesellschaft für Tropenmedizin und Parasitologie (Swiss Society of Tropical Medicine and Parasitology).

11.2 EVALUATIONSGREMIEN / SCIENTIFIC POSITIONS OF TRUST

Walter Basso

Gutachter/Examinator bei Dissertationen, PhD Theses und Diplomarbeiten: Universidad Complutense Madrid, Spain; Freie Universität Berlin, Germany; University of Padua, Italy.

Caroline Frey

Fachliche Begleitgruppe ORA Ressourcenprojekt, member, representative of Vetsuisse.

Working Group on Vectors: Swiss Tick Action Plan, member

External reviewer of candidate for professorship in veterinary parasitology (W2), Freie Universität, Berlin, Germany.

Reviewer for National Science Centre Poland, Poland.

Reviewer for Alexander von Humboldt Stiftung, Germany.

Guest Editor for Veterinary Parasitology, Elsevier.

Examinator FVH für veterinärmedizinisch-mikrobiologische Analytik, Zurich.

Reviewer of a PhD thesis, Facultad de Ciencias Veterinarias, Universidad Complutense Madrid, Spain.

Reviewer für Deutsche Forschungsgesellschaft

Andrew Hemphill

Reviewer für Alexander von Humboldt Stiftung.

Swissmedic Veterinary Medicine Experts Committee (VMEC), permanent member.

Britta Lundström-Stadelmann

Reviewerin für Alexander von Humboldt Stiftung, GER.

Reviewerin für Universität Melbourne, AUS.

Mitglied der SNSF Postdoc Mobility Evaluation Commission (EvCo), domain LS-B (Life Sciences Biology), CH.

Mitglied des Vorstands der Hans-Sigrist Stiftung, Bern.

Natalie Wiedemar

Externe Gutachterin von PhD Thesis: Universidad de Salamanca, Spanien.

11.3 UNIVERSITÄT BERN UND VETSUISSE FAKULTÄT / UNIVERSITY OF BERN AND VETSUISSE FACULTY

Walter Basso

Representative for the Institute of Parasitology in the “Mittelbau” (Intermediate Staff Faculty Members).

Member of the advisory group (Begleitgruppe Arbeitskreis Bern) in the ZoE-BTA Programm from the Federal Food Safety and Veterinary Office (BLV) to improve pig health in Switzerland.

Caroline Frey

Präsidentin Berner Beförderungskommission, Mitglied Habilitationskommission Vetsuisse Bern & Zürich.

Mitglied Tenure Track Kommission Professur in Veterinärdermatologie, Vetsuisse Bern.

Mitglied HappyVet, Vetsuisse Bern & Zürich, GST, Graeub.

Neue RPU Labormitarbeitende, Universität Bern.

Mentorin Educator Track, Vetsuisse Bern.

Britta Lundström-Stadelmann

Mitglied der Forschungskommission der Vetsuisse Fakultät Bern.

Mitglied Proteomics & Mass Spectrometry Core Facility Working Group of the DBMR, Universität Bern.

Mitglied Neglected Disease Cluster of the Multidisciplinary Center for Infectious Diseases (MCID), University of Bern.

Mitglied of the University of Bern group of the Swiss Alliance against Neglected Tropical Diseases (SANTD).

Natalie Wiedemar

Mitglied im Board des Vetsuisse Bern Mittelbau als Vertreterin des Departements für Infektionskrankheiten und Pathobiologie (DIP).

Mitglied Neglected Disease Cluster of the Multidisciplinary Center for Infectious Diseases (MCID), University of Bern.

12. INSTITUTANLÄSSE / INTERNAL INSTITUTE EVENTS



Weihnachtsevent im Escape Room, 2025.



Parasiten im Zoo Basel, 2025.



DIP Hausparty, 2024.



DIP Retreat 2024.



Parasiten auf dem Bauernhof, 2024.

