

Scientific CV

Dr. Barbara Katharina Geist (Wünschek)

Division of Nuclear Medicine, Medical University of Vienna

Head of **Computational Nuclear Medicine**

Adjunct PI at the **LBf for Network Medicine**

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<https://netmed.lbg.ac.at/>

Current Position

Since 08/2024 **Adjunct PI** at the Ludwig Boltzmann Institute for Network Medicine

since 01/2024 **Head of Computational Nuclear Medicine**, Division of Nuclear Medicine, Medical University of Vienna

Scientific Journey

08/2018 – now **Senior Scientist** Computational Nuclear Medicine, Division of Nuclear Medicine, Medical University of Vienna

08/2023 – 07/2024 **Interruption** (maternity leave)

11/2020 – 11/2021 **Interruption** (maternity leave)

2014 – 2018 **Postdoc** at the Division of Nuclear Medicine, Medical University of Vienna

2013 –2014 **Medical physicist** at AKH Wien, Division of Nuclear Medicine

2012 – 2013 **Postdoc** at Stefan-Meyer-Institute for Subatomic Physics, ASACUSA (CERN)

2008 – 2012 **Scientific worker** at Stefan-Meyer-Institute for Subatomic Physics, SIDDHARTA group (Japan and Italy)

2007 – 2008 **Scientific referent** at the Dean's office, Faculty of Physics, University of Vienna

07/2005 **Scientific assistant** at the Institute for Isotope Research and Nuclear Physics, University of Vienna

Education

05/2026 **Priv.-Doz.** in Nuclear Medicine „*Quantification of renal processes in Nuclear Medicine* “

05/2012 **PhD (Dr.rer.nat.)** in experimental particle physics (Supervisor: Eberhard Widmann), „*Comparison of the measured X-ray yields of kaonic helium-3 and helium-4*“

09/2007 **Diploma (Mag.rer.nat.)** in nuclear physics (Supervisor: Walter Kutschera), „*A study of proton irradiation of paper to assess its influence on PIXE analysis of art objects*“

Personal information

born: April 13th 1983, Vienna

family status: married (unmarried name: Wünschek), 2 children (born 2021 and 2023)

Recent research topics

organ connectomes and metabolic networks, myocardial metabolism in the regime of SGLT2 inhibition, effects of stress, prostate cancer, renal transporter quantification, image quantification

Further trainings and courses

teaching and didactics (2017-2020), team leading (2021), project management (2021), conflict management (2021), negotiations (2024), kinetic modeling (2018), mediation analysis (2022), PET/MRI (2015), good clinical practice (2021), outreach (2021)

External Funding

Siemens project (2017-2018) "Kidney function with PET/CT" (70k)

Siemens project (since 2019) "Renal scintigraphy in 4D" (4k)

LBi for Network Medicine (since 09/2024): Adjunct-PI with a fully funded PhD position (300k)

FWF Stand-alone (since 05/2026): "One Scan, one system" (400k)

Awards

Dora Brücke-Teleky Award 2023

Rufolf-Höfer-Preis 2026

Allgemeiner Forschungspreis der OGNT 2026

Memberships

2023 – 2027 European Association of Nuclear Medicine (EANM) Member **Physics Committee**

2025 – 2027 Member of the **ESMIT committee** (EANM)

2018 – 2021 Member of the management committee of **Parenchima** (COST action)

Teaching

Lectures in scientific methods and statistics, special lectures in nuclear medicine, mathematics, physics and radiation protection.

Student supervision: autonomous supervision of 5 Master- and Bachelor-students (FH Campus Wien, TU Wien, Universität Wien) and of 2 PhD students (Medical University of Vienna); co-supervision of Master- and PhD students (TU Wien, Universität Wien, Meduni Wien), PhD committee member (Université de Liège)

Research skills and experience (key words)

solid-state detectors, detector electronics and logic, accelerator physics, radioactivity & dosimetry, spectroscopy, Monte-Carlo simulations, strange atoms, big data analysis, software development, development of mathematical models, kinetic modeling, network science, hybrid imaging, methods in nuclear medicine, image quantification, statistics, team leading, conflict management, GCP, teaching

Contributions and achievements

Study PI among others of human studies to investigate SGLT2 inhibition in diabetes (2016 and 2018), renal function with PET (2016 and 2017) and whole-body quantification (2020); and one animal study to explore renal quantification (2017).

Outreach: Participation in university summer programs for kids, Organisation and participation in "Lange Nacht der Forschung" (2009 and 2012)m Participation in "Spielraum Physik" (2005)

Publications

40 peer-reviewed publications, > 30 conference contributions.

