

CURRICULUM VITAE

Oliver Langer, Mag.pharm., PhD, Priv.-Doz., Assoc.-Prof.

Department of Clinical Pharmacology, Medical University of Vienna, Austria



Current Position

2018 - present Associate Professor, Medical University of Vienna, Austria

Education and Career History

2010 - 2020 Senior Scientist, AIT Austrian Institute of Technology GmbH, Austria
2006 - 2020 Employment at AIT Austrian Institute of Technology GmbH, Seibersdorf, Austria
2006 Venia docendi (Privatdozent) in Radiopharmaceutical Chemistry, Medical University of Vienna, Austria
2002 - present Employment at Department of Clinical Pharmacology, Medical University of Vienna, Austria
1996 apr - 2000 dec PhD thesis, Department of Clinical Neurosciences, Karolinska Institutet, Stockholm, Sweden, supported by a research fellowship from the EU (ERBCHBGCT940716)
1999 jan - 2000 dec Research associate, Department of Clinical Neurosciences, Karolinska Institutet, Stockholm, Sweden
1996 apr - 1998 dec Research associate, Commissariat à l'énergie atomique (CEA), Service Hospitalier Frédéric Joliot, Orsay, France
1993 march - 1993 oct Master thesis, Department of Clinical Neurosciences, Karolinska Institutet, Stockholm, Sweden, supported by a research fellowship from the Austrian Ministry of Science
1989 sep - 1996 jan University of Vienna (Master of Pharmacy)

Research Interests

Preclinical and clinical PET imaging, radiopharmaceutical sciences, radiotracer development, membrane transporters, translational research, clinical pharmacokinetics, clinical pharmacology, ADME, microdosing, drug development, radiochemistry, Alzheimer's disease, epilepsy, pulmonary drug delivery

Awards/Fellowships

2005 Hans-Horst-Meyer-Award, Austrian Pharmacological Society
2003 THP-ÖGN Award for Natural Scientists in Nuclear Medicine, Austrian Society of Nuclear Medicine
1996 - 1997 EU fellowship Human Capital and Mobility (ERBCHBGCT940716)

Grant Reviewer

SigN Collaborative Grant Call 2009 (A*STAR, Singapore Immunology Network), The Sir Jules Thorn Award for Biomedical Research (UK)

Journal Peer Reviewer (selection)

American Journal of Neuroradiology, Bioorganic and Medicinal Chemistry, British Journal of Pharmacology, Clinical Pharmacology and Therapeutics, Drug Metabolism and Disposition, Epilepsy Research, European Journal of Nuclear Medicine and Molecular Imaging, Journal of Cerebral Blood Flow & Metabolism, Journal of Labelled Compounds and Radiopharmaceuticals, Journal of Nuclear Medicine, Molecular Imaging and Biology, Molecular Pharmaceutics, Molecular Psychiatry, NeuroImage, Nuclear Medicine and Biology, Pharmaceutical Research, PLOSone

International Cooperations (selection)

Commissariat à l'énergie atomique et aux énergies alternatives (CEA), Service Hospitalier Frédéric Joliot, Orsay, France (Dr. Nicolas Tournier); University of Oslo, Department of Neuro-/Pathology, Oslo, Norway (Prof. Jens Pahnke); Trinity College Dublin, Dublin, Ireland (Prof. Carsten Ehrhardt); University Hospital Zurich,

Department of Clinical Pharmacology and Toxicology, Zurich, Switzerland (Prof. Bruno Stieger); University of Veterinary Medicine Hannover, Department of Pharmacology, Toxicology & Pharmacy, Hannover, Germany (Prof. Wolfgang Löscher); University College London, Institute of Neurology, London, UK (Prof. Matthias Koepp); The University of Manchester, Wolfson Molecular Imaging Centre, Manchester, UK (Dr. Marie-Claude Asselin)

Invited Lectures (selection)

- 2017 Royal Chemical Society, London, UK
- 2015 Society of Nuclear Medicine and Molecular Imaging Annual Meeting, Baltimore, USA
- 2014 Experimental Biology, San Diego, USA
- 2014 Gordon Research Conference Barriers of the CNS, New London, USA
- 2013 Gordon Research Conference Multi-Drug Efflux Systems, Ventura, USA
- 2011 7th BioMedical Transporters Conference, Grindelwald, Switzerland
- 2009 American Epilepsy Society 63rd annual meeting, Boston, USA

Memberships in Professional Organizations

APHAR (Österreichische Pharmakologische Gesellschaft), EANM (European Association of Nuclear Medicine), ESMI (European Society for Molecular Imaging), ÖGNMB (Österreichische Gesellschaft für Nuklearmedizin und Molekulare Bildgebung), Hepatocyte Transporter Network (<https://www.unige.ch/hepatocyte-transporter-network/home/>);

Memberships in Editorial Boards

Pharmaceutics (IF 2021 6.525), MDPI AG, Basel, Switzerland: Section Editor "Pharmacokinetics and Pharmacodynamics"

Grants (as Principal Investigator)

