

## Summary, Update and News

After over a year of graduate adventure we are back with our second installment of the GRK2046 newsletter!

As you will see, we have settled into a good rhythm of activities.

The ongoing Berlin Parasitology Seminar series (BPS), organized by the graduate students and taking place across different Berlin locations, has continued to give attendees wide-ranging insights into the world of Parasitology.

The Role Model Series was held twice this year and remains one of the most anticipated seminars through its professional, yet relaxed atmosphere for scientific discussion.

Our thanks go to Alice Balard (Humboldt University) and Susanna Ferreira for taking the initiative to organise a two-day workshop on Evolutionary Biology. This event took place at the Leibniz Institute for Zoo and Wildlife Research (IZW) in Berlin and was well attended.

Finally, the Serengeti crew has returned from their research trip, so we expect many stories from them in the coming months.

On another note: Ankur Midha has taken over the organization of the BPS from Katja Balster. Please address him for any questions regarding the matter.

Our group is growing! We welcome our next associates: Vivian Schüler, Patrycja Schwiertz, Ivet Antoni Yordanova, Caroline Kiuru, Florence Awamu Ndonglack, Manuela Merling de Chapa, Hanna Prüter and very soon Alexander Gerhard.

*(Esra Yilmaz, Jonnel A. Jaurigue)*



## Student's Profiles



### Alexander Paul Gerhard

Studied in Germany and Hungary, studied Veterinary Medicine

PhD topic "*Mechanism of drug resistance to macrocyclic lactones in Parascaris spp.*"

Freie Universität Berlin, Institute of Parasitology and Tropical Veterinary Medicine

Supervisors: PD Dr. Jürgen Krücken, Prof. Dr. Georg von Samson-Himmelstjerna

Contact: [alexander.gerhard@fu-berlin.de](mailto:alexander.gerhard@fu-berlin.de), phone: +49 (0) 30 838-62743



### Caroline Wanjiku Kiuru

Studied in Kenya

Bachelors in General Science (specialization in Zoology)

Masters in Medical and Veterinary Entomology

PhD topic "*Characterization on natural Wolbachia infections in the malaria vector Anopheles gambiae*"

Max Planck Institute for Infection Biology

Supervisor: Dr. Elena Levashina

Contact: [kiuru@mpiib-berlin.mpg.de](mailto:kiuru@mpiib-berlin.mpg.de)



### Esra Yilmaz

Studied in Germany

Bachelors and Masters in Biology

PhD topic "*Metabolism of macrocyclic lactones and benzimidazoles in parasitic nematodes*"

Freie Universität Berlin, Institute for Parasitology and Tropical Veterinary Medicine

Supervisors: Prof. Dr. Janina Demeler, Dr. Jürgen Krücken

Contact: [Esra.Yilmaz@fu-berlin.de](mailto:Esra.Yilmaz@fu-berlin.de), phone: +49 (0)3083862314



## Florence Awamu Ndonglack

Studied in Cameroon

Bachelors and Masters in Biochemistry

PhD topic *"Role of Plasmodium falciparum derived microvesicles in malaria related anemia and as mediators of cell-cell communication"*

Max Planck Institute for Infection Biology, Parasitology department.

Supervisors: Prof. Dr. Kai Matuschewski, Dr. Faustin Kamena

Contact: [awamu@mpiib-berlin.mpg.de](mailto:awamu@mpiib-berlin.mpg.de), phone: +49 (0) 301758211361



## Francesca Torelli

Studied in Italy and France

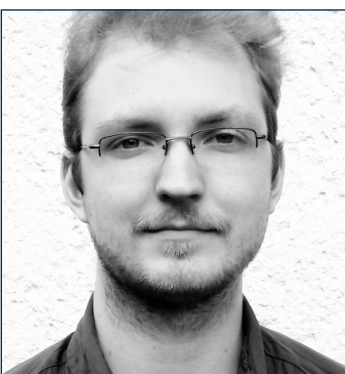
Bachelors in Biotechnology, Masters in Medical and Pharmaceutical Biotechnology

PhD topic *"Role of immunity-related GTPases (IRGs) of wild rodents for maintaining virulent T. gondii genotypes in nature"*

