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Laimdota Zizmare

Personal Data

Status/Function:	Postdoctoral Researcher
Scientific focus:	Metabolomics, Systems Medicine, Spatial Metabolomics, Immuno-oncology, Neurology
Email:	Laimdota.Zizmare@med.uni-tuebingen.de

Education and qualifications

07/2019 – 11/2023	Dr	Dr.rer.nat. (PhD) – Eberhard Karls University of Tübingen, DE Thesis with Prof. B. Pichler, Prof. S. Laufer: *Common metabolites, distinct pathways: using high-field NMR spectroscopy metabolomics in immunology and neurology*
09/2017 – 09/2018	MSc	Master of Science – Physical Sciences for Health, University of Birmingham, UK Project with Assoc. Prof. Z. Stamataki: *Impact of amiloride derivatives on the engulfment of live and dead T cells by hepatocytes*
09/2016 – 08/2017	MSc	Master of Science – Medicinal Chemistry/Drug Discovery, Development and Delivery, University of Birmingham, UK Project with Dr. F. Fernandez-Trillo: *Novel enzyme-responsive nanomaterials as antimicrobials*
09/2012 – 06/2016	BEng	Bachelor of Chemical Engineering, Riga Technical University, Riga, LV

Work Experience

07/2023 – now	Postdoctoral Researcher, University Hospital Tübingen, iFIT Cluster of Excellence, Tübingen, DE
07/2019 – 06/2023	Doctoral Researcher in Metabolomics and Systems Medicine, Werner Siemens Imaging Center, University Hospital Tübingen, DE
07 – 08/2023	Visiting Researcher at the Maastricht Multi-modal Molecular Imaging Institute – M4i, MALDI MSI training and collaboration research stay, Maastricht, NL
07/2022	Visiting Researcher at Bruker Daltonics GmbH, MALDI-2 timsTOF instrument training, data acquisition, processing and data analysis, Bremen, DE
11/2018 – 06/2019	Project Operations Assistant at University of Birmingham Student Educational Enhancement Boot Camp on Digital Innovation, UK
09 – 10/ 2018	Laboratory Assistant at Celentyx ltd. on Assay Development, Birmingham, UK
09/2018	Student Project Assistant on Drug Screening at AstraZeneca, Cambridge, UK
06/2015 – 08/2016	Quality Assurance and Logistics Manager at Chemical Trade Company Brenntag, LV
11/2013 – 06/2016	Research Assistant at Riga Technical University Organic Synthetic Chemistry, LV

Teaching Experience

10/2020 – now	Bachelor and Master Student Supervision, Eberhard Karls University of Tübingen, DE • Project planning and management, practical lab work and analysis support of a bachelor and 5 master student internships and thesis projects
10/2018 – 05/2019	Academic Mentor and Student Support Officer at University of Birmingham, UK
09/2017 – 05/2018	Student Experiment Demonstrator in Chemistry, at University of Birmingham, UK • Paid position for undergraduate student laboratory support

Additional Qualifications and Skills

Languages **Latvian**: mother tongue; **English**: fluent (C2); **German**: intermediate communication (B1); **Spanish**: intermediate communication (B1).

Skills NMR spectroscopy, preclinical and clinical tissue and biofluid **metabolomics**, spatial omics workflows and **MALDI imaging**, biomarker discovery and systems biology in neurodegeneration, metabolic disorders, immunometabolism, cancer cell characterization, tumor microenvironment, immune system activation research

Conferences, invited talks, presentations

Tübingen **Spatial Biology** Networking & Mini-Symposium, oral presentation, 17 Nov 2023, Tübingen, DE

Oral presentation at the **Mass Spectrometry Imaging** and Integrated Topics **International Conference**, 24 Oct 2023, Montréal, CA

Medical Faculty Day **Science Slam** oral presentation on 'Metabolomics on the quest of microbiome exploration', 11 Oct, 2023, Tübingen, DE

