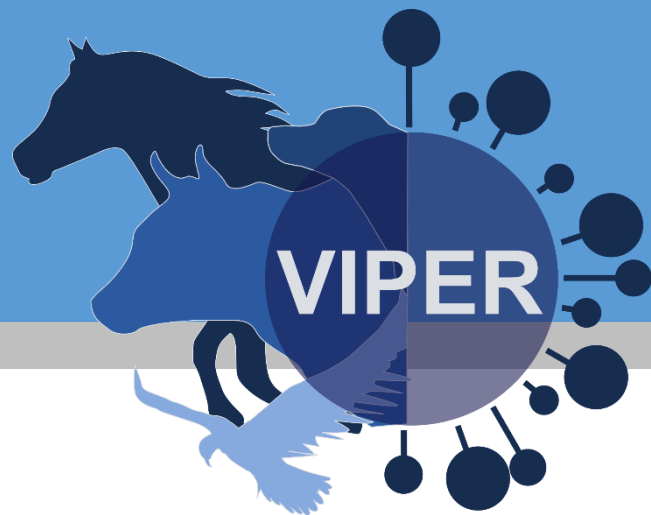




NEWSLETTER

Volume - June 2026

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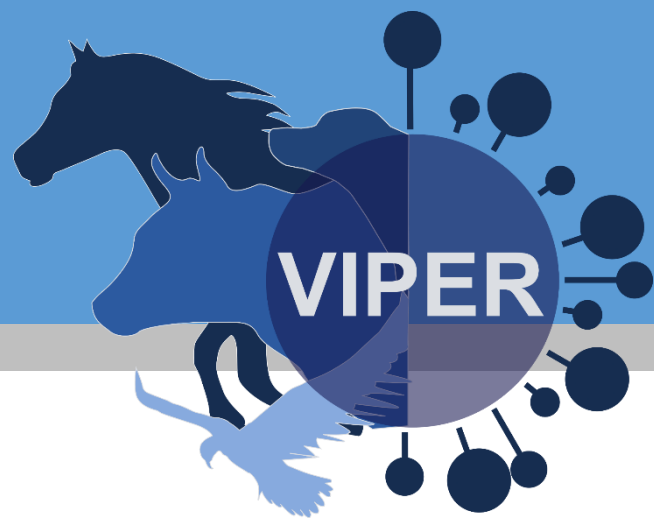


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We are proud to release the sixth VIPER newsletter more than six years after the official start of the Research Training Group in April 2019. Within this issue, we will recap the end of the second cohort of VIPER students, all their experiences and achievements during their VIPER journey and we will tell you about the first year of the VIPER students of the third cohort.

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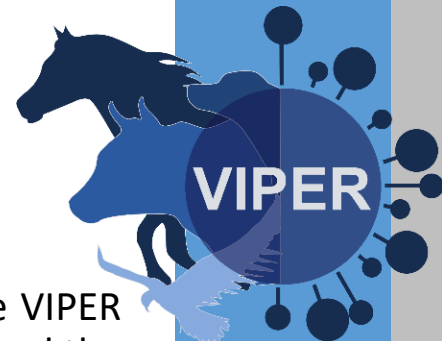
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En-block schools (second cohort)

Master class (07.-11.10.2024)

The last one-week en-block school for the second cohort, the VIPER master class took place on October 7th to 11th, 2024 and covered the various areas of work undertaken by a virologist. The guests, who are themselves virologists working in a wide variety of professional environments, spoke about their own career pathways and provided the VIPER students with advice for their future careers. (see schedule).



GRK 2485

Monday	Tuesday	Wednesday	Thursday	Friday
9:15 – 9:30 Welcome 9:30 - 11:00 Veronika von Messling Career in academia and beyond	10:30 –11:45 Heike Marxfeld Career in Industry	10:00 –11:30 Stefan Uhle “Patenting and Commercializing Scientific Inventions” - From your research to an invention to your patent and its commercialization	10:30 –12:00 Dana Thal German One Health Platform – how we support young One Health researchers	10:00 –11:45 Manon Cox Career in Industry
11:15 - 11:00 Nina McGuinness EU-funding and participation strategies/ application process		13:00 –14:30 Friedemann Weber How to write successful grant applications		
14:00-16:00 Tom Rosol • Introduction to University Commercialization • Intellectual Property and Due Diligence • Licensing of Technology • Startup Companies • The Elevator Pitch; Conflict of Interest & Commitment		14:30-16:00 Klaus Osterrieder Career in Hongkong and the US – from Science to administration	12:00-12:30 Closing remarks	

Invited speakers of the VIPER master class:

Veronika von Messling (Federal Ministry of Education and Research)

Nina McGuinness (EU Liaison Office Hannover/ Hildesheim)

Tom Rosol (Department of Biomedical Sciences, Heritage College of Osteopathic Medicine, Ohio University)

Heike Marxfeld (BASF SE)

Stefan Uhle (MBM ScienceBridge GmbH)

Friedemann Weber (Institute of Virology, Faculty of Veterinary Medicine, Justus Liebig University Giessen)

Klaus Osterrieder (University of Veterinary Medicine Hannover)

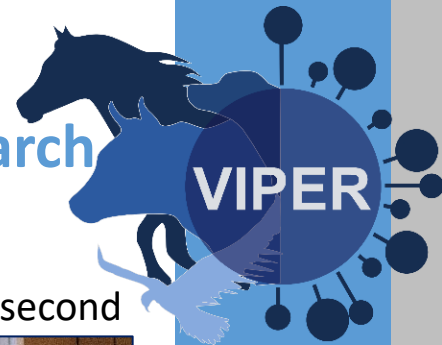
Dana Thal (German One Health Platform)

Manon Cox (Next wave bio)

Second VIPER Symposium on Virus Research

10. + 11.02.2025

The final major event for the second VIPER cohort was the second VIPER Symposium on Virus Research, held in February 2025. We had a two-day programme packed with fascinating presentations by our own VIPER students, as well as numerous lectures by our many international guests, all of whom were renowned scientific experts from every field of virus research.



GRK 2485

Monday, 10.02.2025

10:00 - 10:15

Welcome by Prof. Beineke (Speaker of VIPER)

SESSION 1 (MODERATION: OSTERHAUS)

10:15 - 10:55

Massimo Palmarini

Genetic barriers to avian influenza viruses cross-species transmission

10:55 - 11:35

VIPER Student
Laura Heydemann

Could hamsters be a model for respiratory post-acute sequelae of SARS-CoV-2?

11:35 - 11:55

Coffee Break + Poster Walk

11:55 - 12:15

VIPER Student
Monica Mirolo

Detection and characterization of HPAIV A/H5N1 from seals

12:15 - 12:55

Angele Breithaupt

Avian influenza virus type A (H5N1) in U.S. dairy cattle – an update and critical review of the literature

12:55 - 13:35

Bart Haagmans

Phenotypic evolution of SARS-CoV-2

13:35 - 14:30

Lunch break



Invited speakers of the VIPER Symposium (first day):

Massimo Palmarini (University of Glasgow, UK)

Angele Breithaupt (Friedrich-Loeffler-Institute, Greifswald)

Bart Haagmans (Erasmus MC, Rotterdam, NL)

Philippe Plattet (University of Bern, CH)

Stefan Finke (Friedrich-Loeffler-Institute, Greifswald)

The time between the lectures was used for poster presentations, during which all PhD students from the second VIPER cohort presented their research findings and discussed them with the interested audience.



GRK 2485

Monday, 10.02.2025

SESSION 2 (MODERATION: BAUMGÄRTNER, BECHER)

15:10 - 15:50	Philippe Plattet	Protection against lethal morbillivirus infection by a dual epitope-targeting synthetic antibody
15:50 – 16:10	VIPER Student Pauline Pöpperl	Attenuation of canine distemper virus leads to a potent antiviral innate immune response with restricted infection of alveolar macrophages
16:10 – 16:30	Coffee Break + Poster Walk	
17:10 – 17:50	Stefan Finke	Rabies Virus Neuroinvasion and Pathogenesis
17:50 – 18:05	Angele Breithaupt	Foot-and-mouth disease in Brandenburg water buffalo – a brief summary of the current state of knowledge

There was also a lively exchange of ideas and many fruitful discussions during the coffee breaks and at the dinner that followed.



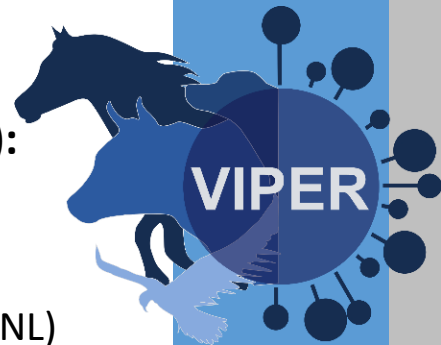
Invited speakers of the VIPER Symposium (second day):

Martin Groschup (Friedrich-Loeffler-Institute, Greifswald)

Mathilde Richard (Erasmus MC, Rotterdam, NL)

Thijs Kuiken (Erasmus MC, Rotterdam, NL)

Paul Wichgers Schreur (Wageningen University and Research, NL)



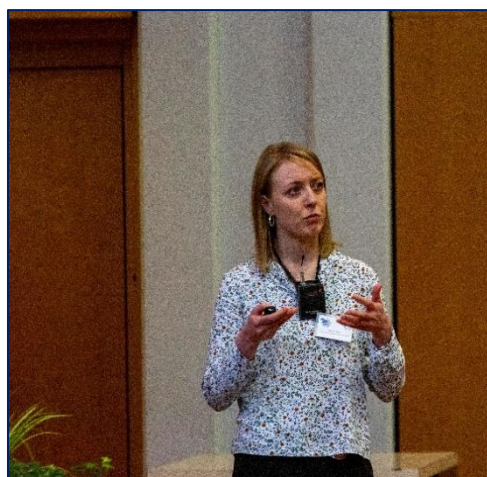
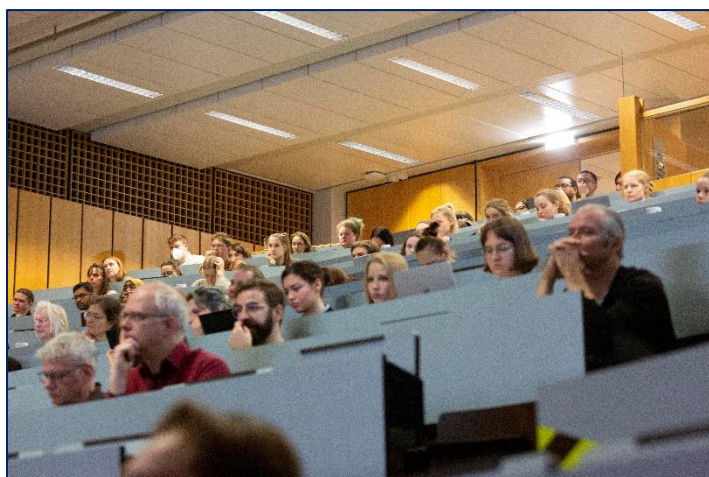
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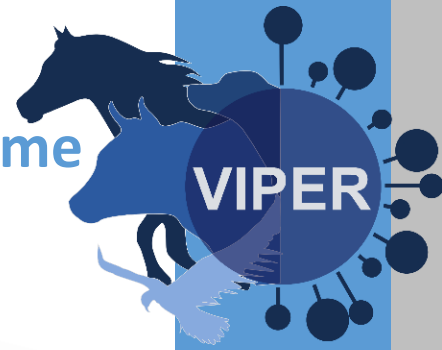
Tuesday, 11.02.2025

SESSION 3 (MODERATION: RIMMELZWAAN)

09:00 – 09:40	Martin Groschup	Preparing for Zoonotic Tick-Borne Crimean-Congo Hemorrhagic Fever Virus Infections in our Warming World
09:40 – 10:20	Mathilde Richard	Antigenic evolution of H5 viruses and subtype-wide H5 vaccine development
10:20 – 10:40	Coffee Break + Poster Walk	
10:40 – 10:55	VIPER Student Michelle Jagst	Propagation of hepatitis E virus in human neuronal cells as infection model system for extrahepatic manifestations
10:55 – 11:35	Thijs Kuiken	Rapid changes in the epidemiology of highly pathogenic avian influenza in European wildlife: implications for surveillance and research
11:35 – 12:15	Paul Wichgers Schreur	How single-molecule microscopy led to a next-generation bunyavirus vaccine
12:15 – 12:30	Closing remarks (Prof. Beineke)	



Farewell to our second cohort and welcome of our third cohort of PhD students



GRK 2485



Welcome

On 31 March 2025, the VIPER journey of the second cohort of students officially came to an end. To honour this occasion, we organised a joint farewell and welcome party for our VIPER students.