- 2023 - 2026 FWF project: Effect of OCT/Ns on pulmonary disposition of inhaled drugs (P 36738-B), 380,462 €
- 2023 - 2025 Pfizer Global Medical Grant – Research collaboration: Quantitative evaluation of the brain distribution and pharmacokinetics of isavuconazole using positron emission tomography (PET) imaging (#69735497), 355,724 €
- 2021 - 2024 JPND transnational call: "Novel imaging and brain stimulation methods and technologies related to Neurodegenerative Diseases (JPND2020)": PETABC (FFG nr. 882717) 319,561 € (Coordinator: Jens Pahnke, University of Oslo)
- 2020 - 2024 FWF bilateral French-Austrian joint research project (together with Agence National de la Recherche-ANR, France): ¹¹C-Metoclopramide PET in epilepsy (EPIFLUX) (I 4470-B), 261,952 € (PI: FWF: Oliver Langer and Martin Bauer, ANR: Nicolas Tournier)
- 2020 - 2024 FWF project (Urgent Funding SARS-CoV-2): Effect of antihypertensive drugs on pulmonary ACE2 (P 33921-B), 358,848 € (Co-PI: Christoph Denk, TU Wien)
- 2019 - 2023 EU Horizon 2020-Innovative Medicines Initiative (IMI): Investigating Mechanisms and Models Predictive of Accessibility of Therapeutics (IM2PACT) into The Brain (grant agreement nr. 807015), sub-budget AIT: 211,684 € (coordinator: Zamel Cader)
- 2019 - 2021 Society for Research Promotion Lower Austria (GFF) project: PET/MR imaging to assess the role of membrane transporters in pulmonary disposition of inhaled drugs (LSC17-009), 292,380 €
- 2018 - 2020 FWF KLIF project: Impact of ABCB1 on neuro-PK of metoclopramide (KLI 694-B30), 216,270 €
- 2016 - 2019 Society for Research Promotion Lower Austria (GFF) project: Improving brain distribution of drugs targeted to the brain (LSC15-003), 292,110 €
- 2015 - 2018 FWF KLIF project: Influence of ABCG2 SNP on brain distribution of ABCG2 substrates (KLI 480-B30), 173,601 €
- 2014 - 2017 FWF DACH project (together with Deutsche Forschungsgemeinschaft-DFG, Germany): PET imaging to assess BBB function in Alzheimer's disease (I 1609-B24), 319,424 €
- 2012 - 2013 FWF stand-alone project: Assessment of species differences in P-glycoprotein function at the blood-brain barrier (P24894-B24), 83,888 €
- 2011 - 2018 Industry funding for preclinical contract research projects at AIT (Probiobdrug AG, Avaant Pharmaceuticals Inc.), 135,000 €

2008 - 2012 FP7 collaborative project: Euripides (grant agreement nr. 201380), sub-budget AIT: 748,267 € (coordinator: Matthias Koepp, PI AIT: Oliver Langer)
 2005 - 2006 Österreichische Nationalbank Jubiläumsfonds project: Combined PET and microdialysis (project nr. 11058), 45,000 €

Grants (as Co-Investigator)

2015 - 2018 Society for Research Promotion Lower Austria project: Blood-brain barrier ABCG2 function in Alzheimer's disease (NFB LS14-008), 243,770 € (PI: Thomas Wanek)
 2013 - 2016 Lower Austria Corporation for Research and Education (NFB) project: Investigation of drug resistance in glioblastoma - a microPET-MRI study (NFB LS12-006), 250,000 € (PI: Claudia Kuntner)
 2012 - 2016 FWF KLIF project: Assessment of multidrug resistance in breast cancer (KLI 139-B00), 150,177 € (PI: Markus Müller)
 2008 - 2014 FWF SFB 35 sub-project: Imaging the distribution of cerebral multidrug transporters in epilepsy patients with PET (F 3513-B20), 683,308 € (PI: Markus Müller)
 2008 - 2012 FP7 collaborative project: Euripides (grant agreement nr. 201380), sub-budget MUW: 184,720 € (coordinator: Matthias Koepp, PI MUW: Markus Müller)

Current PhD Students (main supervisor)

Jakob Pfeiffer-Vogl	PhD program at Medical University of Vienna N094
Matthias Jackwerth	PhD program at Medical University of Vienna N094
Myriam El Biali	PhD program at Medical University of Vienna N094
Michael Wölfl-Duckeck	PhD program at Medical University of Vienna N094
Viktoria Zoufal	PhD program at Medical University of Vienna N790

Former PhD Students (main supervisor)

Irene Hernández Lozano	PhD program at Medical University of Vienna N094
Alexander Traxl	PhD program at Medical University of Vienna N790
Severin Mairinger	PhD program at University of Vienna
Thomas Wanek	PhD program at Medical University of Vienna N790
Beatrix Wulkersdorfer	PhD program at Medical University of Vienna N790 (not terminated)
Claudia Wagner	PhD program at Medical University of Vienna N790 (not terminated)

Teaching at University Courses (Medical University of Vienna)

VO, 562854, Radioisotopes in drug development
 SE, 85004, Dissertantenseminar
 SE, 562972, Methodisches Seminar
 Regular moderator for journal club "Clinical Pharmacology" (502.133) within doctoral program "Preclinical and Clinical Research for Drug Development" (N790)

Functions at Medical University of Vienna

- Senior Supervisor in Doctoral Program of Applied Medical Sciences "Preclinical and Clinical Research for Drug Development" (N790)
- Senior Supervisor in PhD Program "Medical Imaging" (N094)
- Reviewer and examiner/opponent of PhD theses at the Medical University of Vienna, University of Vienna, Vienna University of Technology and Karolinska Institute (Stockholm, Sweden)
- Radiation protection agent ("Strahlenschutzbeauftragter") at the Department of Clinical Pharmacology
- Deputy speaker of the node "Development of Imaging Probes" of the Medical Imaging Cluster – MIC
- Member of the Steering Board of the Preclinical Imaging Laboratory at the Medical University of Vienna
- Member of organizing committee of 1st Donau Symposium "Applied Diagnostics for effective cancer treatment" (September 28-30, 2016, Medical University of Vienna)

Publication list Oliver Langer (1997-2025, * = corresponding author, IF = impact factor, **Top journal**: within first 20% of subject category, according to Clarivate Analytics InCites™ Journal Citation Reports® 2025)

Total number of papers: 181 (149 original research articles, 30 review articles, 1 letter to the editor and 1 editorial)

Number of papers as first, last or corresponding author: 113 (thereof 63 in **Top journals**)

Number of papers as co-author: 68 (thereof 30 in **Top journals**)