Matariki 3-minute thesis (**3MT**) presentation competition finalist 2023

1st International iFIT Conference ("Image-guided and functionally-instructed **tumor therapies**"), poster presentation, 21 – 23 Mar, 2023, Zell am See, AT

Metabolomics and Human Health Gordon Research Conference, poster presentation, 12 – 17 Mar, 2023, Renaissance Tuscany Il Ciocco in Lucca (Barga), Lucca, IT

4th Munich **Metabolomics** Meeting, poster presentation, 13 Oct, 2022, Munich, DE

Poster presentation at **18th** Annual Conference of **Metabolomics Society 2022**, 19 – 23 Jun, 2022, Valencia, ES

Poster and virtual presentation at 17th Annual Conference of **Metabolomics Society 2021** online, 22 – 24 Jun, 2021

Poster and virtual presentation at 16th Annual Conference of **Metabolomics Society 2020** online, 27 – 29 Oct, 2020

Poster presentation at EMBO/EMBL **Metabolism Meets Epigenetics** Symposium, 20 – 23 Nov 2019, Heidelberg, DE

Poster presentation at **Research Poster Conference** 15 Jun 2018, University of Birmingham, UK

Poster presentation of master's thesis at **School of Chemistry Research Symposium** 29 – 30 Jun 2017, University of Birmingham, UK

Poster of bachelor's thesis at ***Balticum Organicum Syntheticum*** (**BOS**) Symposium, 3 Jul 2016, Riga, LV

Poster presentation at the 59th Scientific Conference for Young Students of Physics and Natural Sciences **Open Readings**, 15 – 18 Mar 2016, Vilnius University, Vilnius, LT

Training, courses

Graduate Academy course on **Grant Proposal** Writing, 8 Nov – 6 Dec, 2023, Tübingen, DE

Graduate Academy training on 3rd Party **Funding Acquisition**, 1 Dec, 2022, Tübingen, DE

Masterclass in "**International Scientific Communication**: Communication, Teaming & Productivity Skills" by the iFIT Excellence Cluster, 2021 – 2022, DE

EMBO Practical Course on Metabolomics **Bioinformatics** for Life Scientists, 24 – 28 Oct, 2022, Wageningen, NL

2nd International Summer School on **Non-Targeted Metabolomics**, 22 – 26 Aug, 2022, Tübingen, DE

Scientific writing workshop "**Advanced Scientific Writing**" with the iFIT Excellence Cluster, Derek Victor-Handley, 14 Jun – 16 Jul, 2021

"Introduction to RNA sequencing and functional interpretation", EMBL-EBI online, 21 – 25 Feb, 2022

Course "Introduction to **multiomics** data integration and visualisation", EMBL-EBI online, 22 – 26 Feb, 2021

Scientific writing workshop "**Fundamentals of Scientific Writing**" with the iFIT Excellence Cluster, Derek Victor-Handley, 7 Oct – 10 Nov, 2020

Course "Prototype your PhD" by Young Entrepreneurs in Science, online, 15 Oct, 2020

Courses "Displaying Results in Figures" and "Writing Grant Proposals" distance learning online for Natural & Life Sciences by the Graduate Academy, 11 Mar, 2021

Course "**From PhD to Innovator**" by Young Entrepreneurs in Science, online, 21 – 22 Oct, 2020

Course at **Bruker** – NMR software applications (TopSpin AVANCE) Advanced, 17 – 21 Feb 2020, Rheinstetten, DE

Course at **Bruker** – Metabonomics, 14 – 16 Oct 2019, Rheinstetten, DE

Course at **Bruker** – AMIX Software for NMR data processing, 9 – 10 Oct 2019, Rheinstetten, DE

Course at **Bruker** – NMR software applications (TopSpin AVANCE) Basic, 16 – 20 Sept 2019, Rheinstetten, DE

Professional Memberships

2021 - 2023	Early-Career Member Network (EMN) **Committee Member/Treasurer** at the Metabolomics Society
2020 - now	Member of the International Metabolomics Society
2018 - now	Associate Member (AMRSC) of the Royal Society of Chemistry

Awards and Honors

Royal Society of Chemistry Researcher Development and **Travel Grant** to attend the 1st Annual Conference on **Mass Spectrometry Imaging** and Integrated Topics, Oct 2023, Montreal, CA (€ 500).