Robert Koch Institute, Unit 16 Mycotic and Parasitic Agents and Mycobacteria

Supervisors: Prof. Dr. Frank Seeber, Dr. Christian Klotz

Contact: [TorelliF@rki.de](mailto:TorelliF@rki.de), phone: +49 (0)30187542213



## Martin Kraft

Studied in Germany

Bachelors in Biology, Masters in Molecular Biology & Physiology

PhD topic *"Giardia duodenalis – Dendritic cell interaction and intestinal barrier function"*

Robert Koch Institute, Unit 16 Mycotic and Parasitic Agents and Mycobacteria

& Charité Berlin - Campus Benjamin Franklin, Institute of Clinical Physiology

Supervisors: Dr. Toni Aebischer, Prof. Dr. Jörg Dieter Schulzke

Contact: [KraftM@rki.de](mailto:KraftM@rki.de), phone: +49 (0)3018754 2213



## Oriana Kreutzfeld

Studied in Germany and UK

Bachelors in Biochemistry, Masters in Molecular Biology of Infectious Diseases

PhD topic *“Genetically arrested Plasmodium parasites: Signatures of lasting vaccine-induced protection”*

Max Planck Institute for Infection Biology, Department of Parasitology

Direct Supervisor: Dr. Katja Müller, Doctorate Supervisor: Prof. Dr. Kai Matuschewski

**Contact:** [kreutzfeld@mpiib-berlin.mpg.de](mailto:kreutzfeld@mpiib-berlin.mpg.de), phone: +49 (0)3028460327



## Suzana Zakovic

Studied in Serbia, Spain, Portugal and UK

Bachelors in Biology, Masters in Forensic Science

PhD topic *“Functional characterization of REL2 pathway in the malaria vector Anopheles gambiae”*

Max Planck Institute for Infection Biology, Department of Vector Biology

Direct Supervisor: Dr. Elena Levashina

Doctorate Supervisor: Dr. Arturo Zychlinsky

**Contact:** [zakovic@mpiib-berlin.mpg.de](mailto:zakovic@mpiib-berlin.mpg.de), phone: +49 (0)3028460234



## Vivian Schüler

Studied in Germany and the Netherlands

Bachelors in Biotechnology, Masters in Biochemistry and Molecular Biology

PhD topic *“Infections of honey bees and bumblebees with Nosema ceranae, a deadly emerging parasite of bees”*

Länderinstitut für Bienenkunde Hohen Neuendorf e.V.

Supervisor: Prof. Dr. Elke Genersch

**Contact:** [schuelev@hu-berlin.de](mailto:schuelev@hu-berlin.de), phone: +49 (0) 3303 - 29 38 30



## Serengeti Parasitology Training Course

### Tanzania, June-July 2016

**Among hyenas, zebras and baboons - “From Experimental Models to Natural Systems”, key words which were truly put into practice by eight students in a field-trip in the Serengeti National Park.**

The GRK2046 PhD students who attended had prepared field projects during their first year of doctoral studies. Samples were taken from a wide range of wild animals, e.g., hyenas, lions, zebras, baboons, elephants, giraffes and everybody’s favorites, the bush- and tree hyraxes. In addition, species which for most people are not on the “cute-list”, such as the potential malaria carrier the *Anopheles* mosquito and the infamous tse-tse fly, were caught.

In the national park, invasive research is not allowed. Faecal sample collection and other creative investigative approaches are essential. Dr. Marion East and Prof. Heribert Hofer at the Leibniz Institute for Zoo and Wildlife Research, IZW, in Berlin have plenty of experience in such working conditions and have developed protocols for the sampling of hyena faeces, which were applied in a number of student projects during the training course.

*(Totta Kasemo)*



*Participants of the Serengeti Trip (from left to right): Martin Kraft, Frank Seeber, Richard Lucius (back row), Susanne Hartmann, Svenja Steinfelder, Norus Ahmed, Ulrich Sternberg, Francesca Torelli, Totta Kasemo (middle row), Suzana Zakovic, Susana Ferreira, Oriana Kreutzfeld and Christina Bredtmann (front row). Photo: Ulrich Sternberg*



## Berlin Parasitology Seminar Series

**Jens Rolff** (Freie Universität Berlin)

*12 January*

To kick off the series for 2016, we were delighted to host Prof. Jens Rolff from the Institute of Biology at Freie Universität Berlin who discussed antimicrobial peptides and bacterial resistance evolution in the context of insect-microbial interactions and insect immunity. The talk was followed by a lively discussion period which carried on into the social gathering with food and drinks.

