

CURRICULUM VITAE

Bei Zhao, PhD



General Information

Name: Bei Zhao
Date of birth: March 5th, 1992
Address: 8 Rue des acacias, 68220, Hésingue, France
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Nationality: Chinese
Mobile: +49-17668719497
Languages: English: Fluent in writing and speaking
German: Basic
Mandarin, mother tongue

Academic and Research Positions

2022.02 – 2023.09 Postdoc position in Universitätsklinikum Erlangen, Department of Microbiome Research
Supervisor: Prof. Dr. Stephan Rosshart
Research focus: Comprehensive omics analysis of sepsis pathophysiology with mouse harboring wild microbiota

2023.10 – presence Postdoc position in Universitätsklinikum Freiburg, Department of Center for Chronic Immunodeficiency (CCI)
Supervisor: Prof. Dr. Bodo Grimbacher
Research focus: Unraveling the pathophysiology of CVID with mice harboring naturalized microbiota

Education

2017.09 - 2022.02 Obtained **PhD in Immunology**, Helmholtz center for infection research (HZI), Braunschweig, Germany.
Supervisor: Prof. Dr. Till Strowig
Research focus: Dissecting the immunomodulatory effects of tissue attached microbes on host fitness during homeostasis or infection induced inflammation

2014.09 - 2017.07 Obtained **M.S. in Biochemistry and Molecular Biology**, Institute of Microbiology, University of Chinese Academy of Sciences, Beijing, China.
Master thesis: Adaptation to H₂O₂ selected FurA-dependent and -independent mechanisms for mycobacterial persistence in mice

2010.09 - 2014.07 Obtained **B.S. in Bioengineering**, Jilin University, Changchun, Jilin province, China.

Management Experience

Supervision: I supervised 1 bachelor student (1 month) and 2 master students (3-4 months) during their internship. I mentored 1 master student to complete her master thesis (6 months)

in total). As a Postdoc I supervised two medical students for their medical thesis (12 months).

Collaboration: I was involved in 7 collaborations with external research groups in Germany (HZI, Universitätsklinikum Freiburg, MHH, UKE, Uni Kiel) and Sweden, leading to 5 publications and 2 manuscripts. I also enjoyed teamwork with my colleagues and supporting each other to complete our research projects.

Technical Experience

Molecular biology:

- Extensive experience designing and conducting flow cytometry (Canto, Fortessa, Cytotflex), spectral analyser, ELISA, qPCR, western blot experiments
- Ability to perform Multiplex-based measurement of cytokines and immunoglobulin isotypes with LEGENDplex and MSD kits

In vivo mouse model:

- More than 8 years hands-on experience of mouse experiments
- More than 7 years working experience with gnotobiotic mouse models
- Intranasal, intraperitoneal, intravenous infection
- Mouse microbiota modification via fecal transplantation or cohousing
- Mouse organ collection and lymphocytes isolation and identification

In vitro system:

- Cultivation of mouse or human cell lines and primary cells
- Human PBMC isolation and stimulation
- Cell proliferation or apoptosis evaluation before and after bacterial infection

Next generation sequencing (NGS):

- Hands-on experience with 16S rRNA gene sequencing, RNA bulk sequencing, single cell sequencing (10X genomics), TCR sequencing techniques, including DNA isolation, library construction, data analysis and plotting using R packages.

Software skills:

- FlowJo, R studio (Seurat, phyloseq), Prism, Inkscape, Loupe Browser

Publications

1. **Zhao B**, Osbelt L, Lesker TR, et al. *Helicobacter* spp. are prevalent in wild mice and protect from lethal *Citrobacter rodentium* infection in the absence of adaptive immunity. **Cell Rep.** 2023;42(6):112549.
2. Carlos Plaza-Sirvent*, **Bei Zhao***, Alisha W. Bronietzki, Marina C. Pils, Neda Tafrishi, Marc Schuster, Till Strowig, Ingo Schmitz, A central role for Atg5 in microbiota-dependent Foxp3⁺ RORγt⁺ Treg cell preservation to maintain intestinal immune homeostasis. **Front. Immunol., 2021. *Equally contributed**
3. **Bei Zhao**, Urmi Roy, Marijana Basic, Yogesh Kumar, Eric J.C. Galvez, Francesco Siracusa, Andre Bleich, Nicola Gagliani and Till Strowig, Segmented filamentous bacteria modulate Th17 fate and functionality in a TCR dependent manner. **In preparation**
4. **Bei Zhao**, Till Robin Lesker, Geoffroy Andrieux, Anne Gernand, Alexander Maucher, Solveig Runge, Silvia von Zedtwitz, Till Strowig, Melanie Börries, Stephan Rosshart, Comprehensive omics analysis of sepsis pathophysiology with wildling mice. **In preparation**
5. Zohreh Mansoori Moghadam, **Bei Zhao**, Candice Raynaud, Valentina Strohmeier, Jana Neuber, Anne Kathrin Lösslein, Sabrina Qureshi, Vitka Gres, Tara Ziegelbauer, Sebastian Baasch, Christoph Schell, Klaus Warnatz, Gabriel Nunez, Thomas Clavel, Stephan Rosshart, Julia Kolter*,