The Company of Biologists **Travel Fellowship** for 5-week research stay at Maastricht Multi-modal Molecular Imaging Institute – M4i, Jul – Aug 2023, Maastricht, NL (€ 3000).

Researcher Development Grant by Royal Society of Chemistry to attend the EMBO Practical Course on Metabolomics Bioinformatics for Life Scientists, Oct 2022, Wageningen, NL (€ 600).

Cancer metabolomics conference session **chair** at International Metabolomics Society Conference Metabolomics 2022, 22 Jun, Valencia, Spain.

Student Employee of the Year 2019 (SEOTY 2019) award nomination in the "Above and Beyond" category for admirable contributions as student staff worker, University of Birmingham, United Kingdom.

Toastmasters International Competent Communicator Award for completing the first level **public speaking** and leadership manual (2016).

Member of the Year award at Board of European Students of Technology (BEST) – a non-profit student partnership organization in Europe – local group in Riga, for the most successful **fundraising** and goods-raising campaign in 2015/2016 and admirable **leadership** effort.

Publications: https://orcid.org/0000-0001-7208-3659

2024

Rohlfing, A.-K.*; Kremser, M.*; Schaale, D.; Dicenta-Baunach, V.; Laspa, Z.; Fu, X.; **Zizmare, L.**; Sigle, M.; Harm, T.; Münzer, P.; Pelzer, A.; Borst, O.; Trautwein, C.; Feil, R.; Müller, K.; Castor, T.; Lämmerhofer, M.; Gawaz, M.P. **cGMP modulates hemin-mediated platelet death.** *Thrombosis Research* 234, 63-74 (2024). IF: 8.4 https://doi.org/10.1016/j.thromres.2023.12.008

2023

Lonati, C., Berezhnoy, G., Lawler, N., Masuda, R., Kulkarni, A., Sala, S., Nitschke, P., **Zizmare, L**., Bucci, D., Cannet, C., Schäfer, H., Singh, Y., Gray, N., Lodge, S., Nicholson, J., Merle, U., Wist, J.*, Trautwein, C.* **Urinary phenotyping of SARS-CoV-2 infection connects clinical diagnostics with metabolomics and uncovers impaired NAD^+ pathway and SIRT1 activation.** *Clinical Chemistry and Laboratory Medicine (CCLM),* (2023). IF 6.8 https://doi.org/10.1515/cclm-2023-1017

Chen, Y.; **Zizmare, L.**; Trautwein, C.; Paquet-Durand, F. **Measuring the Release of Lactate from Wild-Type and *rd1* Mouse Retina.** In: Ash, J.D., Pierce, E., Anderson, R.E., Bowes Rickman, C., Hollyfield, J.G., Grimm, C. (eds) Retinal Degenerative Diseases XIX. *Advances in Experimental Medicine and Biology*, vol 1415. Springer, Cham. (2023) https://doi.org/10.1007/978-3-031-27681-1_63

Christensen, G.; Chen, Y.; Urimi, D.; **Zizmare, L.**; Trautwein, C.; Schipper, N.; Paquet-Durand, F. **Pyruvate-conjugation of PEGylated liposomes for targeted drug delivery to retinal photoreceptors.** *Biomedicine & Pharmacotherapy*, 163, 114717 (2023). IF 7.4 https://doi.org/10.1016/j.biopha.2023.114717

Feldmann, J.; Martin, P.; Bender, B.; Laugwitz, L.; **Zizmare, L.**; Trautwein, C.; Krägeloh-Mann, I.; Klose, U.; Groeschel, S. **MR-spectroscopy in metachromatic leukodystrophy: A model free approach and clinical correlation.** *NeuroImage: Clinical* 37, 103296 (2023). IF 4.9 https://doi.org/10.1016/j.nicl.2022.103296

