

Personal details

Name: GRANITZER, Sebastian
Acad. Degree: Dr.scient.med
Current Position: PostDoc
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Education

- 2016-2020: N790 Doctoral Programme of Applied Medical Science (Focus: Public Health), Medical University of Vienna
Thesis: *The function of MRP1/ABCC1 in the antioxidant defense of the human placenta*
- 2014-2016: Master studies in Molecular Biology (Focus: Molecular Medicine), University of Vienna
Thesis: *Sirtuin 2 as a regulator of erythrocytes*
- 2010-2014: Bachelor studies in Biology (Focus: Microbiology and Genetics), University of Vienna

Positions

- From January 2021: Post-doctoral research fellow, Medical University of Vienna
- November 2016 - Dezember 2020: Pre-Doc Research Fellow, Karl Landsteiner Privatuniversität für Gesundheitswissenschaften (30h/week part-time)
Project: *The toxicokinetics of mercury in the human placenta: Relationship between genotype and phenotype in healthy and diseased placetas* (NFB, LSC17-08)
March 2014 – March 2016: Research Assistant, University of Vienna (20h/week part-time)

Research interests

My research is focused on the effects of dysregulated oxidative stress on the placenta and the associated adverse pregnancy outcomes, in particular preeclampsia. We isolate primary cells (trophoblasts, fetal endothelial cells, placental macrophages (Hofbauer cells), and placental fibroblasts) from healthy and diseased pregnancies to identify differences in their cellular functions (e.g. secretion of hormones, and growth factors, and gene expression patterns). In addition, we assess the ability of these cells to cope with oxidative stressors (especially heavy metals) to find potential targets for making them more resistant to oxidative stress.

Academic publications

SCOPUS: 14 publications

Ten most relevant publications

1. **Granitzer, S.**, Widhalm, R., Ellinger, I., Zeisler, H., Forsthuber, M., Foessleitner, P., Geschrey, E., Saleh, L., Knöfler, M., Desoye, G., Ettel, P., Weichhart, T., Musiejovsky, L., Schabbauer, G., Salzer, H., Rosner, M., Hengstschläger, M., & Gundacker, C. (2025). LAT1-NRF2 axis controls sFlt-1/PIGF imbalance and oxidative stress in preeclampsia. *Nature communications*, 16(1), 9112. <https://doi.org/10.1038/s41467-025-64160-0>
2. **Granitzer, S.**, Widhalm, R., Atteneder, S., Fernandez, M. F., Mustieles, V., Zeisler, H., Hengstschläger, M., & Gundacker, C. (2023). BDNF and KISS-1 Levels in Maternal Serum, Umbilical Cord, and Placenta: The Potential Role of Maternal Levels as Effect Biomarker. *Exposure and health*, 1–17. Advance online publication. <https://doi.org/10.1007/s12403-023-00565-w>
3. **Granitzer, S.**, Widhalm, R., Forsthuber, M., Ellinger, I., Desoye, G., Hengstschläger, M., Zeisler, H., Salzer, H., & Gundacker, C. (2021). Amino Acid Transporter LAT1 (SLC7A5) Mediates MeHg-Induced Oxidative Stress Defense in the Human Placental Cell Line HTR-8/SVneo. *International journal of molecular sciences*, 22(4), 1707. <https://doi.org/10.3390/ijms22041707>