- Philipp Henneke*, Reactive oxygen species regulate early development of the intestinal macrophage – microbiome interface. **Blood, accepted**
6. Cynthia Bülck, Elisabeth Nyström, Tomas Koudelka, Michael Mannbar, Gerrit Andresen, Mariem Radhouani, Florian Tran, Franka Scharfenberg, Friederike Schrell, Fred Armbrust, Eileen Dahlke, **Bei Zhao**, Alex Vervaeke, Franziska Theilig, Philip Rosenstiel, Philipp Starkl, Stephan Rosshart, Helmut Fickenscher, Andreas Tholey, Gunnar Hansson, Christoph Becker-Pauly, Proteolytic processing of galectin-3 is crucial for host microbiome homeostasis. **Sci Adv. 2023**
 7. Kini Archana, **Zhao Bei**, Basic Marijana, Roy Urmi, Iljazovic Aida, Odak Ivan, Riederer Brigitte, di Stefano Gabriella, Römermann Dorothee, Koenecke Christian, Bleich Andre, Strowig Till, & Seidler Ursula, Upregulation of antimicrobial peptide expression in *slc26a3*^{-/-} mice with colonic dysbiosis and barrier defect. **Gut microbes, 2022**
 8. Christian Melcher, Jinbo Yu, Vu Huy Hoang Duong, Katrin Westpha, Noushin Helmi Siasi Farimany, Anton Shaverskyi, **Bei Zhao**, Till Strowig, Silke Glage, Korbinian Brand, Andrew C. Chan, Niko Föger and Kyeong-Hee Lee, B cell-mediated regulatory mechanisms control tumor-promoting intestinal inflammation. **Cell Reports, 2022**
 9. Aida Iljazovic, Urmi Roy, Eric J. C. Gálvez, Till R. Lesker, **Bei Zhao**, Achim Gronow, Lena Amend, Sabine E. Will, Julia D. Hofmann, Marina C. Pils, Kerstin Schmidt-Hohagen, Meina Neumann-Schaal and Till Strowig, Perturbation of the gut microbiome by *Prevotella* spp. enhances host susceptibility to mucosal inflammation. **Mucosal Immunology, 2021**

Talks in External Conferences

Bei Zhao, Urmi Roy, Babett Steglich, Marijana Basic, Andrea Bleich, Nicola Gagliani N, Till Strowig: Evaluation of the stability of SFB specific Th17 cells. **Oral presentation**. II Joint Meeting of the German Society for Immunology (DGfI) and the Italian Society of Immunology, Clinical Immunology and Allergology (SIICA), 2019

Bei Zhao, Lisa Osbelt, Till Robin Lesker, Lisa Hönike, Arne Bublitz, Marina Pils, Meina Neumann-Schaal, and Till Strowig: Mucosal *Helicobacter* spp. protect mice from *Citrobacter rodentium* infection by reducing virulence gene expression. **Poster oral presentation**. World Immune Regulation Meeting XV, 2021

Bei Zhao, Mate Krausz, Lara Stopp, Michele Proietti, Bodo Grimbacher: The role of the gut microbiota in the mammalian immune system: using inborn errors of immunity as a window into co-development and complexity. **E-Poster Discussion**. 21st Biennial Meeting of the European Society for Immunodeficiencies (ESID), 2024

Bei Zhao, Mate Krausz, Lara Stopp, Michele Proietti, Bodo Grimbacher: The role of the gut microbiota in the mammalian immune system: using inborn errors of immunity as a window into co-development and complexity. **Poster presentation. Best poster prize**. 16th Seon Conference, Deutsche Gesellschaft für Hygiene und Mikrobiologie, 2024

Bei Zhao, Mate Krausz, Lara Stopp, Michele Proietti, Bodo Grimbacher: The role of the gut microbiota in the mammalian immune system: using inborn errors of immunity as a window into co-development and complexity. **Oral presentation**, 7th Annual Meeting of the Upper Rhine Immunology (URI) Group, 2024

References

Bodo Grimbacher, Ph.D.

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Stephan Rosshart, Ph.D.

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10.01.2025