Reviewer for *Anti-Infective Agents*, *EJNMMI Physics*, *JNM*, *EJR*, *Frontiers in Physics*, *JCM*, *AIA*, *Scientific Reports*, *Applied Sciences*, *Electronics*, *EJNMMI*



B. K. Geist, 09.09.2026

List of 10 most important publications

1. **Geist, BK**; Guthrie, J; Kertesz, H; Kiefer, FW; Kulterer, OA; Nakuz, T; Nics, L; Patronas, EM; Rendeito, A; Vraka, C; Yu, J; Grünert, S; Hacker, M; The metabolic organ connectome: A novel approach to measure allostatic load during health-to-disease transition. *Med* 2025;S100881 doi:10.1016/j.medj.2025.100881
2. **Geist, BK**; Ramirez, JC; Binder, P; Einspieler, H; Ibeschitz, H; Langsteger, W; Nics, L; Rausch, I; Diemling, M; Sohlberg, A; Hacker, M; Rasul, S. In vivo assessment of safety, biodistribution, and radiation dosimetry of the [18F]Me4FDG PET-radiotracer in adults. *EJNMMI Res* 2024;14(1):46 doi:10.1186/s13550-024-01098-2
3. **Geist, BK**; Brath, H; Zisser, L; Yu, JS; Fueger, B; Nics, L; Patronas, EM; Kautzky-Willer, A; Hacker, M; Rasul, S. Excretion of glucose analogue with SGLT2 affinity predicts response effectiveness to sodium glucose transporter 2 inhibitors in patients with type 2 diabetes mellitus. *EJNMMI* 2023;50(10):3034 doi:10.1007/s00259-023-06256-7
4. **Geist, BK**; Neufeld, H. Particle-number conservation, causality and linear response in biomedical imaging. *APPL MATH COMP* 2021;409:126418 doi:10.1016/j.amc.2021.126418
5. **Geist, BK**; Wang, JN; Wang, XZ; Lin, JZ; Yang, X; Zhang, H; Li, F; Zhao, HT; Hacker, M; Huo, L; Li, X. Comparison of different kinetic models for dynamic 18F-FDG PET/CT imaging of hepatocellular carcinoma with various, also dual-blood input function. *PHYS MED BIO* 2020;65(4):45001 doi:10.1088/1361-6560/ab66e3
6. Rasul, S; **Geist, BK** (corresponding); Brath, H; Baltzer, P; Sundar, LKS; Pichler, V; Mitterhauser, M; Kautzky-Willer, A; Hacker, M. Response evaluation of SGLT2 inhibitor therapy in patients with type 2 diabetes mellitus using 18F-FDG PET/MRI. *BMJ OPEN DIAB RES & CARE* 2020;8(1):e001135 doi:10.1136/bmjdr-2019-001135
7. **Geist, BK**; Baltzer, P; Fueger, B; Hamboeck, M; Nakuz, T; Papp, L; Rasul, S; Sundar, LKS; Hacker, M; Staudenherz, A. Assessing the kidney function parameters glomerular filtration rate and effective renal plasma flow with dynamic FDG-PET/MRI in healthy subjects. *EJNMMI Res* 2018;8:37 doi:10.1186/s13550-018-0389-1
8. Reed, MB; de León, MP; Vraka, C; Rausch, I; Godbersen, GM; Popper, V; Geist, BK; Komorowski, A; Nics, L; Schmidt, C; Klug, S; Langsteger, W; Karanikas, G; Traub-Weidinger, T; Hahn, A; Lanzenberger, R; Hacker, M. Whole-body metabolic connectivity framework with functional PET. *NEUROIMAGE* 2023;271:120030 doi: 10.1016/j.neuroimage.2023.120030
9. Yu, JS; Spielvogel, C; Haberl, D; Jiang, ZW; Özer, Ö; Pusitz, S; **Geist, B**; Beyerlein, M; Tibu, I; Yildiz, E; Kandathil, SA; Buschhorn, T; Schnoell, J; Kumpf, K; Chen, YT; Wu, TT; Zhang, ZQ; Gruenert, S; Hacker, M; Vraka, C. Systemic Metabolic and Volumetric Assessment via Whole-Body [18F]FDG-PET/CT: Pancreas Size Predicts Cachexia in Head and Neck Squamous Cell Carcinoma. *CANCERS* 2024;16:3352 doi: 10.3390/cancers16193352
10. Klebermass, EM; Mahmudi, M; Geist, BK; Pichler, V; Vraka, C; Balber, T; Miller, A; Haschemi, A; Viernstein, H; Rohr-Udilova, N; Hacker, M; Mitterhauser, M. If It Works, Don't Touch It? A Cell-Based Approach to Studying 2-[18F]FDG Metabolism. *PHARMACEUTICALS* 2021;14:910 doi: 10.3390/ph14090910