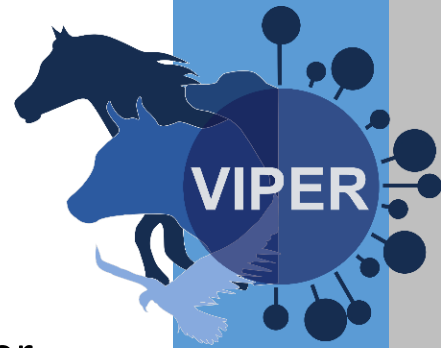
Goodbye

As a farewell gift, the second cohort received some cool VIPER socks. The new cohort started off with a bag and a mug featuring the VIPER design as well as office supplies to begin their new journey.

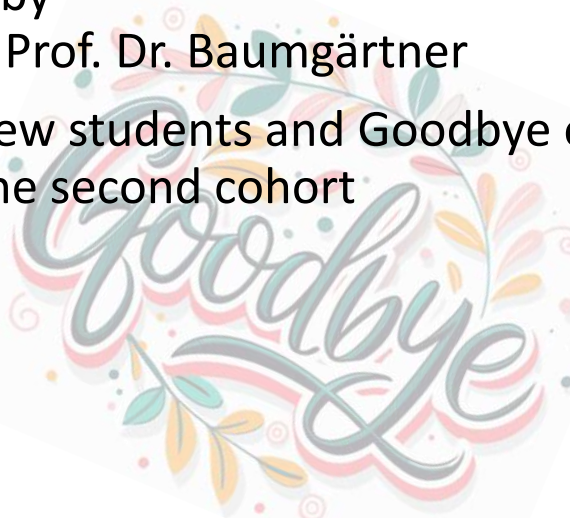


Schedule of Kick-off/Farewell

- 9:30 Welcome address by the TiHo president
Prof. Dr. Osterrieder
- 9:40 Introduction of VIPER by the VIPER speaker
Prof. Dr. Beineke
- 10:10 Introduction of the HGNI by
Prof. Dr. Rautenschlein
- 10:30 Keynote lectures by
Prof. Dr. Volz and Prof. Dr. Baumgärtner
- 11:15 Introduction of new students and Goodbye of
the students of the second cohort
- 11:30 Get-together



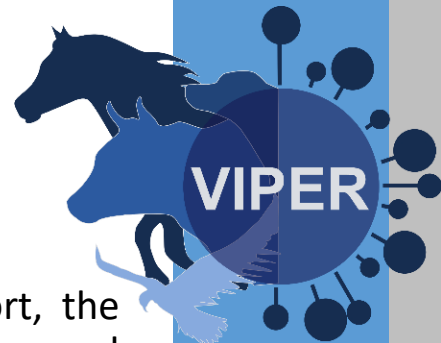
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En-block schools (third cohort)

Freshman class (06.-10.10.2025)

The first one-week en-block school for the new third cohort, the VIPER freshman class, took place on October 6th to 10th. It covered various aspects of the basics of pathology—including gross pathology and histology, as well as the basics of virology, bioinformatics and ethics. As part of the practical component, the ticks collected that afternoon were examined afterward (see schedule).



GRK 2485

Monday	Tuesday	Wednesday	Thursday	Friday
9:30 – 9:45 Welcome 9:45 - 11:00 Paul Becher “Virus evolution”	9:00-11:00 Peter Kunzmann “Ethics in Science”	9:00-10:15 Prajeeth Chittappen Kandiyl “Adaptive immunity: T cells”	9:00-9:45 Wolfgang Baumgärtner “Introduction into pathology”	9:30-11:00 Bernd Schierwater “Interdisciplinary Science: From the Urmetazoan to space research and cancer genetics”
11:15 - 12:30 Asisa Volz “Strong and Early Immune Activation Reduces Mpox Severity: Insights into Poxvirus Pathogenesis”	11:30-13:00 Max Josef Kellner “Accessing the Inaccessible: Using Organoids to Model Host–Virus Interactions at the Animal–Human Interface”	10:30-11:00 Max Hassenstein “Research Data Management—why bother?”	09:45-10:45 Necropsy Tour	12:30-13:30 Rik de Swart “Multi-species well-differentiated airway epithelial cells as models for respiratory virus infections”
14:00-16:00 Martin Ludlow “Case reports, Sequence analyses, Cloning exercises”	14:00 - 16:00 Klaus Jung “Bioinformatics, Data analytics and Data Science”	14:00 - 16:00 Stefanie Becker “Field trip: Flagging for ticks, Microscopy/ Classifying “male”, “female”, “nymphs”, Insectarium”	11:00-12:5 Wolfgang Baumgärtner “Virus discovery, associated clinical and gross findings and pathogenesis”	13:30-13:45 Andreas Beineke Closing remarks
			14:00-14:45 Andreas Beineke “Preparation of slides and staining procedure/ Lecture basics in histology” 14:45-15:30 Lab tour	

Invited speakers of the VIPER freshman class:

Peter Kunzmann (Institute for Animal Hygiene, Animal Welfare and Farm Animal Behaviour, TiHo)

Max Josef Kellner (Helmholtz Centre for Infection Research, Braunschweig)

Prajeeth Chittappen Kandiyl (AG Rimmelzwaan, RIZ, TiHo)

Max Hassenstein (Officer for Research Data Management, TiHo)

Bernd Schierwater (Institute for Animal Ecology, TiHo)

Rik de Swart (Wageningen Bioveterinary Research)

Sophomore class (09.-12.02.2026)

The second one-week en-block school for the third cohort, the VIPER sophomore class, took place on February 9th to 12th. They learned about neuropathology, biodiversity, parasitology, animal husbandry and mathematical modeling. In addition, 2 of our former students from the first VIPER cohort were among the speakers. Some of the afternoons were filled with hands-on courses (see schedule).



GRK 2485

Monday	Tuesday	Wednesday	Thursday
9:30 – 9:45 Welcome 9:45 - 10:30 Andreas Beineke “Pathology of viral disease of the central nervous system in domestic animals”	9:00-11:00 Stefanie Becker “Inside insects: intruders, immunity and ill behaviour”	9:00-10:00 Henrieke Meyer-Sievers “Animal Husbandry and Handling, Cage Systems, Hygiene Protocols”	9:00-11:00 Terence Carleton Jones Kelly “Computational approaches to virology: why you can and should learn to code”
10:40 - 11:40 André Gömer “Integrating Bioinformatics and Molecular Virology to Understand Emerging Viral Variants”			11:20-12:30 Nele Gremmel “Understanding Hepatitis E Virus: clinical relevance, experimental models, and viral-host interactions”
11:45-12:45 Rui Marques Da Costa “Host cell factors control whether pestiviruses depend on micro-RNAs for replication”	Group A/B: 13:00 - 16:00 Stefanie Becker “Insect Injections, Brain Preparations, Insectarium” Group B/A: 14:00-15:30 Arne Jung “Sample collection and storage”		14:00-16:00 Lilja Fromme/ Lotte Striewe “Sustainable management of wildlife in a changing environment: a contribution to biodiversity”
14:00-17:00 Martin Ludlow “Gain of Function and Biosecurity in Virology”			16:00-16:15 Andreas Beineke Final discussion and closing remarks

Invited speakers of the VIPER sophomore class:

André Gömer (Department of Molecular & Medical Virology, Ruhr University Bochum) VIPER student of the first cohort

Rui Marques Da Costa (Department of Molecular & Medical Virology, Ruhr University Bochum)

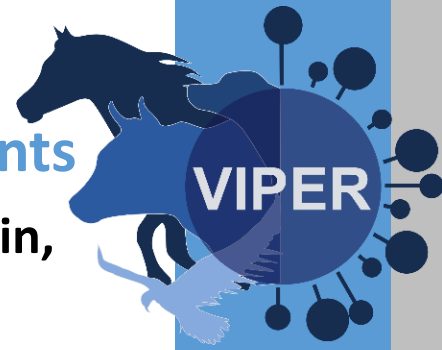
Henrieke Meyer-Sievers (RIZ, TiHo)

Terence Carleton Jones Kelly (Institute of Virology - Computational virology, ancient viruses, virus evolution, virus discovery, virus ecology, computational virus diagnostics, Charité, Berlin)

Nele Gremmel (Institute of Virology, TiHo) VIPER student of the first cohort

Lilja Fromme and Lotte Striewe (Institute of Terrestrial and Aquatic Wildlife Research (ITAW), TiHo)

Travel and course reports of VIPER students



GRK 2485

Metagenomics, AI and scientific exchange in Berlin, Germany - Exploring the future of metagenomic diagnostics at the DiaMETA-net workshop

(Hannah Gerhards and Inga Nägler)

On November 25, Inga Nägler and I had the opportunity to participate in the DiaMETA-net Workshop at the Robert Koch Institute in Berlin. DiaMETA-net is the German Network for Metagenomic Diagnostics in Infectious Diseases, bringing together researchers, clinicians and bioinformaticians. This year's workshop focused on the highly relevant topic of “Artificial Intelligence for Metagenomic Diagnostics.” As metagenomics forms an important part of our PhD research, the workshop provided valuable insights into current developments and future perspectives in the field. One of the highlights was the lecture by Prof. Dr. Manja Marz from Friedrich Schiller University, Jena. Her research focuses on developing machine learning approaches for genome analysis and

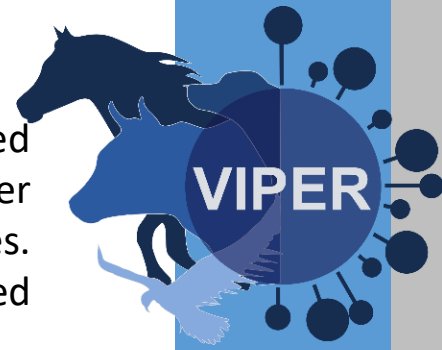
interpretation. These methods enable the automated classification of sequencing fragments into different organisms, the identification of previously unknown viruses and the reconstruction of complete genomes from complex datasets. She is also actively involved in



developing bioinformatic analysis pipelines and creating large, high-quality biological datasets that can be effectively utilized for artificial intelligence applications.