H (Hirsch) Index: 43 (Scopus July 14, 2025)

Overall impact factor (1997-2025): 1012 (564 as first, last or corresponding author)

Overall citations (1997-2025; Scopus, July 14, 2025): 5349 (180 documents)

orcid.org/0000-0002-4048-5781

First, last or corresponding author:

Original research articles:

1. Severin Mairinger, Mihye Kwon, Martin Bauer, Jinho Song, Edith Lackner, Anselm Jorda, Felix Bergmann, Iris K. Minichmayr, Ka Yeon Kim, Min Sun Choi, Jae Hoon Shim, Stephen R. Dueker, Markus Zeitlinger, **Oliver Langer***. Evaluation of dose-linearity in the systemic availability and pharmacokinetics of topically administered diclofenac: a ¹⁴C-microdosing study in healthy volunteers. *Drug Metabol Dispos* 53(7):100091 (2025) IF 2024 4.0
2. Matthias Jackwerth, Severin Mairinger, Ivo Rausch, Maria Weber, Anselm Jorda, Lukas Nics, Werner Langsteger, Markus Zeitlinger, Marcus Hacker, **Oliver Langer***. Effect of probenecid on the whole-body disposition of 6-bromo-7-[¹¹C]methylpurine in humans assessed with long axial field-of-view PET/CT. *Eur J Nucl Med Mol Imaging* 52(7):2477-2490 (2025) IF 2024 7.6 (**Top**: 10/212, Radiology, Nuclear Medicine & Medical Imaging)
3. Myriam El Biali, Louise Breuil, Matthias Jackwerth, Severin Mairinger, Maria Weber, Michael Wölfl-Duchek, Karsten Bamming, Ivo Rausch, Lukas Nics, Marcus Hacker, Sebastian Rodrigo, Viviane Bouilleret, Markus Zeitlinger, Ekaterina Patarala, Nicolas Tournier, Martin Bauer, **Oliver Langer***. [¹¹C]Metoclopramide PET can detect a seizure-induced up-regulation of cerebral P-glycoprotein in epilepsy patients. *Fluids Barriers CNS* 21(1):87 (2024) IF 2024 6.2 (**Top**: 35/314, Pharmacology & Pharmacy)
4. Severin Mairinger, Matthias Jackwerth, Zacharias Chalampalakis, Ivo Rausch, Maria Weber, Michael Wölfl-Duchek, Lena Pracher, Lukas Nics, Jens Pahnke, Werner Langsteger, Marcus Hacker, Markus Zeitlinger, **Oliver Langer***. First-in-human evaluation of 6-bromo-7-[¹¹C]methylpurine, a PET tracer for assessing the function of multidrug resistance-associated proteins in different tissues. *Eur J Nucl Med Mol Imaging* 51(13):3900-3911 (2024) IF 2024 7.6 (**Top**: 10/212, Radiology, Nuclear Medicine & Medical Imaging)
5. Severin Mairinger, Matthias Jackwerth, Ondřej Soukup, Matthias Bläckner, Clemens Decristoforo, Lukas Nics, Jens Pahnke, Marcus Hacker, Markus Zeitlinger, **Oliver Langer**. Advancing 6-bromo-7-[¹¹C]methylpurine to clinical use: improved regioselective radiosynthesis, non-clinical toxicity data and human dosimetry estimates. *EJNMMI Radiopharm Chem* 9(1):34 (2024) IF 2024 3.3
6. Myriam El Biali, Michael Wölfl-Duchek, Matthias Jackwerth, Severin Mairinger, Maria Weber, Karsten Bamming, Stefan Poschner, Ivo Rausch, Natalie Schindler, Irene Hernández Lozano, Walter Jäger, Lukas Nics, Nicolas Tournier, Marcus Hacker, Markus Zeitlinger, Martin Bauer, **Oliver Langer***. St. John's wort extract with a high hyperforin content does not induce P-glycoprotein activity at the human blood-brain barrier. *CTS-Clin Transl Sci* 17(5):e13804 (2024) IF 2024 2.8
7. Irene Hernández-Lozano, Sarah Leterrier, Severin Mairinger, Johann Stanek, Anna S. Zacher, Lara Breyer, Marcus Hacker, Markus Zeitlinger, Jens Pahnke, Nicolas Tournier, Thomas Wanek, **Oliver Langer***. Performance and sensitivity of [^{99m}Tc]Tc-sestamibi compared with PET radiotracers to measure P-glycoprotein function in the kidneys and liver. *Mol Pharm* 21(2):932-943 (2024) IF 2024 4.5 (**Top**: 64/352, Pharmacology & Pharmacy)
8. Severin Mairinger, Sarah Leterrier, Thomas Filip, Mathilde Löbsch, Jens Pahnke, Irene Hernández-Lozano, Johann Stanek, Nicolas Tournier, Markus Zeitlinger, Marcus Hacker, **Oliver Langer***, Thomas Wanek.

