CURRICULUM VITAE

Alexander Thiemicke

CONTACT

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EDUCATION

Vanderbilt University

2014-2020 PhD in Chemical and Physical Biology
Advisor: Gregor Neuert, PhD
Thesis: "The effect of temporally variable environments on molecular changes in human cells"

Friedrich Schiller University Jena (Germany)

2011-2014 Master of Science in Molecular Medicine.
Advisor: Rachel Brem, PhD (*The research work was performed at UC Berkeley*)
Thesis: "Regulation of antisense RNA in *Saccharomyces cerevisiae*"

2008-2011 Bachelor of Science in Biochemistry
Advisor: Manuel Than, PhD
Thesis: "Preparation and activity studies of the intramembranous-cleaving protease FlaK of *Methanococcus maripaludis*"

PUBLICATIONS

2020 Alexander Thiemicke, Gregor Neuert "Kinetics of osmotic stress regulate a cell fate switch of cell survival." 2020 (In Submission, Nature Communications)

Amanda Johnson, Guoliang Li, Hossein Jashnsaz, Alexander Thiemicke, Benjamin K. Kesler, Dustin C. Rogers, Gregor Neuert "A rate threshold mechanism regulates MAPK stress signaling and survival." 2020 (In Review, PNAS)

2019 Alexander Thiemicke, Hossein Jashnsaz, Guoliang Li, Gregor Neuert "Generating kinetic environments to study dynamic cellular processes in single cells." Scientific Reports, July 2019.

Benjamin K. Kesler, Guoliang Li, Alexander Thiemicke, Rohit Venkat, Gregor Neuert "Automated cell boundary and 3D nuclear segmentation of cells in suspension." Scientific Reports, July 2019.

2017 Guoliang Li, Benjamin K. Kesler, Alexander Thiemicke, Dustin C. Rogers, Gregor Neuert, "Linearly changing stress environment causes cellular growth phenotype." BioRxiv 155267 [Preprint], June 25, 2017.

2016 Yulia Mostovoy, Alexander Thiemicke, Tiffany Y. Hsu and Rachel Brem "The Role of Transcription Factors at Antisense-Expressing Gene Pairs in Yeast." Genome Biology

and Evolution, June 27, 2016.

SELECTED HONORS & AWARDS

2019	CMCF Annual Symposium Travel Award
2019	NSF Travel Funding
2019	Russell G. Hamilton Graduate Leadership Development Institute Travel Grant
2019	Vanderbilt Institute for Clinical and Translational Research Grant
2018-present	American Heart Association Predoctoral Fellowship
2011	German Academic Exchange Service (DAAD) RISE-Scholarship
2010	Erasmus Scholarship

RESEARCH EXPERIENCE

2014-present — Graduate Research Assistant, **Vanderbilt University**

- Set up Fluorescently labeled barcoded Flow cytometry for human immune cells
- Wrote software in R to debarcode and analyze data obtained from flow cytometry experiments
- Deployed Shiny apps for interactive data visualization and as user interface for flow cytometry software (written as R package on Github: alexthie/FCBapp5)
- Conceptualized experiments to understand the systems biology of immune cells
- Developed experimental setup to study temporally varying environments on effect on mammalian cells
- Performed Western Blots and immunofluorescence
- Developed Natural language processing pipeline for literature review
- Made video protocols to ease transfer of knowledge in times of COVID-19

2013-2014 — Master Thesis student, **University of California, Berkeley** (Advisor: Rachel Brem, PhD)

- Performed molecular cloning and qPCR studies in yeast
- Identified novel effects of non-coding RNAs on gene expression

2012 — Research Assistant, **Max-Planck-Institute for Chemical Ecology Jena** (Advisor: Jonathan Gershenzon, PhD)

- Analyzed plant-fungus interactions
- Performed fungus cultivation, RNA extractions, qPCRs

2011 — Research assistant, Department of Chemistry, **University of Pittsburgh** (Advisor: Xinyu Liu, PhD)

- Studied the biosynthesis of natural products in *Aspergillus sp.*
- Performed molecular cloning, sterile techniques and protein overexpression

2011 — Bachelor Thesis student, **Fritz-Lipmann-Institute for Age Research Jena** (Advisor: Manuel Than, PhD)

- Purified membrane proteins
- Performed Western Blot based inhibitor studies

2010 — Research Assistant, Department of Chemistry, **University of Oslo** (Advisor: Ute Krengel, PhD)

- Carried out x-ray crystallography experiments
- Developed expertise in protein crystallization

2010 — Research Assistant, **Fungal Reference Center Jena** (Advisor: Kerstin Voigt, PhD)

- Identified interactions between different Zygomycota,

- Assisted in classification of fungal strains

PRESENTATIONS

Feb 2020	w-qbio conference (talk), Hawaii
Oct 2019	CMCF Annual Symposium (poster), University of California, Irvine
Mar 2019	CSH meeting on Cell Death (poster), CSHL, Cold Spring Harbor
Jun 2019	NSF 'Finding your inner modeler" Workshop 2019 (poster), University of Alabama, Birmingham
2015-2019	Chemical and Physical Biology Program Retreat (poster/talk), Vanderbilt University
Mar 2019	CSH meeting on Systems Immunology (poster), CSHL, Cold Spring Harbor
Mar 2019	MBTP/CSB Seminar Series (talk), Vanderbilt University
Jun 2018	Southeastern Immunology Symposium 2018 (poster), University of Alabama, Birmingham
May 2018	Cell Dynamics Symposium (poster), Vanderbilt University
Mar 2018	Data Science Symposium (poster), Vanderbilt University
Sep 2017	Cell Biology and Development Dept. Retreat (poster), Vanderbilt University
2015-2019	Molecular Physiology and Biophysics Dept. Retreat (poster), Vanderbilt University

MENTORING

2019	Minh H. Tran, Rotation Student, Interdisciplinary Graduate Program (8 weeks) Project title: "The role of caspases in sensing temporally varying perturbations."
2019	Yelena Perevalova, Rotation Student, Interdisciplinary Graduate Program (8 weeks) Project title: "Activation of metabolic pathways during stress in human immune cells."
2017	Robert Markowitz, Summer rotation student, Quantitative and Chemical Biology Graduate Program (12 weeks) Project title: "Temporal changes of hypertonicity and their effects on cell viability."
2017	Arunabh Singh, Mechanical Engineering Undergraduate Student (12 weeks) Project title: "Evolutionary conservation of signaling dynamics"

LEADERSHIP

2018-2019	Member of the 2019 Chemical and Physical Biology Program Retreat planning committee
2010-2013	Board member and co-founder of the btS e.V. Jena, a biotechnological student organization
2012-2013	Tutor for international students, Friedrich Schiller University Jena

PROFESSIONAL DEVELOPMENT

2018-2019	Data Essentials in Python and Networking communication, Vanderbilt University
2018	Machine Learning in Python and Tensorflow, Vanderbilt University
2018	Machine Learning in R, Vanderbilt University
2017	Practical Strategies for Strong Writing, Vanderbilt University
2016	Effective Oral Communication Methods, Vanderbilt University

REFERENCES

Gregor Neuert, PhD
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Vanderbilt University
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