Beyond the main workshop topic, the discussions among participants were equally engaging. A recurring theme was the integration of next-generation sequencing (NGS) into routine clinical diagnostics. Researchers from different institutes shared their experience from sequencing human samples, for example in patients with non-suppurative encephalitis or suspected septicemic bacterial infections.

In some cases, results could even be obtained faster compared to conventional diagnostic methods, potentially enabling earlier treatment decisions leading to improved patient outcomes. Another important talking point were challenges that still need to be addressed before widespread clinical implementation.



GRK 2485



Standardization and comparability remain major challenges in interpreting NGS results. To address these issues, metagenomic proficiency testing schemes were discussed by various participants to improve quality assurance and harmonization across laboratories. In addition to the scientific exchange, it was a pleasure to reconnect with colleagues from previous DiaMETA-net meetings. We also took the opportunity to explore the Brandenburg Gate and the Reichstag Building. Overall, the workshop provided interesting insights into how artificial intelligence is shaping the future of metagenomic diagnostics and highlighted the growing potential of these technologies for clinical applications.

Visit to the laboratory of the Veterinary Science Department, AG Immunology, LMU Munich, Germany (Julia-Martha Hubrig)

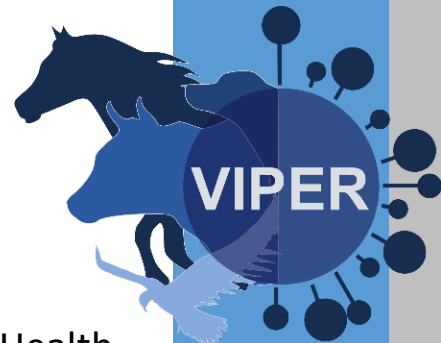
From November 3 to 7, 2025, I visited Sonja Härtels working group in Planegg-Martinsried.

I was warmly welcomed and gained a lot of knowledge there. For instance, I learned how to use magnetic-activated cell sorting successfully and improved my flow cytometry skills. These two methods are essential to the success of my research project therefore I am very grateful that VIPER provided funding for my travel and accommodation for this laboratory placement.

International One Health Symposium in Berlin, Germany

(Hannah Leah Morito)

From 13-15 October 2025, I attended the International One Health Symposium, which took place in Berlin, Germany. I presented my poster entitled, “Molecular characterization of novel mastadenovirus in harbor and grey seals” at the International One Health Symposium, which is an annual conference on the One Health approach.



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The key themes explored in this symposium were, but not limited to, pandemic preparedness, environmental health, climate change, vectors, health interventions, and antimicrobial resistance. I got to meet new people and be up to speed about what new in their respective fields. I also enjoyed being able to hear feedback and answer questions about my poster and the rest of what we do in my working group.

35th Annual Meeting of the Society for Virology in Heidelberg, Germany

(Maria Darido)

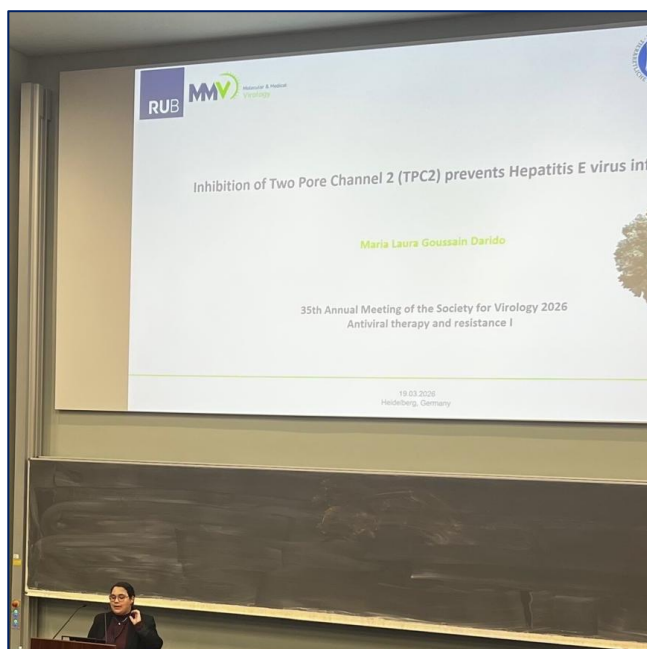
From 17–20 March 2026, I attended the 35th Annual Meeting of the Society of Virology, which took place in Heidelberg, Germany, and was organized by the German Society for Virology (GfV). With more than 900 participants, the conference brought together researchers from different areas of virology and provided an excellent opportunity to learn about the latest developments in the field.

The scientific programme offered a variety of inspiring talks from leading experts, including Nobel Prize laureate Professor Charles Rice, as well as presentations from young scientists. The sessions covered a wide range of topics, from basic virology research to clinical applications and emerging technologies. These included antiviral therapies, virus

evolution, zoonotic diseases and epidemic threats, virus–host interactions, viral replication, immunity, and many other important areas of virology.

A highlight for me was the opportunity to present my PhD project, “Inhibition of Two-Pore Channel 2 (TPC2) Prevents Hepatitis E Virus Infection,” as an oral presentation. Presenting my work to such a diverse audience was both exciting and rewarding. It gave me the chance to discuss my research with other scientists, receive valuable feedback, and exchange ideas with researchers working on related topics.

Beyond the scientific sessions, the conference offered a very welcoming atmosphere for networking. Whether during coffee breaks, poster sessions, or the social evening, there were many opportunities to meet both early-career and senior researchers and build connections within the virology community.



GRK 2485

35th Annual Meeting of the Society for Virology in Heidelberg, Germany

(Henrik Fritsch)

In March, I had the opportunity to attend the Annual Meeting of the German Society for Virology (GfV) in Heidelberg. As my first scientific conference, it provided an excellent introduction to the broader virology community and valuable opportunities for scientific exchange and networking.

At the conference, I showcased my project, “Innate Immune Defense at the Feto-Maternal Interface of the Bovine Placenta,” during a poster session. Our research team's collaborative project was also chosen for an oral presentation. The event offered valuable insights into ongoing virology research, facilitated by engaging discussions, new hypotheses, and remarkable experimental methods.

One particularly interesting observation was that, despite its importance for both human and veterinary health, the mechanisms underlying vertical viral transmission remain underrepresented in current research. This made the exchange with fellow PhD students working on virus–placenta interactions especially rewarding, as we discussed shared challenges, methodological approaches, and emerging concepts in the field.

As a first-time conference attendee, I especially appreciated the chance to meet leading figures in virology whose work I had previously encountered only in publications. Another highlight was learning about recent clinical advances in HIV therapeutics and hearing reflections on Charles Rice's groundbreaking contributions to hepatitis C virus research. These presentations resonated strongly with the scientific legacy of the conference host, Ralf Bartenschlager, whose work has been instrumental in advancing our understanding of hepatitis C virus biology.

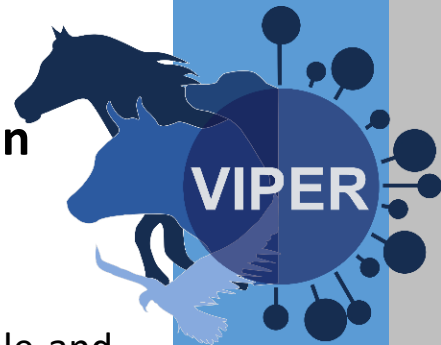
Beyond the scientific program, Heidelberg itself provided a memorable backdrop for the meeting. With cherry blossoms, flowering daffodils, and mild temperatures, the city already offered a glimpse of spring. Overall, attending the GfV Annual Meeting was an inspiring experience that delivered valuable scientific input, new perspectives, and opportunities to connect with researchers across virology.



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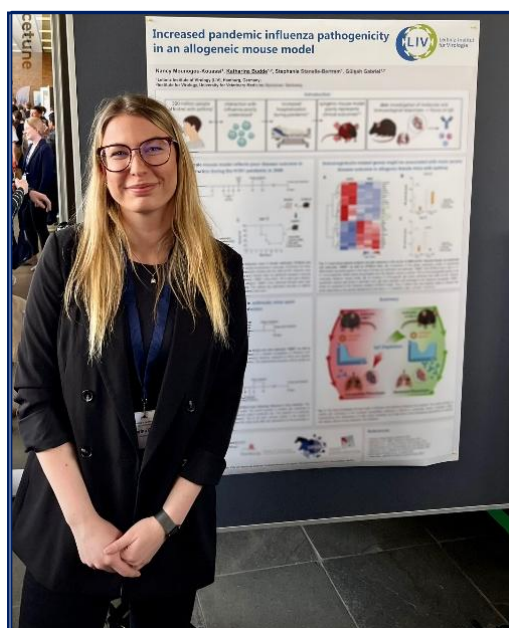
35th Annual Meeting of the Society for Virology in Heidelberg, Germany

(Katharina Budde)



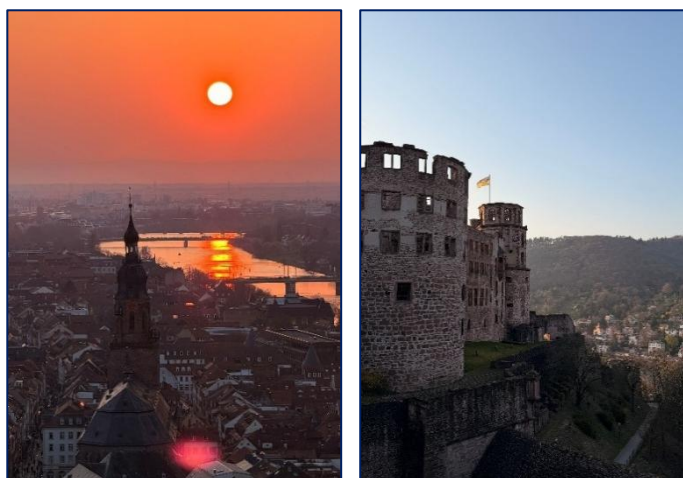
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This year's GFV conference in Heidelberg was a very enjoyable and inspiring experience. The scientific program was highly interesting, and it was a great opportunity to exchange ideas with other researchers from different fields. These discussions provided valuable insights and new perspectives that may help me incorporate new aspects into my own doctoral research.



Katharina Budde with her poster „Increased pandemic influenza pathogenicity in an allogeneic mouse model“

During the conference, I also had the opportunity to present a poster on my PhD project. This was a very rewarding experience, as it allowed me to discuss my work with other scientists, receive feedback, and gain new inspiration for future research directions.