- [¹¹C]Metoclopramide is a sensitive radiotracer to measure moderate decreases in P-glycoprotein function at the blood-brain barrier. *J Cereb Blood Flow Metab* 44(1): 142-152 (2024) IF 2024 4.5 (Top: 62/314, Neurosciences)
9. Myriam El Biali, Sylvain Auvity, Salvatore Cisternino, Maria Smirnova, Marcus Hacker, Markus Zeitlinger, Severin Mairinger, Nicolas Tournier, Martin Bauer, Oliver Langer*. Dissimilar effect of P-glycoprotein and breast cancer resistance protein inhibition on the distribution of erlotinib to the retina and brain in humans and mice. *Mol Pharm* 20(11):5877-5887 (2023) IF 2024 4.5 (Top: 64/352, Pharmacology & Pharmacy)
 10. Severin Mairinger, Irene Hernández-Lozano, Lena Zachhuber, Thomas Filip, Mathilde Löbsch, Markus Zeitlinger, Marcus Hacker, Carsten Ehrhardt, Oliver Langer*. Effect of budesonide on pulmonary activity of multidrug resistance-associated protein 1 assessed with PET imaging in rats. *Eur J Pharm Sci* 184:106414 (2023) IF 2024 4.7 (Top: 54/352, Pharmacology & Pharmacy)
 11. Severin Mairinger, Irene Hernández-Lozano, Thomas Filip, Mathilde Löbsch, Johann Stanek, Markus Zeitlinger, Marcus Hacker, Nicolas Tournier, Thomas Wanek, Carsten Ehrhardt, Oliver Langer*. Influence of P-glycoprotein on pulmonary disposition of the model substrate [¹¹C]metoclopramide assessed by PET imaging in rats. *Eur J Pharm Sci* 2023;183:106404 (2023) IF 2024 4.7 (Top: 54/352, Pharmacology & Pharmacy)
 12. Irene Hernández-Lozano, Severin Mairinger, Thomas Filip, Mathilde Löbsch, Johann Stanek, Claudia Kuntner, Martin Bauer, Markus Zeitlinger, Marcus Hacker, Thomas H. Helbich, Thomas Wanek, Oliver Langer*. Positron emission tomography-based pharmacokinetic analysis to assess renal transporter-mediated drug-drug interactions of antimicrobial drugs. *Antimicrob Agents Chemother* 67(3):e0149322 (2023) IF 2024 4.5 (Top: 60/353, Pharmacology & Pharmacy)
 13. Oliver Langer, Jinho Song*, Min Sun Choi, Edith Lackner, Felix Bergmann, Chang Su Yeo, Miwha Kwon, Mi hye Kwon, Jae Hoon Shim, Stephen R. Dueker, Markus Zeitlinger, Martin Bauer*. Accelerator mass spectrometry for quantification of micro- and therapeutic dose diclofenac in microdialysis samples. *Bioanalysis* 14(16):1111-1122 (2022) IF 2024 1.8
 14. Severin Mairinger, Irene Hernández-Lozano, Thomas Filip, Michael Sauberer, Mathilde Löbsch, Johann Stanek, Thomas Wanek, Johannes A. Sake, Thomas Pekar, Carsten Ehrhardt*, Oliver Langer*. Impact of P-gp and BCRP on pulmonary drug disposition assessed by PET imaging in rats. *J Control Release* 349:109-117 (2022) IF 2024 11.5 (Top: 12/352, Pharmacology & Pharmacy)
 15. Michael Wölfl-Duchek, Severin Mairinger, Irene Hernández-Lozano, Thomas Filip, Viktoria Zoufal, Mathilde Löbsch, Johann Stanek, Claudia Kuntner, Thomas Wanek, Martin Bauer, Jens Pahnke, Oliver Langer*. Use of PET imaging to assess the efficacy of thiethylperazine to stimulate cerebral MRP1 transport activity in wild-type and APP/PS1-21 mice. *Int J Mol Sci* 23(12):6514 (2022) IF 2024 4.9
 16. Irene Hernández-Lozano, Severin Mairinger, Thomas Filip, Michael Sauberer, Thomas Wanek, Johann Stanek, Johannes A. Sake, Thomas Pekar, Carsten Ehrhardt, Oliver Langer*. PET imaging to assess the impact of P-glycoprotein on pulmonary drug delivery in rats. *J Control Release* 342: 44-52 (2022) IF 2024 11.5 (Top: 12/352, Pharmacology & Pharmacy)
 17. Irene Hernández-Lozano, Severin Mairinger, Alexander Traxl, Michael Sauberer, Thomas Filip, Johann Stanek, Claudia Kuntner, Thomas Wanek, Oliver Langer*. Assessing the functional redundancy between P-gp and BCRP in controlling the brain distribution and biliary excretion of dual substrates with PET imaging in mice. *Pharmaceutics* 13(8):1286 (2021) IF 2024 5.5 (Top: 34/352, Pharmacology & Pharmacy)
 18. Solène Marie, Irene Hernández-Lozano, Louise Breuil, Charles Truillet, Shuiying Hu, Alex Sparreboom, Nicolas Tournier, Oliver Langer. Imaging-based characterization of a *Sico2b1*^(-/-) mouse model using [¹¹C]erlotinib and [^{99m}Tc]mebrofenin as probe substrates. *Pharmaceutics* 13(6):918 (2021) IF 2024 5.5 (Top: 34/352, Pharmacology & Pharmacy)
 19. Irene Hernández-Lozano, Thomas Wanek, Michael Sauberer, Thomas Filip, Severin Mairinger, Johann Stanek, Alexander Traxl, Rudolf Karch, John D. Schuetz, Oliver Langer*. Influence of ABC transporters on the excretion of ciprofloxacin assessed with PET imaging in mice. *Eur J Pharm Sci* 163:105854 (2021) IF 2024 4.7 (Top: 54/352, Pharmacology & Pharmacy)