Schumacher, L.; Slimani, R.; **Zizmare, L**.; Ehlers, J., Kleine Borgmann, F.; Fitzgerald, J.C.; Fallier-Becker, P.; Beckmann, A.; Grißmer, A.; Meier, C.; El-Ayoubi, A.; Devraj, K.; Mittelbronn, M.; Trautwein, C.; Naumann, U. **TGF-beta modulates the integrity of the blood brain barrier in vitro, and is associated with metabolic alterations in pericytes**. *Biomedicines* 11(1), 214, (2023). IF: 4.7 https://doi.org/10.3390/biomedicines11010214

Kotsiliti E*, Leone V*, Schuehle S#, Govaere O#, Li H, Wolf MJ, Horvatic H, Bierwirth S, Hundertmark J, Inverso D, **Zizmare L**, Sarusi-Portuguez A, Gupta R, O'Connor T, Giannou AD, Shiri AM, Schlesinger Y, Beccaria MG, Rennert C, Pfister D, Öllinger R, Gadjalova I, Ramadori P, Rahbari M, Rahbari N, Healy M, Fernández-Vaquero M, Yahoo N, Janzen J, Singh I, Fan C, Liu X, Rau M, Feuchtenberger M, Schwaneck E, Wallace SJ, Cockell S, Wilson-Kanamori J, Ramachandran P, Kho C, Kendall TJ, Leblond AL, Keppler SJ, Bielecki P, Steiger K, Hofmann M, Rippe K, Zitzlesberger H, Weber A, Malek N, Lüdde T, Vucur M, Augustin HG, Flavell R, Parnas O, Rad R, Pabst O, Henderson NC, Huber S, Macpherson A, Knolle P, Claasen M, Geier A, Trautwein C, Unger K, Elinav E, Waisman A, Abdullah Z, Haller D, Tacke F, Anstee QM, Heikenwalder M. **Intestinal B-cells license metabolic T-cell activation in NASH microbiota/antigen-independently and contribute to fibrosis by IgA-FcR signalling.** *Journal of Hepatology* 79, 2, 296-313 (2023). IF: 30 https://doi.org/10.1016/j.jhep.2023.04.037

2022

Zizmare, L.; Mehling, R.; Gonzalez-Menendez, I.; Lonati, C.; Quintanilla-Martinez, L.; Pichler, B.J.; Kneilling, M.; Trautwein, C. **Acute and chronic inflammation alter immunometabolism in a cutaneous delayed-type hypersensitivity reaction (DTHR) mouse model.** *Nature Communications Biology* 5, 1250 (2022). IF: 6.8 https://doi.org/10.1038/s42003-022-04179-x

Zizmare, L.; Boyle, C. N.; Buss, S.; Louis, S.; Kuebler, L.; Mulay, K.; Krüger, R.; Steinhauer, L.; Mack, I.; Rodriguez Gomez, M.; Herfert, K.; Ritze, Y.; Trautwein, C. **Roux-en-Y gastric bypass (RYGB) surgery during high liquid sucrose diet leads to gut**

microbiota-related systematic alterations. *International Journal of Molecular Science,* 23, (3), 1126, (2022). IF: 6.2 https://doi.org/10.3390/ijms23031126

Laugwitz, L.; **Zizmare, L.**; Santhanakumaran, V.; Cannet, C.; Böhringer, J.; Okun, J.G.; Spraul, M.; Krägeloh-Mann, I.; Groeschel, S.; Trautwein, C. **Identification of neurodegeneration indicators and disease progression in metachromatic leukodystrophy using quantitative NMR-based urinary metabolomics.** *JIMD Reports* 63, 2, 168-180, (2022). IF: 4.8 https://doi.org/10.1002/jmd2.12273