4. **Granitzer, S.**, Ellinger, I., Khan, R., Gelles, K., Widhalm, R., Hengstschläger, M., Zeisler, H., Desoye, G., Tupova, L., Ceckova, M., Salzer, H., & Gundacker, C. (2020). In vitro function and in situ localization of Multidrug Resistance-associated Protein (MRP)1 (ABCC1) suggest a protective role against methyl mercury-induced oxidative stress in the human placenta. *Archives of toxicology*, 94(11), 3799–3817. <https://doi.org/10.1007/s00204-020-02900-5>
5. Gundacker, C., Audouze, K., Widhalm, R., **Granitzer, S.**, Forsthuber, M., Jornod, F., Wielsøe, M., Long, M., Halldórsson, T. I., Uhl, M., & Bonefeld-Jørgensen, E. C. (2022). Reduced Birth Weight and Exposure to Per- and Polyfluoroalkyl Substances: A Review of Possible Underlying Mechanisms Using the AOP-HelpFinder. *Toxics*, 10(11), 684. <https://doi.org/10.3390/toxics10110684>
6. Kaiser, A. M., Forsthuber, M., Widhalm, R., **Granitzer, S.**, Weiss, S., Zeisler, H., Foessleitner, P., Salzer, H., Grasl-Kraupp, B., Moshhammer, H., Hartmann, C., Uhl, M., & Gundacker, C. (2023). Prenatal exposure to per- and polyfluoroalkyl substances and pregnancy outcome in Austria. *Ecotoxicology and environmental safety*, 259, 115006. <https://doi.org/10.1016/j.ecoenv.2023.115006>
7. Widhalm, R., Ellinger, I., **Granitzer, S.**, Forsthuber, M., Bajtela, R., Gelles, K., Hartig, P. Y., Hengstschläger, M., Zeisler, H., Salzer, H., & Gundacker, C. (2020). Human placental cell line HTR-8/SVneo accumulates cadmium by divalent metal transporters DMT1 and ZIP14. *Metallomics : integrated biometal science*, 12(11), 1822–1833. <https://doi.org/10.1039/d0mt00199f>
8. Eigenschink, M., Savran, D., Zitterer, C. P., **Granitzer, S.**, Fritz, M., Baron, D. M., Müllner, E. W., & Salzer, U. (2021). Redox Properties of Human Erythrocytes Are Adapted for Vitamin C Recycling. *Frontiers in physiology*, 12, 767439. <https://doi.org/10.3389/fphys.2021.767439>
9. Forsthuber, M., Kaiser, A. M., **Granitzer, S.**, Hassl, I., Hengstschläger, M., Stangl, H., & Gundacker, C. (2020). Albumin is the major carrier protein for PFOS, PFOA, PFHxS, PFNA and PFDA in human plasma. *Environment international*, 137, 105324. <https://doi.org/10.1016/j.envint.2019.105324>
10. Forsthuber, M., Widhalm, R., **Granitzer, S.**, Kaiser, A. M., Moshhammer, H., Hengstschläger, M., Dolznig, H., & Gundacker, C. (2022). Perfluorooctane sulfonic acid (PFOS) inhibits vessel formation in a human 3D co-culture angiogenesis model (NCFs/HUVECs). *Environmental pollution (Barking, Essex : 1987)*, 293, 118543. <https://doi.org/10.1016/j.envpol.2021.118543>

Co-Supervision of 2 Bachelor works and 2 Diploma/Master theses

Referee for scientific journals including *Placenta*, *Scientific Reports*, *IJMS*, *Genes*, *Toxics*, *Nutrients*, *Processes* and *International Journal of Environmental Research and Public Health*.

Conferences

- Poster Presentation International Federation of Placental Associations, Erfurt 2025
- Poster Presentation Young Scientist Association, Vienna 2019/2018
- Poster Presentation International Federation of Placental Associations, Buenos Aires 2019
- Poster Presentation International Federation of Placental Associations, Tokyo 2018

Teaching

- Lecturer Elective course- Medical Ecology (604.002), since winter term 2023, MUW
- Lecturer M 6 - Prevention and preventive medicine - medical practice and responsibility (802.005), Practical course Medical Ecology, since summer term 2021, MUW
- Lecturer M 8 - Disease, Origin and Symptoms (803.003); Practical Course Genetics, since winter term 2022, MUW
- Tutor M 9 - Medical laboratory diagnostics, Practical course ELISA, since winter semester 2020, MUW