The social evening was another highlight of the conference. It brought participants closer together through networking and created a relaxed atmosphere to meet many new people. These personal exchanges made the conference even more valuable and memorable.

Heidelberg itself was also a beautiful host city. During one free afternoon, there was time to explore the city. In particular, the castle was very impressive and offered a wonderful view over Heidelberg.

Overall, the GFV conference in Heidelberg was a great event, combining interesting scientific exchange, valuable networking opportunities, and many pleasant encounters.

The social evening was great fun, bringing everyone together for an evening of music, food, and conversation in a relaxed setting. It was a wonderful opportunity to get to know people outside the lecture halls and strengthen the connections formed during the conference.

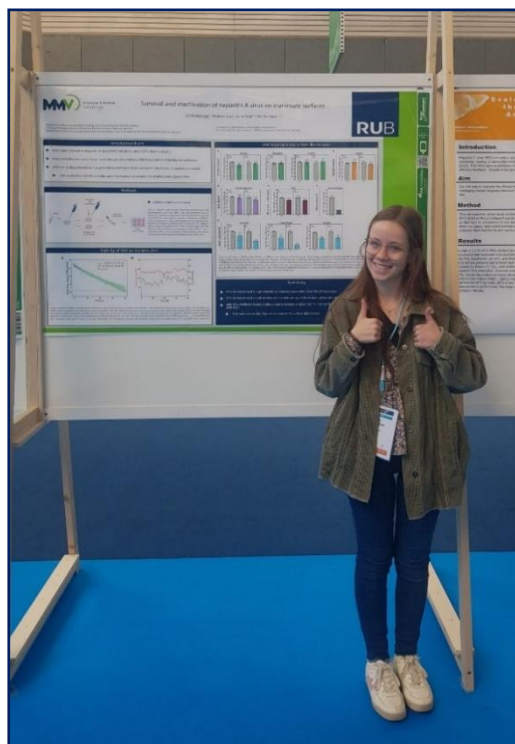
Overall, attending the conference was a great experience. I returned home with new ideas, valuable scientific insights, and an expanded professional network. It was also a pleasure to spend a few days in the beautiful city of Heidelberg. I am very grateful for the opportunity to have participated in this conference.

EASL Conference in Amsterdam, Netherlands

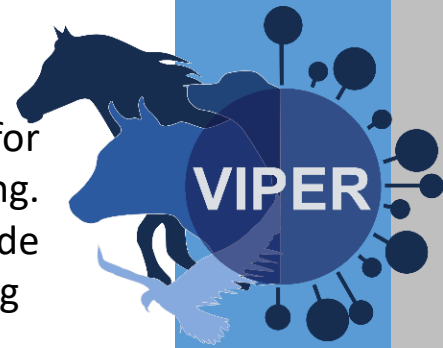
(Lilli Pottkämper)

From May 7th to May 10th 2025, the annual meeting of the European Association for the Study of the Liver, the EASL Congress, took place at the RAI in Amsterdam, Netherlands. It is Europe's largest event dedicated to all aspects of liver health, bringing together doctors, scientists, allied health professionals, patients, and industry partners. The conference covered a broad spectrum of topics, ranging from alcoholic liver disease and liver carcinoma to viral hepatitis.

I had the opportunity to present my research on the stability and resistance of the hepatitis A virus against surface disinfections in the form of a poster during the Saturday poster session. In addition to the insightful talks and poster presentations, the event featured numerous informational booths from companies showcasing the latest technologies in diagnostics and treatment approaches. And - a personal highlight-, the stand offering freshly made 'stroopwafels'. All in all, it was a great experience, especially since it was my first time attending an international conference.



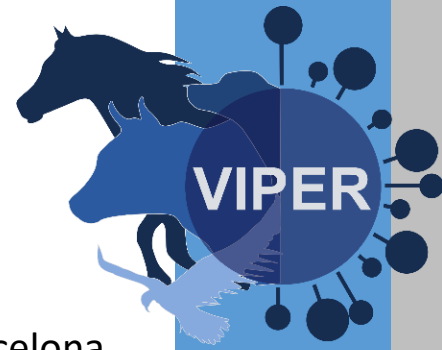
Lilli Pottkämper with her poster „Survival and inactivation of hepatitis A virus on inanimate surfaces“



GRK 2485

Viruses 2026 – New Horizons in Virology, in Barcelona, Spain

(Emely Richter and Lilli Pottkämper)

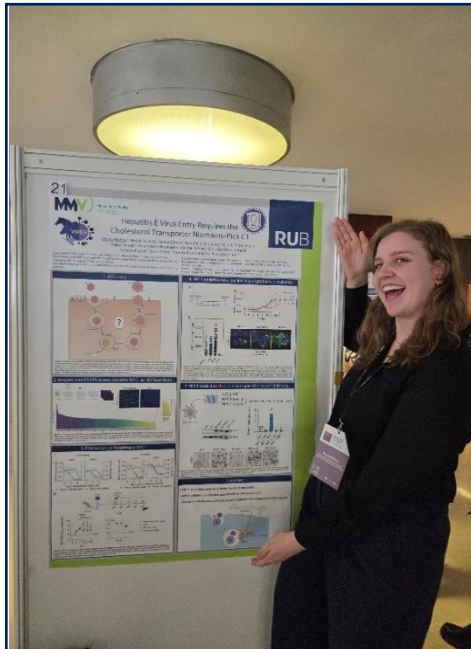


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In March 2026, the ‘Viruses’ conference brought us to Barcelona. Sponsored by MDPI and the journal ‘Viruses,’ the event covered all

the latest developments in virology. One of the highlights was the keynote speech by David Ho from Columbia University, who gave a fascinating talk on ‘purging the HIV reservoir.’ In addition to the keynote speech, there were many other compelling presentations by invited speakers and rising researchers.

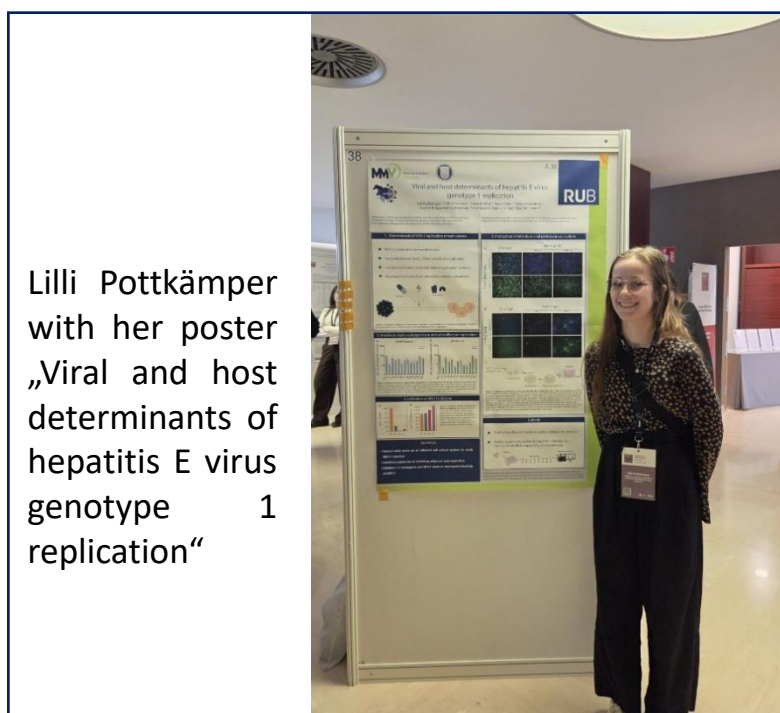
We both had the chance to present our PhD projects during the poster session, which was a great way to connect with other researchers and get feedback on our work. Another highlight was the poster flash talks, where especially young scientists had the opportunity to showcase their work to a wide audience in just a few minutes.



Emely Richter with her poster „Hepatitis E virus entry requires the cholesterol transporter Niemann-Pick C1“

On Thursday evening, we joined the conference dinner, where we enjoyed traditional Spanish tapas and connected with the other attendees.

Overall, it was a fantastic opportunity to share the progress we’ve made in our PhD research and network with fellow researchers from different labs.



Lilli Pottkämper with her poster „Viral and host determinants of hepatitis E virus genotype 1 replication“

69th Annual meeting of the DVG-group of veterinary pathology and 31st Slide seminar in Fulda, Germany

(Petra Bührle, Charlotte Kinder, Nils Eckmann)

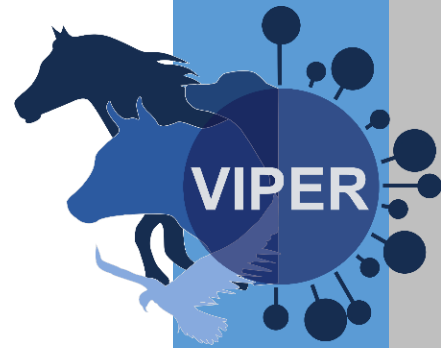
This spring (13.03. – 15.03.2026) three VIPER students of the third cohort, Charlotte Kinder, Nils Eckmann and Petra Bührle attended the annual slide seminar and meeting of the German Society of Veterinary Medicine (“Deutsche Veterinärmedizinische Gesellschaft”, DVG), section pathology (“Fachgruppe Pathologie”) in Fulda, Hessen, Germany.

Every year in March veterinary pathologists mostly from Germany, Switzerland and Austria as well as from other European countries come together for discussions on research as well as training in veterinary pathology and community. This year’s histological slide seminar focused on avian pathology and was led by the bird expert Dr. Helene Pendl. On Friday afternoon and Saturday morning participants reviewed and discussed over 30 different cases, including various viral infections such as Usutu, West-Nile, high-pathogenic avian influenza, borna-virus, poxvirus, circovirus and many more.

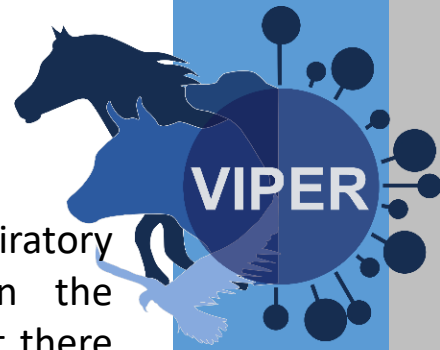
On Saturday afternoon there was a poster session at which all three VIPER students presented a poster either on a pathological case report or on their research for the PhD.

On her poster with the title “Ein gefährlicher Mix – Metastasierendes ovarielles Teratokarzinom bei einer jungen Hündin” Charlotte Kinder presented the macroscopic, histologic and immunohistochemical findings in the ovary of a 2-year-old Barsoi bitch with a rare malignant ovarian germ cell tumor.

Nils Eckmann and Petra Bührle presented a poster on their respective research projects on SARS-CoV-2 infection using the Syrian golden hamster as an established model for coronaviruses. The title of Nils Eckmanns poster was “Diversität und neuronale Innervation neuroendokriner Zellen im oberen Respirationstrakt des Hamsters (*Mesocricetus auratus*)” and the title of Petra Bührles poster “Zelltyp-spezifische Regulation des Komplementsystems in der Lunge des syrischen Goldhamsters nach einer experimentellen Infektion mit SARS-CoV-2“.