20. Martin Bauer, Sandra Barna, Matthias Blaickner, Konstantin Prosenz, Karsten Bammingner, Verena Pichler, Nicolas Tournier, Marcus Hacker, Markus Zeitlinger, Georgios Karanikas, Oliver Langer. Human biodistribution and radiation dosimetry of the P-glycoprotein radiotracer [¹¹C]metoclopramide. *Mol Imaging Biol* 23(2):180-185 (2021) IF 2024 2.5
21. Irene Hernández-Lozano, Severin Mairinger, Michael Sauberer, Johann Stanek, Thomas Filip, Thomas Wanek, Giuliano Ciarimboli, Nicolas Tournier, Oliver Langer*. Influence of cation transporters (OCTs and MATEs) on the renal and hepatobiliary disposition of [¹¹C]metoclopramide in mice. *Pharm Res* 2021 38(1):127-140 (2021) IF 2024 4.3 (Top: 69/352, Pharmacology & Pharmacy)
22. Nicolas Tournier*, Sebastien Goutal, Severin Mairinger, Irene Hernández Lozano, Thomas Filip, Michael Sauberer, Fabien Caillé, Louise Breuil, Johann Stanek, Anna F. Freeman, Gaia Novarino, Charles Truillet, Thomas Wanek, Oliver Langer*. Complete inhibition of ABCB1 and ABCG2 at the blood-brain barrier by co-infusion of erlotinib and tariquidar to improve brain delivery of the model ABCB1/ABCG2 substrate [¹¹C]erlotinib. *J Cereb Blood Flow Metab* 41(7):1634-1646 (2021) IF 2024 4.5 (Top: 62/314, Neurosciences)
23. Martin Bauer*, Karsten Bammingner, Verena Pichler, Maria Weber, Simon Binder, Alexandra Maier-Salamon, Ammar Tahir, Walter Jäger, Helmuth Haslacher, Nicolas Tournier, Marcus Hacker, Markus Zeitlinger, Oliver Langer*. Impaired clearance from the brain increases the brain exposure to metoclopramide in elderly subjects. *Clin Pharmacol Ther* 109(3):754-761 (2021) IF 2024 5.5 (Top: 34/352, Pharmacology & Pharmacy)
24. Thomas Wanek, Viktoria Zoufal, Mirjam Brackhan, Markus Krohn, Severin Mairinger, Thomas Filip, Michael Sauberer, Johann Stanek, Thomas Pekar, Jens Pahnke, Oliver Langer. Brain distribution of dual ABCB1/ABCG2 substrates is unaltered in a beta-amyloidosis mouse model. *Int J Mol Sci* 21(21):E8245 (2020) IF 2024 4.9
25. Severin Mairinger, Johannes A. Sake, Irene Hernández Lozano, Thomas Filip, Michael Sauberer, Johann Stanek, Thomas Wanek, Carsten Ehrhardt, Oliver Langer*. Assessing the activity of multidrug resistance-associated protein 1 at the lung epithelial barrier. *J Nucl Med* 61(11):1650-1657 (2020) IF 2024 9.1 (Top: 7/212, Radiology, Nuclear Medicine & Medical Imaging)
26. Irene Hernández Lozano, Martin Bauer, Beatrix Wulkersdorfer, Alexander Traxl, Cécile Philippe, Maria Weber, Stephanie Häusler, Bruno Stieger, Walter Jäger, Severin Mairinger, Thomas Wanek, Marcus Hacker, Markus Zeitlinger, Oliver Langer*. Measurement of hepatic ABCB1 and ABCG2 transport activity with [¹¹C]tariquidar and PET in humans and mice. *Mol Pharm* 17(1):316-326 (2020) IF 2024 4.5 (Top: 64/352, Pharmacology & Pharmacy)
27. Viktoria Zoufal, Severin Mairinger, Mirjam Brackhan, Markus Krohn, Thomas Filip, Michael Sauberer, Johann Stanek, Thomas Wanek, Nicolas Tournier, Martin Bauer, Jens Pahnke, Oliver Langer*. Imaging P-glycoprotein induction at the blood-brain barrier of a beta-amyloidosis mouse model with ¹¹C-metoclopramide PET. *J Nucl Med* 61:1050-1057 (2020) IF 2024 9.1 (Top: 7/212, Radiology, Nuclear Medicine & Medical Imaging), winner of the Alavi-Mandell Award 2022 of the SNMMI
28. Pavitra Kannan, András Füredi, Sabina Dizdarevic, Thomas Wanek, Severin Mairinger, Jason Lee, Jeffrey Collins, Theresa Falls, Michael van Dam, Walter Ladno, Divya Maheshwari, Gergely Skazács, Oliver Langer. *In vivo* characterization of [¹⁸F]AVT-011 as a radiotracer for PET imaging of multidrug resistance. *Eur J Nucl Med Mol Imaging* 47(8):2026-2035 (2020) IF 2024 7.6 (Top: 10/212, Radiology, Nuclear Medicine & Medical Imaging)
29. Viktoria Zoufal, Severin Mairinger, Markus Krohn, Thomas Wanek, Thomas Filip, Michael Sauberer, Johann Stanek, Claudia Kuntner, Jens Pahnke, Oliver Langer*. Measurement of cerebral ABCC1 transport activity in wild-type and APP/PS1-21 mice with positron emission tomography. *J Cereb Blood Flow Metab* 40(5) 954-965 (2020) IF 2024 4.5 (Top: 62/314, Neurosciences), featured as Editor's choice
30. Viktoria Zoufal, Thomas Wanek, Markus Krohn, Severin Mairinger, Thomas Filip, Michael Sauberer, Johann Stanek, Jens Pahnke, Oliver Langer. Age dependency of cerebral P-glycoprotein function in wild-type and APPPS1 mice measured with PET. *J Cereb Blood Flow Metab* 40(1):150-162 (2020) IF 2024 4.5 (Top: 62/314, Neurosciences)
31. Beatrix Wulkersdorfer, Martin Bauer, Rudolf Karch, Harald Stefanits, Cécile Philippe, Maria Weber, Thomas Czech, Marie-Claude Menet, Xavier Declèves, Johannes A Hainfellner, Matthias Preusser, Marcus Hacker,