*jens.rolff@fu-berlin.de*

*(Ankur Midha)*

**Alexander Westermann** (University of Würzburg)

*9 February*

Dr. Westermann from the University of Würzburg came to Berlin to present his work developing dual RNA-seq methods on Salmonella infected host cells. He presented their finding of a bacterial small RNA, PinT, which was published in Nature Reviews Microbiology (2012) and in Nature (2016), and summarized some considerations for dual RNA-seq experiments.

Dr. Westermann is a helpful, young, and knowledgeable contact for students interested in performing RNA-seq or dual RNA-seq on pathogens and their hosts and is happy to share his presentation upon request.

*alexander.westermann@uni-wuerzburg.de*

*(Totta Kasemo)*



## **Andy Fenton** (University of Liverpool, UK)

*8 March*

Professor Andy Fenton from the Institute of Integrative Biology at the University of Liverpool talked about the challenges in investigating interactions between co-infecting parasites in natural populations, and the best approach to detect these interactions using appropriate statistical models. His approach regards an individual host as an ecosystem, in which various parasites interact with each other and with the host. After the seminar we gathered over snacks where all attendees had the opportunity to talk informally with our guest.

*A.Fenton@liverpool.ac.uk*

*(Susana Ferreira)*

## **Steven M. Singer** (Georgetown University, USA)

*12 April*

Steven Singer joined the BPS to teach us some “Lessons for mucosal immunity from animal models of giardiasis”. He talked about his many years of Giardia research and the problems he and his group faced when working with lab mice of the same genotype but held in different facilities, leading to variable results. Afterwards the audience had the chance to talk to our guest informally.

*sms3@georgetown.edu*

*(Martin Kraft)*

## **Christopher Hunter** (University of Pennsylvania, USA)

*7 June*

Prof. Christopher Hunter presented for us his work on „The Toxoplasma toolbox - visualizing and tracking the events that lead to T cell activation“. This was a very interesting talk as he demonstrated how to use certain techniques for specific questions.



As well as the usual pretzels and beer after the talk, there was a chance to speak to Prof. Christopher Hunter informally over dinner.

*chunter@vet.upenn.edu*

*(Norus Ahmed)*

## Role Model Seminar Series

**Laura Rinaldi** (University of Naples, Italy)

*17 May*

Prof. Dr. Laura Rinaldi from the Unit of Parasitology and Parasitic Diseases gave an interesting introduction about methods and tools in geospatial health, and its potential strengths and weaknesses. The lecture was followed by a career briefing session which turned out to be interesting for the students as well as for Laura as a professor. A spontaneous highlight was her offer to give us a workshop in the Flotac fecal flotation method, which was developed by her institute.

*laura.rinaldi@unina.it*

*(Christina Bredtmann)*

**Jonathan Howard** (Instituto Gulbenkian de Ciencia, Portugal)

*21 June*

We had the pleasure to host an exceptional guest in Prof. Jonathan Howard, director of the Gulbenkian Instituto de Ciencia in Lisbon. Prof. Howard is an expert in the field of host-pathogen interplay, and has since focused for several years on the parasite *Toxoplasma gondii* and its major intermediate host, the mouse. His question, „What do we mean by *Toxoplasma* virulence?“, is an exciting topic that highlights the importance of the animal model of choice in infection studies.





He showed how wild (non-laboratory) *Mus musculus* have polymorphic Immunity Related Genes, particularly *Irgb2b1*, that could explain the persistence of virulent *T. gondii* strains in nature. The talk was part of the ZIBI Summer School and afterwards Prof. Howard interacted with the students giving personal career advice. In my opinion, the most relevant advice was to follow what really arouses our curiosity without losing sight on the target.

*jhoward@igc.gulbenkian.pt*

*(Francesca Torelli)*

## Corporate Identity & Acknowledgements

When you are attending a conference, please keep in mind corporate identity. We don't enforce a corporate design, as you first have to make sure to follow the corporate rules of your institute. If there is none, we are happy to provide a template. Please make sure to include the GRK logo in your contribution. If you haven't saved a high-resolution file of the GRK logo yet, we are happy to provide the file once again. Also when publishing peer-reviewed articles, acknowledge funding (GRK 2046, where applicable other funding sources) and scientific/technical support. This is a crucial factor for the DFG evaluation related to the second funding period from 2019 until 2023.

*(Juliane Kofer)*

## To-Do List

**As requested by some students, we will provide a little To-Do list. This way you can check whether or not you are on the right track.**

**Have you already...**

... attended an introductory course introducing biostatistical analysis and experimental design?