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The research presented by Nils Eckmann examined the diversity of neuroendocrine cells in the upper respiratory tract. These cells represent a small population within the respiratory epithelium, and they also form bud-like structures in the mucocutaneous region of the larynx. The study suggests that there are location-dependent differences in marker detection. These findings serve, among other things, as a basis for further research, such as investigating the influence on, and response of these cells to SARS-CoV-2 infection.

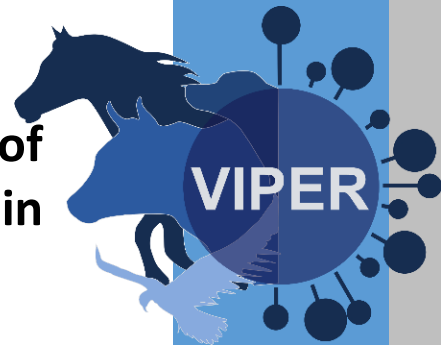
The research focus of Petra Bührle is the innate immune system with emphasis on the complement system after an infection with SARS-CoV-2 in the Syrian golden hamster on the transcriptional level. The effectors of the complement system are not only produced in the liver, but also locally in various organ systems and the cascade is also known to play an important role in the pathogenesis, severity and outcome of an infection with SARS-CoV-2 in humans via hyperactivation and dysregulation and is thereby an interesting target for research.

A workshop for immunohistochemistry and presentations on various subjects, including viral infections in wildlife animals and birds as well as forensic pathology completed the congress on Saturday evening and Sunday morning.

All VIPER students want to thank the DFG for their financial funding and support during this congress!

From the stage of 2025 American College of Veterinary Pathologist Annual Meeting Program in New Orleans, USA

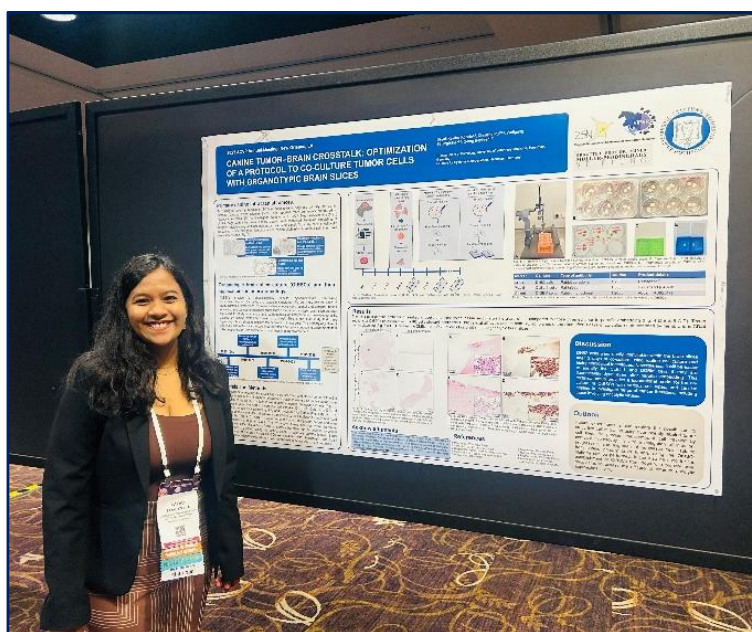
(Sayali Kohale)



GRK 2485

In October 2025, I, Sayali Kalidas Kohale made the trip to New Orleans for 2025 ACVP Annual Meeting Program, one of the biggest events in the veterinary pathologist's calendar. Aspiring pathology students from our department dream of taking part in this conference and presenting their ongoing research in pathology. I presented a poster titled "Canine tumor–brain crosstalk: Optimization of a protocol to co-culture tumor cells with brain slices", and it served as an excellent platform to get feedback from veterinary pathologists and scientists on my research topic.

On October 25th, various workshops for different avenues of veterinary pathology (Primate pathology, Clinical pathology, Pathology Informatics, and Forensic Pathology) were arranged for pathology residents. I attended the Davis-Thompson Foundation Workshop:



Sayali Kalidas Kohale with her poster „Canine tumor–brain crosstalk: Optimization of a protocol to co-culture tumor cells with brain slices“

Tumors of the Nervous System, presented by ACVP diplomates from universities of

veterinary medicine in the USA. Interesting case studies and their diagnostic approaches towards different nervous tumors were discussed.

The attendees could choose from sessions running in parallel in different seminar halls. The 60 min sessions were categorised into three main topics related to anatomic pathology, clinical pathology, and industrial and toxicologic pathology. One of the highlights of the meeting was the Neuropathology Mystery Slide Session.

A panel of expert veterinary neuropathologists was chosen to solve mysterious neuropathology cases in animals and exotic species. The veterinary pathology community also discussed about the transformation of the field by Artificial intelligence (AI). Currently, AI presents significant challenges for its integration in veterinary pathology due to dataset bias, high evaluation, and complexities in human-computer interaction. These subtopics were rigorously debated to promote safe and efficient workflow to enhance the diagnostic accuracy.



New Orleans is a city with an interesting history that intertwines with its French, African, and Creole culture. The timing of the conference overlapped with the city's Halloween parties and street parades. Jazz music is the city's lifeblood on every street in the French Quarter. Beneath the festive surface, New Orleans carries a deep, soulful history that can be experienced from ghost tours and many occult stories related to it, which are mesmerising.

Lab visit in Prof. Reimar Johne's lab in Berlin, Germany

(Lilli Pottkämper)

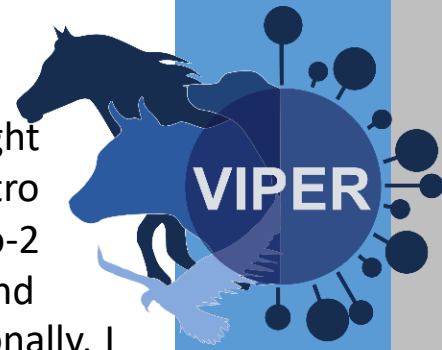
From April 7th to April 11th 2025, I had the opportunity to visit the lab of Prof. Reimar Johne at the Federal Institute of Risk Assessment (BfR) in Berlin. This visit was beneficial for my PhD project, which focuses on the replication of hepatitis E virus genotype 1 (HEV-1).

Prof. Johne leads the "Viruses in Food Products" research group, which investigates viruses associated with food-borne transmission, including HEV. Recently, Prof. Johne and Dr. Alexander Falkenhagen published a study on an efficient cell culture model for HEV-1, demonstrating the successful transfection and infection of Caco-2 cells—a colon-cancer cell line. To learn this technique, I travelled to their lab.



There, Alexander Falkenhagen taught me how to generate in vitro transcripts of HEV-1, transfect Caco-2 cells with these HEV-1 transcript, and infect the cells with HEV-1. Additionally, I gained insights into other projects within the group, such as the study of rat hepatitis E virus.

This lab visit was valuable, as it allowed me to acquire essential techniques for my studies on HEV-1 replication and virus-host interactions. I look forward to applying what I've learned to my PhD research.



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10x Genomics Visium Cytassist Spatial Gene Expression platform at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany

(Mario Romero)

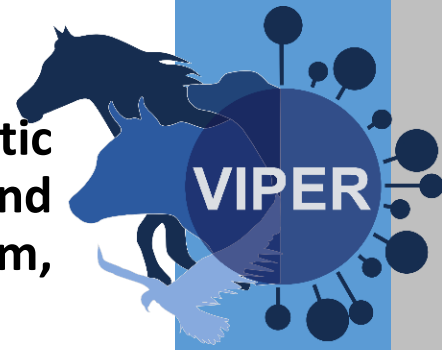
I attended an interactive training course on the 10x Genomics Visium Cytassist Spatial Gene Expression platform at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. The course introduced spatial transcriptomics and focused on analyzing gene expression in tissue sections while preserving morphological context. It combined lectures and hands-on laboratory work, covering the full workflow from fresh-frozen tissue preparation and cryosectioning to fixation, staining (H&E and immunofluorescence), library preparation, and sequencing. We also received practical training in data analysis using the Loupe Browser. Additional topics included different sample types such as FFPE and the requirements for brightfield and fluorescence microscopy imaging. As a VIPER student, this training strengthened my understanding of spatial transcriptomics methods and their potential applications in my research.



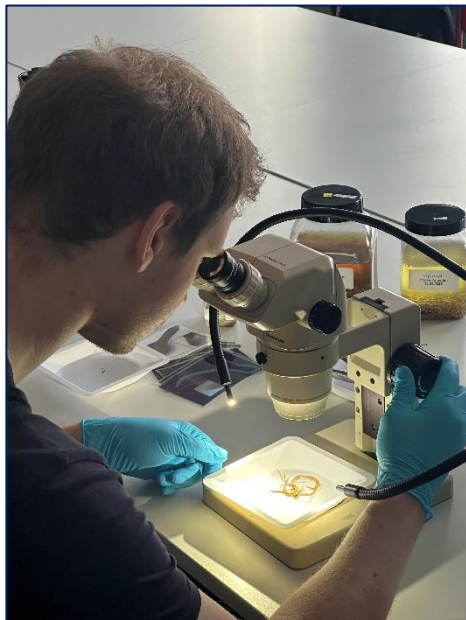
Elective course “Health and Ecology of Aquatic Apex Predators” at the Institute for Terrestrial and Aquatic Wildlife Research (ITAW) in Büsum, Germany

(Mario Romero)

From 1–5 September 2025, I attended the elective course “Health and Ecology of Aquatic Apex Predators” at the Institute for Terrestrial and Aquatic Wildlife Research (ITAW) in Büsum, Germany. The course covered topics related to marine mammal biology, health, ecology, and conservation, including disease monitoring, parasites, diet analysis, population surveys, and human impacts on marine wildlife. A practical highlight was participating in necropsies of aquatic wild animals, which provided insight into methods used to assess animal health and causes of death. The course also included sessions on telemetry and bioacoustics. As a VIPER student, this course broadened my knowledge of marine wildlife research and exposed me to a range of methods used in conservation and health monitoring.



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Elective course “Health and Ecology of Aquatic Apex Predators” at the Institute for Terrestrial and Aquatic Wildlife Research (ITAW) in Büsum, Germany

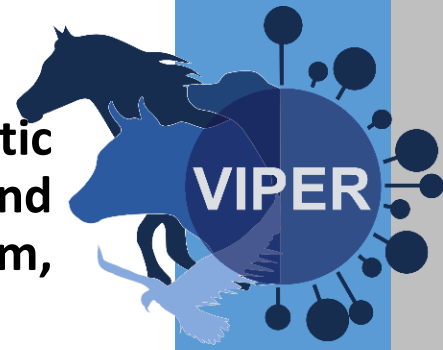
(Hannah Leah Morito)

For this weeklong course, I got a closer look at the research done by TiHo's Institut für Terrestrische und Aquatische Wildtierforschung (ITAW). I was with Mario and Florian and we stayed in the quaint little town at the edge of the German North Sea coast.

During that time, we learned about how research on the health and ecology of top aquatic predators were conducted. The topics we learned ranged from nutritional studies in marine mammals, impact of marine debris and underwater noise generated by human activities on marine mammals, wildlife conflict management, and even monitoring infectious agents in amphibian populations.