- Markus Zeitlinger, Markus Müller, Oliver Langer*. Assessment of brain delivery of a model ABCB1/ABCG2 substrate in patients with non-contrast enhancing brain tumors with positron emission tomography. *EJNMMI Res* 9(1):110 (2019) IF 2024 3.0
32. Irene Hernández Lozano, Rudolf Karch, Martin Bauer, Matthias Blaickner, Akihiro Matsuda, Beatrix Wulkersdorfer, Marcus Hacker, Markus Zeitlinger, Oliver Langer*. Towards improved pharmacokinetic models for the analysis of transporter-mediated hepatic disposition of drug molecules with positron emission tomography. *AAPS J* 21(4):61 (2019) IF 2024 3.7
 33. Alexander Traxl, Severin Mairinger, Thomas Filip, Michael Sauberer, Johann Stanek, Stefan Poschner, Walter Jäger, Viktoria Zoufal, Gaia Novarino, Nicolas Tournier, Martin Bauer, Thomas Wanek, Oliver Langer*. Inhibition of ABCB1 and ABCG2 at the mouse blood-brain barrier with marketed drugs to improve brain delivery of the model ABCB1/ABCG2 substrate [¹¹C]erlotinib. *Mol Pharm* 16(3):1282-1293 (2019) IF 2024 4.5 (Top: 64/352, Pharmacology & Pharmacy)
 34. Nicolas Tournier, Martin Bauer, Verena Pichler, Lukas Nics, Eva-Maria Klebermass, Peter Matzneller, Maria Weber, Fabien Caillé, Sylvain Auvity, Solène Marie, Walter Jäger, Wolfgang Wadsak, Marcus Hacker, Markus Zeitlinger, Oliver Langer. Impact of P-glycoprotein function on the brain kinetics of the weak substrate ¹¹C-metoclopramide assessed with PET imaging in humans. *J Nucl Med* 60(7):985-991 (2019) IF 2024 9.1 (Top: 7/212, Radiology, Nuclear Medicine & Medical Imaging)
 35. Martin Bauer, Rudolf Karch, Beatrix Wulkersdorfer, Cécile Philippe, Lukas Nics, Eva-Maria Klebermass, Maria Weber, Stefan Poschner, Helmuth Haslacher, Walter Jäger, Nicolas Tournier, Wolfgang Wadsak, Marcus Hacker, Markus Zeitlinger, Oliver Langer. A proof-of-concept study to inhibit ABCG2- and ABCB1-mediated efflux transport at the human blood-brain barrier. *J Nucl Med* 60(4):486-491 (2019) IF 2024 9.1 (Top: 7/212, Radiology, Nuclear Medicine & Medical Imaging); Featured Translational Science Article; Letter to the Editor: *J Nucl Med* 61(2):305 (2020)
 36. Viktoria Zoufal, Severin Mairinger, Markus Krohn, Thomas Wanek, Thomas Filip, Michael Sauberer, Johann Stanek, Alexander Traxl, John D. Schuetz, Claudia Kuntner, Jens Pahnke, Oliver Langer*. Influence of multidrug resistance-associated proteins on the excretion of the ABCC1 imaging probe 6-bromo-7-[¹¹C]methylpurine in mice. *Mol Imaging Biol* 21(2):306-316 (2019) IF 2024 2.5
 37. Martin Bauer, Alexander Traxl, Akihiro Matsuda, Rudolf Karch, Cécile Philippe, Lukas Nics, Eva-Maria Klebermass, Beatrix Wulkersdorfer, Maria Weber, Stefan Poschner, Nicolas Tournier, Walter Jäger, Wolfgang Wadsak, Marcus Hacker, Thomas Wanek, Markus Zeitlinger, Oliver Langer*. Effect of rifampicin on the distribution of [¹¹C]erlotinib to the liver, a translational PET study in humans and in mice. *Mol Pharm* 15(10): 4589-98 (2018) IF 2024 4.5 (Top: 64/352, Pharmacology & Pharmacy)
 38. Severin Mairinger, Viktoria Zoufal, Thomas Wanek, Alexander Traxl, Thomas Filip, Michael Sauberer, Johann Stanek, Claudia Kuntner, Jens Pahnke, Markus Müller, Oliver Langer*. Influence of breast cancer resistance protein and P-glycoprotein on tissue distribution and excretion of Ko143 assessed with PET imaging in mice. *Eur J Pharm Sci* 115:212-222 (2018) IF 2024 4.7 (Top: 54/352, Pharmacology & Pharmacy)
 39. Martin Bauer, Akihiro Matsuda, Beatrix Wulkersdorfer, Cécile Philippe, Alexander Traxl, Csilla Laczka, Johann Stanek, Lukas Nics, Eva-Maria Klebermass, Stefan Poschner, Walter Jäger, Izabel Patik, Eva Bakos, Gergely Szakács, Wolfgang Wadsak, Marcus Hacker, Markus Zeitlinger, Oliver Langer*. Influence of OATPs on hepatic disposition of erlotinib measured with positron emission tomography. *Clin Pharmacol Ther* 104(1):139-147 (2018) IF 2024 5.5 (Top: 34/352, Pharmacology & Pharmacy)
 40. Peter Matzneller, Manuel Kussmann, Sabine Eberl, Alexandra Maier-Salamon, Walter Jäger, Martin Bauer, Oliver Langer*, Markus Zeitlinger, Wolfgang Pöpl. Pharmacokinetics of tariquidar in rats after intravenous, oral and intraperitoneal administration. *Eur J Drug Metabol Pharmacokinet* 43(5):599-606 (2018) IF 2024 2.4
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180. Ulrich Müller, Martin Brunner, Oliver Langer, Markus Müller. The barely accessible compartment. Novel clinical tools [Das schwer erreichbare Kompartiment. Neue klinische Untersuchungsmethoden]. *Chemotherapie Journal* 14(2): 31-34 (2005)
181. Christer Halldin, Balázs Gulyás, Oliver Langer, Lars Farde. Brain radioligands - state of the art and new trends. *Q J Nucl Med Mol Imaging* 45: 139-152 (2001) IF 2024 1.4

Book chapters:

182. Oliver Langer. Human studies. In: Membrane transporters and drug delivery. Editors: Elena Puris, Mikko Gynther, Gerd Fricker and Tetsuya Terasaki, Elsevier B.V. (2026) ISBN: 9780443337833
183. Thomas Wanek, Alexander Traxl, Claudia Kuntner-Hannes, Oliver Langer. Investigation of transporter-mediated drug-drug interactions using PET/MRI. In: Image Fusion in Preclinical Applications. Editors: Claudia Kuntner-Hannes and York Haemisch, Springer (2019) ISBN: 978-3-030-02972-2
184. Oliver Langer. PET imaging of ABC transporters at the blood-brain barrier. In: Methods and Principles in Medicinal Chemistry – Transporters as Drug Targets. Editors: Gerhard F. Ecker, Rasmus Clausen and Harald Sitte, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany (2016)
185. Oliver Langer. Positron emission tomography to assess transporter mediated drug-drug interactions in vivo. In: Experts only. The Transporter book. 2nd edition, March 2014. Editors: Zsuzsanna Gáborik, Kent Grindstaff and Berend Oosterhuis. Produced and Published by Solvo Biotechnology, Budaörs, Hungary (2014)
186. Oliver Langer. Complementary techniques – positron emission tomography. In: AAPS Advances in the Pharmaceutical Sciences Series -Microdialysis in Drug Development. Editor: Markus Müller, Springer-Verlag GmbH, Heidelberg, Germany (2012); ISBN 978-1-4614-4814-3
187. Martin Bauer and Oliver Langer. Tools in clinical pharmacology - imaging techniques. In: Current topics in clinical pharmacology. Editor: Markus Müller, Springer-Verlag GmbH, Heidelberg, Germany (2010); ISBN 978-3-7091-0144-5

Patents:

WO 2004/043496 A1 Fluorquinolones labelled with fluorine-18; Inventor: Oliver Langer

Invited lectures:

1. Role of ABC transporters in pulmonary pharmacokinetics. 9th Pulmonary Drug Delivery, April 17-19, Dublin, Ireland (2024)

2. Translational PET imaging of P-glycoprotein activity at the blood-brain barrier in health and disease. 6th Mini-Symposium On The Blood-Brain Barrier From Basic To Clinical Research. March 19-20, Smolenice Castle, Slovakia (2024)
3. Measurement of cerebral P-gp, MRP1 and BCRP function in a beta-amyloidosis mouse model with PET. TransportDEMENTIA⁵. August 28-September 1, Tromsø, Norway (2023)
4. Role of ABC Transporters in Pulmonary Pharmacokinetics. 8th Pulmonary Drug Delivery Conference. May 31-June 2, Istanbul, Turkey (2023)
5. Use of small-animal PET imaging to assess drug disposition. International Symposium on Trends in Radiopharmaceuticals (ISTR-2023). 17-21 April, Vienna, Austria (2023)
6. PET microdosing with radiolabelled drugs. PASREL-imagerie meeting. Accélérer le développement de médicaments à l'aide de biomarqueurs d'imagerie biomédicale. October 21, Paris, France (2022)
7. Influence of ABC transporters at the lung epithelial barrier on the pulmonary disposition of inhaled drugs. Hepatocyte Transporter Network, September 18-21, Les Diablerets, Switzerland (2022)
8. PET-microdosing. 3rd International Phase-0/Microdosing Stakeholder Meeting - Safer, Accelerated, Targeted, and Human-Specific Translation in Drug Development. April 22, Fletcher Hotel, Leiden, The Netherlands (2022)
9. Role of ABC Transporters in Pulmonary Pharmacokinetics. 7th Workshop on Pulmonary Drug Delivery. April 20-22, Trinity College Dublin, Ireland (2022)
10. Use of PET imaging to assess P-glycoprotein activity at the BBB in Alzheimer's disease and epilepsy. Brain barriers in CNS diseases: novel therapeutic strategies and drug delivery approaches, April 1-3, Heidelberg, Germany (2022)
11. PET imaging to assess the impact of ABC efflux transporters at the blood-brain barrier on the brain distribution of small molecule drugs in health and disease. Research seminar Genentech, Inc. (online), November 30 (2021)
12. PET imaging to assess drug disposition. DMDG online meeting. October 18-20 (2021)
13. PET imaging of cerebral P-glycoprotein activity in healthy ageing and Alzheimer's disease. British Nuclear Medicine Society Annual Meeting 2021 (virtual), September 27-29 (2021)
14. Potential of Total-Body PET to Assess Drug Disposition. Total-Body PET2021 – Online Meeting, September 22-24 (2021)
15. Assessing the activity of ABC transporters at the lung epithelial barrier with PET imaging. Transportage 2021: hybrid, September 2-4, Greifswald, Germany (2021)
16. Use of PET imaging to assess strategies to enhance brain penetration of small molecule drugs in animals and humans. 24th North American ISSX Meeting (virtual), September 13-17 (2021)
17. PET imaging in determination of drug disposition. 6th German Pharm-Tox Summit, 87th Annual Meeting of the German Society for Experimental and Clinical Pharmacology and Toxicology (DGPT) March 1-3, virtual (2021)
18. PET imaging of P-glycoprotein activity at the blood-brain barrier. 33rd Annual European Association of Nuclear Medicine Congress (virtual), October 22-30 (2020)
19. Pharmacokinetic PET imaging in drug research. 7th FIP Pharmaceutical Sciences World Congress (PSWC2020 Virtual), October 4-6 (2020)
20. Introduction to PET microdosing and case study for AMS/PET combination. Workshop at the Korean Institute of Radiological and Medical Science (KIRAMS): The Phase 0 Concept: Reforming Clinical Development, December 2-3, Seoul, Korea (2019)
21. OATP2B1-mediated hepatic uptake of erlotinib assessed with PET imaging. Hepatocyte Transporter Network, September 1-4, Les Diablerets, Switzerland (2019)