... attended an introductory course on bioinformatics?

... taken a good scientific practice course?

... attended a time and self-management workshop?

... written your biannual progress report?

... scheduled your next tac meeting?

... planned your traveling for 2017?

*(Juliane Kofer)*



## Student Conferences 2016

### 27th Annual Meeting of the German Society for Parasitology

7-12 March, Georg-August-Universität Göttingen



From left: Ankur Midha, Martin Kraft, Suzana Zakovic, Jonnel A. Jaurigue, Esra Yilmaz, Christina Bredtmann, Laura Radtke, Norus Ahmed, Francesca Torelli, Nicole Affinass, Totta Kasemo

This conference brought together more than 260 participants from 24 different countries and provided insights ranging from basic parasite biology to developments in veterinary parasitology and control measures for parasitic diseases. The scientific program included a diverse array of research projects, 84 of which were presented within thematic workshops, while the rest were presented during two spirited poster sessions. 25 poster authors also had the unique chance to showcase their research findings in 2 minute 'turbo talks'.

(Ankur Midha)

### Symposium on Molecular Interactions in Malaria

April 11-12, 2016, Humboldt University Graduate School

This symposium strengthened the relationship and collaborations between malaria researchers in the two cities of Canberra and Berlin.

During the two day symposium a diverse range of researchers presented their work on Plasmodium, among them Kai Matuschewski and Alexander Maier who organized the symposium. Students working on malaria or closely related parasites were able to present and discuss their work during a poster session.

(Oriana Kreutzfeld)

## Introduction to Research and Development at Bayer Animal Health

*25th – 27th April 2016, Monheim*

Thanks to the efforts of Prof. Georg von Samson-Himmelstjerna, GRK2046 students were lucky enough to be offered a tailor-made workshop at Bayer Animal Health. The most fascinating lectures were those that gave an overview about Bayer's role as a private science institute, particularly about how Bayer's budget is divided up,

and about how the central vision of the company is handled. Case studies on the research and development of specific products were also fascinating. Informal, reflective discussions on how Bayer is perceived in society discussion and on the company's role in world health were also greatly enjoyed.

*(Jonnel A. Jaurigue)*



*From left: Nicole Affinass, Jonnel A. Jaurigue, Oriana Kreutzfeld, Norus Ahmed, Esra Yilmaz, Christina Bredtmann*

## Annual Conference of the German Veterinary Medical Society

*2-4 May, Berlin*

Organized by the Institute for Parasitology and Tropical Veterinary Medicine of Freie Universität Berlin, the Parasitology section of the German Veterinary Medical Society invited interested researchers to join this year's conference. Current research findings on both endo- and ectoparasites of veterinary importance were discussed. This society strongly encourages young researchers to participate in their conferences, and the names of PhD students are prominently displayed in the scientific program. A dinner in the Natural History Museum was the magnificent conclusion of the conference.

*(Esra Yilmaz)*

## 19th Meeting on T-Cells Subsets and Functions

*27-28 June, Marburg*

The conference was conceived to bring together experts on T-cell subsets and find new possible cooperation partners. This year's meeting covered the recent aspects of T-cell subsets, including Th1, Th2, Th17, CD8, NKT and regulatory T-cells. This year the keynote speaker was Axel Kallies (Melbourne, Australia). He talked about the transcriptional and metabolic control of T-cell differentiation and the alteration in metabolic pathways leading to T-cell exhaustion (hyporesponsive state of T-cells). As there are no poster sessions and PhD students or postdocs give most of the talks it is also a great opportunity to present one's work to a number of experts and getting constructive feedback. Currently, most of the people are from Germany but as the meeting is growing so will the international diversity.

*(Nicole Affinass)*

## Annual Symposium of the Canadian Society for Pharmaceutical Sciences

*May 31 - June 3, Vancouver*

At the River Rock Resort, the theme for this year's symposium was 'From Drug Discovery to Health Outcomes: Population to Patient' and brought together basic scientists, health policy advocates, industry representatives, and clinicians. With many essential stakeholders present, representing the multi-factorial nature of health systems and drug development, lively discussions ensued addressing the ever timely topic of the changing landscape of health care and therapeutic advancements. Progress in personalized and precision medicine, regulatory challenges, and population health were especially highlighted.