Lonati, C.; Dondossola, D.; **Zizmare, L.**; Battistin, M.; Wüst, L.; Vivona, L.; Carbonaro, M.; Zanella, A.; Gatti, S.; Schlegel, A.; Trautwein, C. **Quantitative metabolomics of tissue, perfusate, and bile from rat livers subjected to normothermic machine perfusion**. *Biomedicines* 10, (3), 538, (2022). IF: 6.1 https://doi.org/10.3390/biomedicines10030538

Yang, Q.; Bae, G.; Nadiradze, G.; Castagna, A.; Berezhnoy, G.; **Zizmare, L**.; Kulkarni, A.; Singh, Y.; Weinreich, F. J.; Kommoss, S.; Reymond, M. A.; Trautwein, C. **Acidic ascites inhibits ovarian cancer cell proliferation and correlates with the metabolomic, lipidomic and inflammatory phenotype of human patients**. *Journal of Translational Medicine* 20, 581 (2022). IF 8.4 https://doi.org/10.1186/s12967-022-03763-3

2021

Trautwein, C.; **Zizmare, L.**; Mäurer, I.; Bender, B.; Bayer, B.; Ernemann, U.; Tatagiba, M.; Grau, S. J.; Pichler, B. J.; Skardelly, M.; Tabatabai, G. **Tissue metabolites in diffuse glioma and their modulations by IDH1 mutation, histology and treatment.** *JCI Insight* 7, (3), e153526 (2021). IF: 8.3 https://doi.org/10.1172/jci.insight.153526

Mehling, R.; Schwenck, J.; Lemberg, C.; Trautwein, C.; **Zizmare, L**.; Kramer, D.; Müller, A.; Fehrenbacher, B.; Gonzalez-Menendez, I.; Quintanilla-Martinez, L.; Schröder, K.; Brandes, R. P.; Schaller, M.; Ruf, W.; Eichner, M.; Ghoreschi, K.; Röcken, M.; Pichler, B. J.; Kneilling, M. **Immunomodulatory role of reactive oxygen species and nitrogen species during T cell-driven neutrophil-enriched acute and chronic cutaneous delayed-type hypersensitivity reactions.** *Theranostics* 11, (2), 470 – 490 (2021). doi:10.7150/thno.51462. IF: 11.6 http://www.thno.org/v11p0470.htm

2020

Bus, C.*, **Zizmare, L.***, Feldkaemper, M., Geisler, S., Zarani, M., Schaedler, A., Klose, F., Admard, J., Mageean, C., Arena, G., Fallier-Becker, P., Ugun-Klusek, A., Maruszczak, K. K., Kapolou, K., Schmid B., Rapaport, B., Ueffing, M., Casadei, N., Krüger, R., Gasser, T., Vogt-Weisenhorn, D., Kahle, P. J., Trautwein, C., Gloeckner, C. J., Fitzgerald, J. C. **Human dopaminergic neurons lacking PINK1 exhibit disrupted dopamine metabolism related to vitamin B6 co-factors.** *iScience*, 23, (12), 101797 (2020). (* equal contribution) IF 6.1 https://doi.org/10.1016/j.isci.2020.101797

Singh, Y.; Trautwein, C.; Dhariwal, A.; Salker M. S.; Alauddin, M.; **Zizmare, L.**; Pelzl, L.; Feger, M.; Admard, J.; Casadei, N.; Föller, M.; Pachauri, V.; Park, D. S.; Mak, T. W.; Frick, J.; Wallwiener, D.; Brucker, S. Y.; Lang, F.; Riess, O. **DJ-1 (Park7) affects the gut microbiome, metabolites and the development of innate lymphoid cells (ILCs).** *Nature Scientific Reports* 10, 16131 (2020). IF: 4.4 https://doi.org/10.1038/s41598-020-72903-w

2017

Insua, I.; **Zizmare, L.**; Peacock, A. F. A.; Krachler, A. M.; Fernandez-Trillo, F. **Polymyxin B containing polyion complex (PIC) nanoparticles: Improving the antimicrobial activity by tailoring the degree of polymerisation of the inert component.** *Nature Scientific Reports* 7, 10 (2017). IF 4.4 https://doi.org/10.1038/s41598-017-09667-3.