The highlight of this course for me is the post-mortem examination of a seal pup and porpoise calf. I work with things that are invisible to the naked eye, so as macabre as it may sound, this exercise gave me a newfound lens of what experts investigate when trying to figure out what happened to these animals.



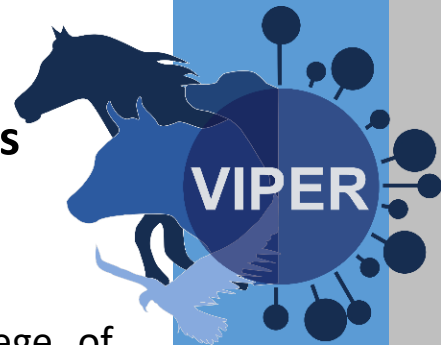
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European College of Veterinary Pathologists (ECVP) Meeting in Turin, Italy

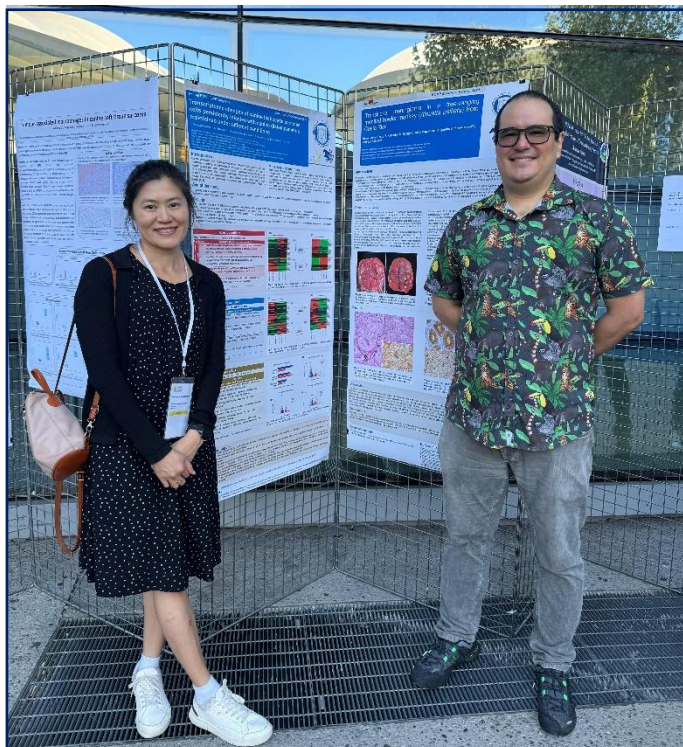
(Mario Romero)

From 27–30 August 2025, I attended the European College of Veterinary Pathologists (ECVP) Meeting in Turin, Italy. The meeting

was a valuable opportunity to learn about current topics in veterinary pathology and to connect with pathologists from different institutions. I participated in the Resident Day, which provided useful information about career paths in pathology and the process of obtaining ECVP board certification. I also presented a poster titled “Transitional Meningioma in a Mantled Howler Monkey”. Presenting this work allowed me to discuss the advantages and limitations of immunohistochemical (IHC) classification of tumors with other researchers and specialists in the field.



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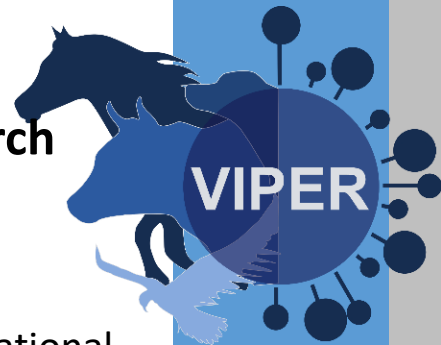


Thanaporn Asawapattanakul with her poster „Transcriptomic changes of canine histiocytic sarcoma cells persistently infected with canine distemper virus maintained under different conditions“ and Mario Romero with his Poster „Transitional meningioma in a free-ranging mantles howler monkey (*Alouatta palliata*) from Costa Rica“.



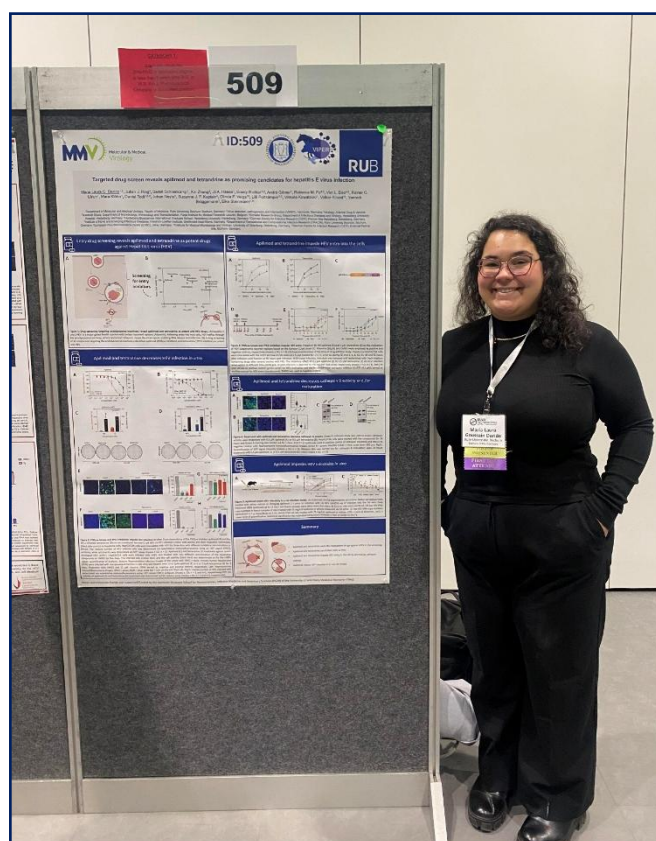
39th International Conference on Antiviral Research (ICAR) in Prague, Czech Republic

(Maria Darido)



GRK 2485

From 27 April to 1 May 2026, I attended the 39th International Conference on Antiviral Research (ICAR), which took place in Prague, Czech Republic, and was organized by the International Society for Antiviral Research (ISAR). The conference brought together researchers from around the world and provided an excellent opportunity to learn about the latest advances in antiviral research.

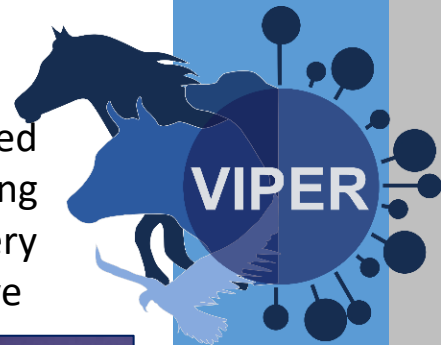


Maria Darido with her poster „Targeted Drug Screens Reveal Apilimod and Tetrandrine as Promising Candidates Against Hepatitis E Virus Infection. “

The scientific program featured a wide range of presentations covering topics from medicinal chemistry to the development of antiviral therapies against various groups of viruses, including arboviruses, respiratory viruses, enteric viruses and hepatotropic viruses, as well as chronic and latent viral infections. The talks were conducted by leading experts in the field, and the poster sessions offered an excellent opportunity to interact with early-career researchers and gain insight into their work.

One of the highlights of the conference for me was participating in the PechaKucha competition, a

creative and entertaining event that encouraged researchers to present their science in an engaging way. Out of approximately 40 applicants, only nine participants were selected to take part. Each presenter had five minutes and 15 automatically advancing slides to tell the story of their research. I chose a Sherlock Holmes theme and presented my project as “*The Curious Case of Hepatitis E Virus.*” It was a fun experience that challenged me to communicate my work in a different way, and I was very happy to be awarded third place in the competition and to have so much good feedback.



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I also had the opportunity to present a poster entitled “Targeted Drug Screens Reveal Apilimod and Tetrandrine as Promising Candidates Against Hepatitis E Virus Infection.” It was very rewarding to discuss the project with other researchers, receive valuable feedback and see the interest generated by the work. Beyond the scientific program, the conference offered a welcoming and friendly atmosphere. It was a pleasure to meet scientists from different countries, exchange ideas, and expand my professional network. The conference dinner was another excellent



opportunity to continue conversations and connect with colleagues in a more informal setting. Overall, attending ICAR 2026 was a

fantastic experience. In addition to gaining new scientific insights and ideas for future research, I had the chance to explore the beautiful city of Prague. I am very grateful for the opportunity to participate in this conference and look forward to attending again in the future.



Recent activities – social interactions

All good things come in threes – neon mini golf again - VIPER Christmas party 2025

After having so much fun playing neon mini golf with the students of the first two cohorts, we decided to let the games begin again. After the yearly VIPER process evaluation,



we met in the inner city of Hannover to have a nice pre christmas evening. We were divided into different teams and played in the varying theme game areas. We had a great time and get to know each other better.



Happy Hour - VIPER @ the TiHo summer party

As part of their second year project some of the viper students decided to host a booth at our yearly TiHo summer party or run an instagram account. At the summerparty the students participated with 2 different booths. At the first booth they were giving a lot of information about VIPER, their work, their PhD thesis and the visitors could test their knowledge about various aspects of virology. The VIPER merch collection was extended and the participants could win the new VIPER t-shirts, magnets, highlighters or bags.





At the second booth people had the chance to choose between 3 different VIPER inspired drinks – the VIPER venom (green), antivenom (blue) and mastermix (orange). The fancy colours encouraged many people to give it a try. Both booths were a great success.



Another part of the students decided to start a VIPER instagram account as their second year project. The students give regular updates on their PhD projects, as well as their participation in various conferences and visits to external laboratories.



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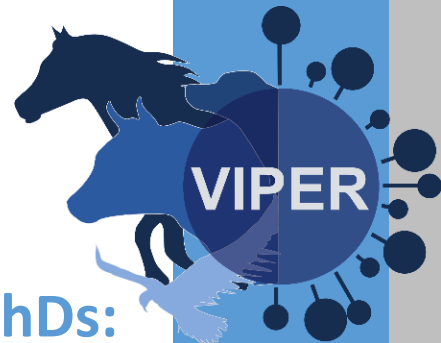
VIPER TiHo

11 Beiträge 73 Follower 70 Gefolgt

Bildung
Training group on Virus detection, Pathogenesis and Intervention



Achievements:



Congratulation to our new VIPER PhDs:

Since the publication of the last VIPER newsletter, a further 26 students finished and defended their thesis successfully.

GRK 2485

We wish you success and good luck for your future career.