*(Ankur Midha)*



## RIKEN IMS Summer Program 2016

*10-17 June, Yokohama*

During a balmy week in Yokohama, Japan, young scientists from all over the world attended lecture courses that provided an opportunity to give oral and poster

presentations in immunology, medical biology and genomic medicine. Students were also expected to lead the question and answer sessions after every talk. The Summer program was capped off with the RIKEN IMS-JSI International Symposium on Immunology 2016 at the Pacifico conference centre. I will cherish this opportunity provided by the ZIBI graduate school to experience the beautiful Tokyo culture and network with future scientific peers.



*Attendees of RISP 2016*

*(Jonnel A. Jaurigue)*

## Fifth European Dirofilaria and Angiostrongylus Days

*11-13 July, Vienna*

This very specialized conference at Vetmeduni Vienna takes place every two years and brings together all true experts on *Dirofilaria* and *Angiostrongylus*. For students, it is an exceptional opportunity to get to know people such as Claudio Genchi (Milano, Italy) and Fernando Simon (Salamanca, Spain), two of the most renowned experts in



this field in a rather small but highly diverse circle. Fun fact: The Vetmeduni Vienna is the oldest veterinary campus in German-speaking Europe and the second oldest in the world!

*(Esra Yilmaz)*

## Special Issue

**„Frontiers“ will publish a Research Topic entitled: „Parasite Infections: From Experimental Models to Natural Systems“ - Introducing our Research Topic as a „Special Topic“ to the broad Scientific Community**

We are happy to announce that our Research Training Group 2046's research topic will be published in a special issue of "Frontiers in Cellular and Infection Microbiology"!

To find it online, [please click here.](#)

This is a fantastic opportunity for us to introduce our research to the broad scientific community. We are awaiting numerous contributions from the GRK2046-community accordingly.

**Abstract Submission Deadline: December 7th, 2016**

**Manuscript Submission Deadline: February 9th, 2017**

*(Susanne Hartmann)*

## Female Travel Awards to Susana Ferreira & Francesca Torelli

The female travel award supported my period of field research, from June to October 2016 at the Serengeti Wildlife Research Centre (SWRC), in Tanzania. My doctoral project focuses on the fitness consequences of parasite infections in spotted hyenas in the Serengeti National Park. Key components of my research are the collection of faecal samples plus behavioural, demographic and life history data from known individuals. During the field work I (1) collected biological samples and other data essential for the



*Susana Ferreira*

success of my project, 2) obtained a better understanding of the complex dynamics of the Serengeti ecosystem and how these modulate individual fitness, 3) assisted in the organization of the Serengeti Field Training Course, and 4) expanded my professional expertise to include research techniques in a natural system. Hence, this period of field work will substantially contribute to the success of my doctoral project.

*(Susana Ferreira)*



During my PhD I aim at unveiling the role of the immunity-related protein IRGb2b1 in various rodent species following *Toxoplasma gondii* infection. Prof. Jonathan Howard is a well-known expert in the field of immunity-related genes in non-model rodents and their interaction with *Toxoplasma* virulence factors. I applied and was granted the Female Travel Award to support my scientific research stay in his laboratory at the Instituto Gulbenkian de Ciencia in Lisbon. The stay was planned for autumn this year but is postponed to Winter 2016 - Spring 2017 due to the workload of the hosting group. During this research stay I will learn at expert level how to analyze the highly polymorphic sequences of interest. In particular, I will 1) gain the skills to analyze the transcriptomic data generated from IFN-gamma stimulated cell lines derived from various wild rodents, 2) learn how to interpret the expected high variability of the sequences and how it relates to functional modifications, and 3) expand my technical skills due to the advanced experience of the hosting group. Thus this stay will give me the expertise to successfully accomplish my PhD project.

*(Francesca Torelli)*

## Outlook and Announcements

### Retreat 2016

This year's retreat will take place at Hotel Döllnsee-Schorfheide on September 19/20, 2016. It is located in the North of Berlin in the middle of a biosphere reserve with beautiful surrounding nature to enjoy during the breaks and evenings.

If you have any questions, please contact Oriana Kreutzfeld, Laura Radtke and Norus Ahmed who are organizing the retreat.

*(Esra Yilmaz)*

### Edinburgh Workshop

The Edinburgh Workshop aims to establish an enduring fruitful cooperation with the University of Edinburgh and associated research facilities. An organization committee has already been set up involving Dr. Toni Aebischer, Nicole Affinass and Francesca Torelli. More detailed information on this unique opportunity will follow soon.

*(Esra Yilmaz)*