

# Valentin von Werz

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## Technische Universität Wien: Vienna: April 2022 - present

- PhD candidate
- Process development for the optimization of Natural Killer (NK) cell expansion
  - Identification of Critical Process Parameters (CPPs) and the Critical Quality Attributes (CQAs)
  - Relationship and correlation identification between CPPs and CQAs
  - Development of novel cultivation techniques of NK cells in stirred tank bioreactors
  - Application of Process Analytical Techniques to monitor and regulate the expansion process

## Aelian Biotechnology: Vienna: February 2021 - February 2022

- Research Assistant
- Generation of numerous CRISPR/Cas modified cell lines (incl. CRISPR\_KO, CRISPRi and CRISPRa)
  - Methods used included single-cell RNA-seq workflow in different cell types (cancer cell lines and primary T cells) in pooled and arrayed format, including cell culture, virus production, sgRNA library cloning, single-cell RNA extraction, NGS library preparation

## Novartis, Basel: January - July 2020

- Recent Graduate
- Recent graduate position in the department of autoimmunity, transplantation and inflammatory disease in the lab of Dr. Grigory Ryzhakov
  - Work on small molecule inhibitor targeting an autoimmune specific activation of different pathways
  - Methods used included qPCR, cellular assays, siRNA modified cell lines, CRISPR/Cas9 modified cell lines, FACS, western blotting and bead-based assays

## University of Oxford: Master's thesis: April - September 2019

- Thesis title:
- Assessment of techniques to quantify NETosis in neutrophils in the lab of Prof. Irina Udalova at Kennedy Institute of Rheumatology
- Skills:
- Methods used included cell culture work, handling of CRISPR/Cas9 in house generated KO cell lines, sequencing prep., live cell imaging, immunoprecipitation staining, fluorescence-based quantification, western blotting, ELISA, ATACseq
  - Entirely self-sufficient work on a six-month project
  - Collaborations with other laboratories in Oxford and Bristol to solve issues relevant for the whole laboratory
  - Critical use of publications, textbooks and websites
- Outcome:
- Publication in Nature Immunology and Cell
  - NETosis proven in murine cell line with other methods than IHC for one of the first times
  - Finished with "summa cum laude" grade

## Ludwig-Maximilians-University Munich: Master of Science in Biology: 2017 - 2019

- Modules:
- Immunology, virology, human biology, cell biology and bioinformatics
  - Additional seminars for lab-methods including HPLC, sequencing and CRISPR/Cas9 and cancer cells

- Skills:
- Work independently on own projects including development of Zika virus vaccine candidate based on CprME envelope
  - Dissertation on research projects including weekly presentations on progress

**Ludwig-Maximilians-University Munich: Bachelor of Science in Biology: 2014 - 2018**

- Modules:
- Genetics, human-biology, immunology, cell-biology, chemistry, mathematics, physics, microbiology, ecology, physiology, zoology, botany
  - Focused on Immunological research after broad education on a variety of biological fields including practical work in each field

**Publications:**

- A review and statistical analysis to identify and describe relationships between CQAs and CPPs of natural killer cell expansion processes, *Cytotherapy*, 2024 June 6, <https://doi.org/10.1016/j.jcyt.2024.05.025>
- Poster presentation at 2023 International Conference on Lymphocyte Engineering: "Natural Killer Cell Cytotoxicity: A detection method comparison"
- Oral presentation at 2023 Bioprocessing, Bioanalytics and ATMP Manufacturing in Dublin: "Comparison of detection methods for the quantification of cytotoxicity in NK-92 cells"
- "Distinct transcription factor networks control neutrophil-driven inflammation" in *Nature Immunology*, 2021 July 19, <https://doi.org/10.1038/s41590-021-00968-4>

**Extracurricular activities**

- One-week seminar on Genome Wide Association Studies (GWAS) in Barcelona
- Participation at the „5 Euro Startup“ entrepreneur course at the LMU Munich
- Scholarship of the international office of LMU Munich for an entrepreneurship travel to Montreal, Canada
- Tutor in practical courses for Bachelor and Master students