- **Alexandra Herbst:**

“Distribution, Expression Pattern and the Impact of Low Pathogenic Avian Influenza A Virus on the Regulation of Cellular Importin- α Isoforms in Chickens, Turkeys and Ducks”

- **Miaomiao Yan:**

“Investigations into porcine rotavirus cell entry and infection of porcine intestinal epithelial cells”

- **David Zöller:**

“Early antiviral responses against Batai Virus, Bunyamwera Virus, and their reassortants”

- **Pauline Pöpperl:**

“Characterization of alveolar macrophages in canine distemper : early mechanisms of immune evasion and viral attenuation”

- **Cara Leonie Ebert:**

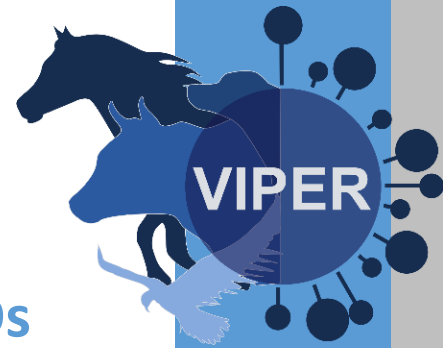
“Discovery and Characterization of Alongshan virus in Ticks and Comparative Transcriptomic Analysis of the Tick Immune Response to Arboviruses”

- **Felix Schweitzer:**

“Understanding the Neuropathogenesis of Tick-borne Encephalitis Virus – in vitro Model Studies on Neuroinvasion & Neuroinflammation”



Achievements:



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Congratulation to our new VIPER PhDs (continued):

■ **Monica Mirolo:**

“Detection and characterization of viruses in free range and captive wildlife: ‘Finding the unexpected’”

■ **Tom Schreiner:**

“Morphologic examination of upper respiratory tract epithelium with special consideration of olfactory epithelium after SARS-CoV-2 infection”

■ **Laura Nolte:**

“Long-term consequences of respiratory SARSCoV- 2 infection in the Syrian golden hamster model with a particular focus on the pulmonary neuroendocrine system”

■ **Ayşe Agac:**

“Host restriction factors in respiratory syncytial virus infection”

■ **Sophie Madeleine Kolbe:**

“Development and optimization of in vitro and in vivo models of RSV infection: Impact of strain variation”

■ **Niranjana Nair**

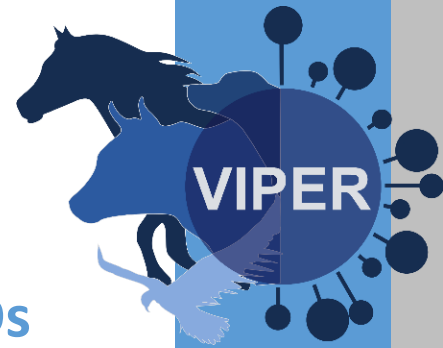
“Rift Valley Fever Virus in human PBMC – Characterisation of innate immune response and determining its role in virus dissemination”

■ **Michelle Jagst**

“Dynamics of Antiviral Resistance and Neuronal Infection in Hepatitis E Virus”



Achievements:



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■ Congratulation to our new VIPER PhDs (continued):

■ **Lars Söder:**

“Prevalence and characterization of Phocoena pestivirus (PhoPeV)”

■ **Sonja Ohrnberger:**

“Modified vaccinia virus Ankara (MVA) as promising vaccine platform against emerging viral threats”

■ **Malte Pitters:**

“Establishment of bovine nasal epithelial cell cultures and infection with Bovine Viral Diarrhea Virus and Bovine Herpesvirus 1”

■ **Lea Blank:**

“Host Chaperones and Glycosylation as Determinants of Orthoflavivirus Replication: Mechanistic Insights and Therapeutic Interference”

■ **Bianca Kühl:**

“Investigation of potential viral etiology and associated pathogenesis in disease syndromes of unknown cause in wildlife and marine mammals”

■ **Lena Busker:**

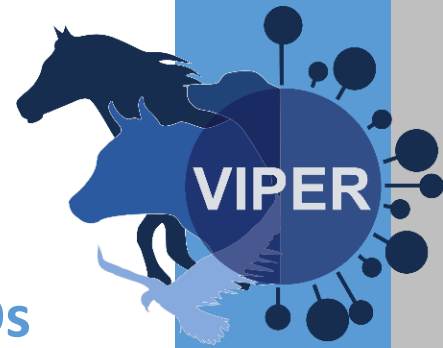
“The role of lung myeloid cells in virus dissemination and immunity”

■ **Aparna Shandheep:**

“mRNA-based in vivo expression of monoclonal antibodies”



Achievements:



GRK 2485

■ Congratulation to our new VIPER PhDs (continued):

■ **Alina Friedrichs:**

“Dynamic interplay between tick-borne orthoflaviviruses and type I interferon signaling: Implications for pathogenicity and neurotropism”

■ **Sarah Schlienkamp:**

“Role of host factors during zoonotic hepatitis E virus infection”

■ **Muhammad Kamran Ameen:**

“Immunomodulatory role of the inhibitory C-type lectin receptor CLEC12A on innate immunity during acute neurotropic virus infection”

■ **Malgorzata Rosiak:**

“SARS-CoV-2 infection associated nervous system lesions in K18-hACE2 mice”

■ **Thanaporn Asawapattanakul:**

“Effect of different stressors on canine tumor cell metabolism with special emphasis on nervous system neoplasms”

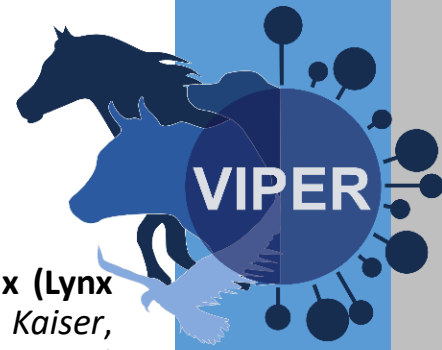
■ **Bassel Aboukhadra**

“Investigations of virulence factors and host-pathogen-interaction of newly emerging low-pathogenic avian Influenza viruses in chickens”

Recent VIPER publications

Contributing VIPER students highlighted in *italics*

- **Fatal feline leukemia virus-associated enteritis in a Eurasian lynx (*Lynx lynx*) in Germany.** K. M. Gregor, *M. Mirolo*, F. Brandes, S. T. Jesse, F. Kaiser, J. Verspohl, S. Wölfl, A. D.M.E. Osterhaus, W. Baumgärtner, M. Ludlow and A. Beineke. *Biology* (2024) <https://www.mdpi.com/2079-7737/13/12/997>
- **Umatilla Virus in Zoo-Dwelling Cape Penguins with Hepatitis, Germany.** *M. Mirolo*, *M. de le Roi*, K. von Dörnberg, F. Kaiser, A. Fayyad, C. Puff, U. Voigt, U. Siebert, M. Ludlow, W. Baumgärtner, and A. Osterhaus. *Emerging Infectious Diseases* (2024) https://wwwnc.cdc.gov/eid/article/30/12/24-0498_article
- **Respiratory syncytial virus glycoprotein G impedes CX₃CR1-activation by CX₃CL1 and monocyte function.** R. Meineke, A. Agac, M.-C. Knittler, M. Ludlow, A. D. M. E. Osterhaus & G. F. Rimmelzwaan. *npj Viruses* (2024) <https://www.nature.com/articles/s44298-024-00075-9#Abs1>
- **Propionic acid promotes neurite recovery in damaged multiple sclerosis neurons.** B. Gisevius, A. Duscha, G. Poschmann, K. Stühler, J. Motte, A. L. Fisse, S. Augustyniak, A. Rehm, P. Renk, C. Böse, D. Hubert, K. Peters, *M. Jagst*, A. Gömer, D. Todt, V. Bader, M. Tokic, S. Hirschberg, C. Krogias, N. Trampe, C. Coutourier, C. Winnesberg, E. Steinmann, K. Winklhofer, R. Gold, A. Hagikia. *Brain Communications* (2024) <https://academic.oup.com/braincomms/article/6/3/fcae182/7686562>
- **Dynamic evolution of the sofosbuvir-associated variant A1343V in HEV-infected patients under concomitant sofosbuvir-ribavirin treatment.** A. Gömer, K. Dinkelborg, M. Klöhn, *M. Jagst*, *M. H. Wißing*, N. Frericks, P. Nörenberg, P. Behrendt, M. Cornberg, H. Wedemeyer, E. Steinmann, B. Maasoumy, D. Todt. *JHEP Reports* (2024) <https://www.sciencedirect.com/science/article/pii/S2589555923003208?via%3Dihub>
- **Neuroinvasion and neurotropism of severe acute respiratory syndrome coronavirus 2 infection.** *M. Jagst*, L. Pottkämper, A. Gömer, K. Pitarokoili, E. Steinmann. *Current Opinion in Microbiology* (2024) <https://www.sciencedirect.com/science/article/pii/S136952742400050X?via%3Dihub#sec0030>
- **Orchestration of antiviral responses within the infected central nervous system.** A. Pavlou, F. Mulenge, O. L. Gern, L. M. Busker, E. Greimel, I. Walth, U. Kalinke. *Cellular & Molecular Immunology* (2024) <https://pmc.ncbi.nlm.nih.gov/articles/PMC11364666/#ack1>
- **West Nile and Usutu viruses are efficiently inactivated in platelet concentrates by UVC light using the THERAFLEX UV-Platelets system.** U. Gravemann, M. Boelke, L. Könenkamp, L. Söder, M. Maurer, U. Ziegler, T. J. Schulze, A. Seltsam, S. C. Becker, I. Steffen. *Vox Sanguinis* (2024) <https://onlinelibrary.wiley.com/doi/10.1111/vox.13648>

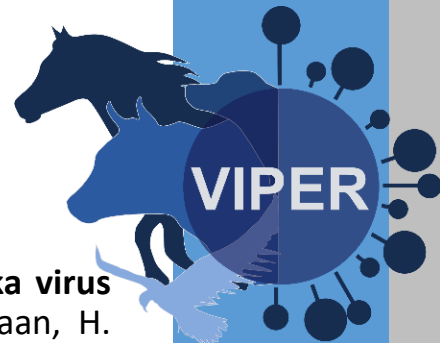


GRK 2485

Recent VIPER publications (continued)

Contributing VIPER students highlighted in *italics*

- **The Raf kinase inhibitors Dabrafenib and Regorafenib impair Zika virus replication via distinct mechanisms.** *L. Wilken*, G. F. Rimmelzwaan, H. Elbahesh. Journal of Virology (2024) <https://journals.asm.org/doi/10.1128/jvi.00618-24>
- **Innate Immune Response Against Batai Virus, Bunyamwera Virus, and Their Reassortants.** *D. D. J. A. Zöller*, J. Säurich, J. Metzger, K. Jung, B. Lepenies and S. C. Becker. viruses (2024) <https://www.mdpi.com/1999-4915/16/12/1833>
- **A human monoclonal antibody neutralizing SARS-CoV-2 Omicron variants containing the L452R mutation.** S. C. Stein, G. Hansen, G. Ssebyatika, L. J. Ströh, O. Ochulor, E. Herold, B. Schwarzloh, D. Mutschall, J. Zischke, A. K. Cordes, T. Schneider, I. Hinrichs, R. Blasczyk, H. Kleine-Weber, M. Hoffmann, F. Klein, *F. K. Kaiser*, M. Gonzalez-Hernandez, F. Armando, M. Ciurkiewicz, *G. Beythien*, S. Pöhlmann, W. Baumgärtner, A. Osterhaus, T. F. Schulz, T. Krey. Journal of Virology (2024) <https://journals.asm.org/doi/10.1128/jvi.01223-24>
- **Single MVA-SARS-2-ST/N Vaccination Rapidly Protects K18-hACE2 Mice against a Lethal SARS-CoV-2 Challenge Infection.** S. Clever, L. Limpinsel, C. Meyer zu Natrup, L.-M. Schünemann, *G. Beythien*, M. Rosiak, K. Hülskötter, K. M. Gregor, T. Tuchel, G. Kalodimou, A. Freudenstein, S. Kumar, W. Baumgärtner, G. Sutter, A. Tscherne and A. Volz. Viruses (2024) <https://www.mdpi.com/1999-4915/16/3/417>
- **Syrian hamsters (*Mesocricetus auratus*) as an upper respiratory tract model for respiratory syncytial virus infection.** *S. M. Kolbe*, K. Guilfoyle, W. Reineking, G. van Amerongen, G. van der Net, *S. Lockow*, W. Baumgärtner, M. Ludlow & A.D.M.E Osterhaus. npj Viruses (2025) <https://www.nature.com/articles/s44298-024-00086-6>
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- **Development of a duplex fluorescent *in situ* hybridization (FISH) technique to detect and localize Redspotted Grouper Nervous Necrosis Virus sense and antisense genomic RNA1 and its application to the tissues of aquatic vertebrates and invertebrates.** F. Errani, E. Volpe, *M. de le Roi*, C. Puff, L. Mandrioli, V. A. Baldassarro, W. Baumgärtner, S. Ciulli. Aquaculture (2025) <https://www.sciencedirect.com/science/article/pii/S0044848625001358>

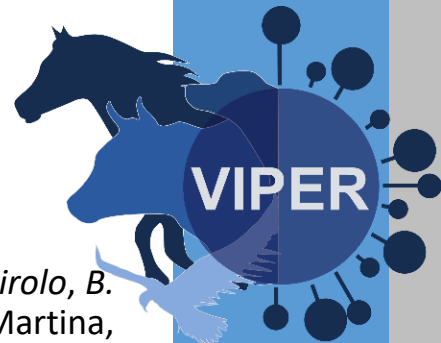


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Recent VIPER publications (continued)

Contributing VIPER students highlighted in *italics*

- **Hepatovirus infections in juvenile seals from the North Sea.** *M. Mirolo, B. Köhl, M. Daniel Roji*, A. Rubio-García, V. Andrade Lima, C. Puff, B. Martina, A. Beineke, P. Wohlsein, W. Baumgärtner, M. Ludlow & A. Osterhaus. npj Viruses (2025) <https://www.nature.com/articles/s44298-024-00084-8>
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- **Evaluating the potential of anti-dsRNA antibodies as an alternative viral sensing tool in encephalitides of different species.** *M. de le Roi*, H. Gerhards, A. Fayyad, M. Boelke, S. C. Becker, A. Volz, I. Gerhauser, W. Baumgärtner & C. Puff. Frontiers in Veterinary Science (2025) <https://www.frontiersin.org/journals/veterinary-science/articles/10.3389/fvets.2025.1540437/full>
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- **Spatiotemporal Characterization of Changes in the Respiratory Tract and the Nervous System, Including the Eyes in SARS-CoV-2-Infected K18-hACE2 Mice.** *M. Rosiak*, *T. Schreiner*, *G. Beythien*, E. Leitzen, A. Ulianytska, L. Allnoch, K. Becker, L. M. Michaely, S. Lockow, S. Clever, C. Meyer zu Natrup, A. Volz, W. Baumgärtner, M. Ciurkiewicz, K. Hülskötter and K. M. Gregor. Viruses (2025) <https://www.mdpi.com/1999-4915/17/7/963>
- **Mosquito- and tick-borne orthoflaviviruses cross an *in vitro* endothelial-astrocyte barrier.** *F. Schweitzer*, L.-J. Schröder, *A. Friedrichs*, V. Gudi, T. Skripuletz, I. Steffen, M. Palus, D. Růžek, A. Osterhaus, C. Kandiyil Prajeeth. Frontiers in Cellular and Infection Microbiology (2025) <https://www.frontiersin.org/journals/cellular-and-infection-microbiology/articles/10.3389/fcimb.2025.1624636/full>

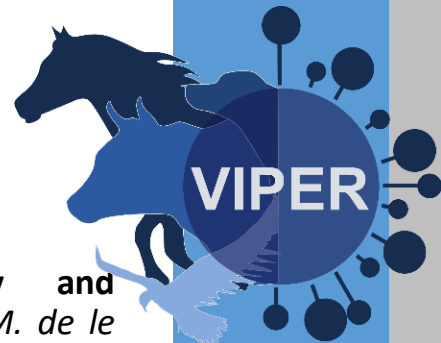


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Recent VIPER publications (continued)

Contributing VIPER students highlighted in *italics*

- **Retrospective analysis of clustered neuroinflammatory and neurodegenerative diseases in captive lions in the early 1970s.** *M. de le Roï, I. Nägler, D. Rubbenstroth, M. Beer, D. Höper, S. A. Barth, A. Fayyad, C. Puff, W. Baumgärtner, and P. Wohlsein.* Veterinary Pathology (2025) <https://journals.sagepub.com/doi/10.1177/03009858251335280>
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- **A critical residue in a conserved RBD epitope determines neutralization breadth of pan-sarbecovirus antibodies with recurring YYDRxxG motifs.** *S. C. Stein, G. Ssebyatika, T. Benecke, L. Ströh, M. K. Rajak, B. Vollmer, S. Menz, J.-Y. Waldmann, S. N. Tipp, O. Ochulor, E. Herold, B. Schwarzloh, D. Mutschall, J. Zischke, T. Schneider, I. Hinrichs, R. Blasczyk, H. Kleine-Weber, M. Hoffmann, F. Klein, F. K. Kaiser, M. Gonzalez-Hernandez, F. Armando, M. Ciurkiewicz, G. Beythien, S. Pöhlmann, W. Baumgärtner, K. Gruenewald, A. Osterhaus, T. F. Schulz, T. Krey, G. Hansen.* mBio (2025) <https://journals.asm.org/doi/epub/10.1128/mbio.00606-25>
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- **Efficient replication of avian, porcine and human influenza A viruses in well-differentiated bovine airway epithelial cells.** *A. Su, M. Yan, G. Herrler, P. Becher.* Emerging Microbes & Infections (2025) <https://www.tandfonline.com/doi/full/10.1080/22221751.2025.2572697>
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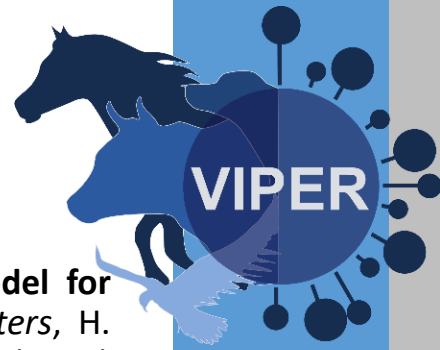


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Recent VIPER publications (continued)

Contributing VIPER students highlighted in *italics*

- **Application of Bovine Nasal Epithelial Cells as an In Vitro Model for Studying Viral Infection in the Upper Respiratory Tract.** *M. Pitters, H. Fritsch, A. Su, K. Jung and P. Becher.* Viruses (2025) <https://www.mdpi.com/1999-4915/17/9/1188>
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- **Strong immunogenicity and protection against SARS-CoV-2 in hamsters induced by heterologous boost vaccination with an MVA-based COVID-19 vaccine candidate.** *S. Ohrnberger, C. Meyer zu Natrup, S. Clever, L.-M. Schünemann, F. Armando, M. Ciurkiewicz, W. Baumgärtner, G. Kalodimou, G. Sutter, A. Tscherne and A. Volz.* Journal of General Virology (2025) <https://www.microbiologyresearch.org/content/journal/jgv/10.1099/jgv.0.002180>
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- **Immunohistochemical demonstration of phocine herpesvirus-1 antigen in harbour seals (*Phoca vitulina*) of the North Sea.** *B. Kühl, M. Mirolo, V. A. Lima, A. Rubio-Garcia, M. Ludlow, A. D.M.E. Osterhaus, W. Baumgärtner, A. Beineke, P. Wohlsein.* Journal of Comparative Pathology (2026) <https://www.sciencedirect.com/science/article/pii/S0021997526000058>
- **STAT1 signaling controls cholesterol metabolism in epithelial cells and RSV-induced syncytia formation.** *A. Agac, M. Ludlow, M.-C. Knittler, A. D.M.E Osterhaus, G. F. Rimmelzwaan, R. Meineke.* npj Viruses (2026) <https://www.nature.com/articles/s44298-026-00173-w>



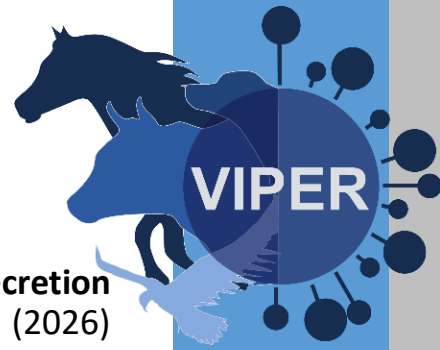
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Recent VIPER publications (continued)

Contributing VIPER students highlighted in *italics*

- **Divergent roles of Hsp70 chaperones in orthoflavivirus protein secretion and virion formation.** *L. Blank*, C. Lorenz, I. Steffen. npj Viruses (2026) <https://www.nature.com/articles/s44298-026-00175-8>
- **The soluble G protein of respiratory syncytial virus promotes viral dissemination via TLR2-mediated NLRP3 priming and pyroptosis.** R. Meineke, A. Agac, M.-C. Knittler, A. D.M.E Osterhaus, M. Ludlow, G. F. Rimmelzwaan. npj Viruses (2026) <https://pmc.ncbi.nlm.nih.gov/articles/PMC12847760/>



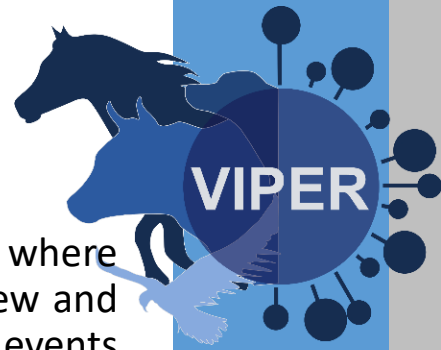
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Outlook and announcements



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It was a successful and eventful fifth and sixth year for VIPER where we said goodbye to the second cohort and welcomed the new and final third cohort of VIPER students. There are many great events coming up in the future.

Our new students have already completed their first year, so the Gender and Diversity Awareness Workshop is on the agenda in the near future. This will be followed by the upcoming network meetings. Our next en-block class, the junior class, is scheduled for early October 2026. We are looking forward to exciting presentations and informative hands-on courses. Additionally, we are delighted to plan a lecture with a popular TV veterinarian and conservationist in the near future.

All together, we are excited about all the upcoming network meetings, VIPER classes and individual training courses that we will continue to organize in the next two years.

For further information about VIPER, please visit our website:
www.rtg-viper.com

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