22. PET microdosing - state of the art and future directions. First Phase-0/Microdosing Stakeholder Meeting. March 12, Washington D.C., USA (2019)
23. Use of PET to assess the impact of transporters on drug disposition. EANM Drug Development Committee - Interest Group Meeting. October 23, Vienna, Austria (2017)
24. Use of PET to study the effect of efflux transporters at the blood-brain barrier on brain distribution of drugs. 10th SFB35 Symposium, September 6-8, Vienna, Austria (2017)
25. PET imaging of transporters involved in drug disposition. British Nuclear Medicine Society Annual Spring Meeting 2017, May 20-22, Birmingham, UK (2017)
26. Using PET to study transporter mediated DDIs in tissues. The 2nd Symposium on Transporters in Drug Discovery. May 15-16, Royal Chemical Society, Burlington House, London, UK (2017)
27. Use of PET to study inhibition of efflux transporters at the blood-brain barrier to improve brain delivery of drugs. SFB35 Colloquia in Membrane Transport. November 18, Vienna, Austria (2016)
28. Use of positron emission tomography to assess the influence of ABC transporters on drug disposition *in vivo*. ABC2016 - 6th Special Meeting on ABC Proteins from Multidrug Resistance to Genetic Diseases. Hotel Grauer Bär****, March 5-11, Innsbruck, Austria (2016)
29. PET imaging of efflux transporter function at the blood-brain barrier. TransportDEMENTIA, December 9-11, Oslo, Norway (2015)
30. Use of PET to study inhibition of efflux transporters at the blood-brain barrier to improve brain delivery of drugs. Visiting lecture. The University of Manchester. Wolfson Molecular Imaging Centre. September 3, Manchester, UK (2015)
31. Imaging of efflux transporter function at the blood-brain barrier in Alzheimer's disease. Categorical Seminar "Molecular Imaging of Dementia: Beyond Amyloid PET". Society of Nuclear Medicine & Molecular Imaging 2015 Annual Meeting, June 6-10, Baltimore, MD, USA (2015)
32. Preclinical and clinical PET imaging of ABC transporters at the blood-brain barrier. Conference, Institut d'Imagerie Biomédicale, Service Hospitalier Frédéric Joliot, CEA, March 27, Orsay, France (2015)
33. Preclinical and clinical PET imaging of ABC transporters at the blood-brain barrier. Lyon Neuroscience Research Center CRNL Workshop „CNS barriers, in and out“. March 26, Lyon, France (2015)
34. Imaging of ABC transporters at the blood-brain barrier with positron emission tomography. Seventh SFB35 - Symposium 2014, September 8-10, Vienna, Austria (2014)
35. Translational PET imaging of efflux transporters at the blood-brain barrier. 2014 Gordon Research Conference "Barriers of the CNS", June 15-20, New London, NH, USA (2014)
36. Preclinical and clinical PET imaging of ABC transporters. Seminar Series University of Washington, School of Pharmacy, May 1, Seattle, WA, USA (2014)
37. PET Imaging of ABC efflux transporters at the blood-brain barrier in humans and animal models. Symposium: Role of (Drug) Transporters in Imaging in Health and Disease at Experimental Biology, April 29, San Diego, CA, USA (2014)
38. Studying transporter-mediated drug-drug interactions with PET. Solvo Meet the Experts: Transporter Conference - 2014, April 3, Budapest, Hungary (2014)
39. PET Imaging of ABC Efflux Transporters. 2nd Austrian Biomarker Symposium 2014 Early Diagnostics, April 1, Vienna, Austria (2014)
40. Imaging of ABC transporters at the blood-brain barrier with positron emission tomography. Speakers' series German Center for Neurodegenerative Diseases (DZNE), October 8, Magdeburg, Germany (2013)

41. Imaging of ABC transporters at the blood-brain barrier with positron emission tomography. Solvo Webinar, June 5 (2013) (see: <http://www.solvobiotech.com/knowledge-center/webinars>)
42. *In vivo* imaging of ABC transporters with positron emission tomography in epilepsy, Alzheimer's disease and cancer. 2013 Gordon Research Conference "Multi-Drug Efflux Systems", March 17-22, Ventura, CA, USA (2013)
43. Visualization of ABC transporters with positron emission tomography. 5th SFB35-Symposium, September 24-25, Vienna, Austria (2012)
44. In vivo measurement of ABC transporters in rodents & man with PET. Seminar, The University of Manchester, Biomedical Imaging Institute, July 26, Manchester, UK (2012)
45. Visualization of ABC Transporters with Positron Emission Tomography. Boehringer Ingelheim Pharma GmbH & Co. KG, November 18, Biberach, Germany (2011)
46. Use of positron emission tomography to study ABC transporter function and expression in vivo. Scheele Symposium 2011 - Pharmaceutical Sciences in the Era of Personalised Medicine, November 10-11, Uppsala, Sweden (2011)
47. In vivo imaging of ABC transporters with positron emission tomography. 7th BioMedical Transporters Conference "Membrane Transporters in Drug Discovery", August 7-11, Grindelwald, Switzerland (2011)
48. Visualisation of ABC Transporters using PET imaging. Pharma IQ's Clinically Relevant Drug Transporters conference, June 29-30, London, UK (2011)
49. Use of preclinical and clinical PET imaging in drug development. Vienna School of Clinical Research course "The Scientific Approach To Modern Oncology: Clinical and Translational Oncology", June 27-30, Vienna, Austria (2011)
50. Erfahrungsbericht/Zulassungsbedingungen Österreich. Vorkongress Gemeinsame Jahrestagung der Deutschen, Österreichischen und Schweizerischen Gesellschaften für Nuklearmedizin 2011 „Nuklearmedizinische Bildgebung für pharmakologische und klinische Studien“, April 13, Bregenz, Austria (2011)
51. In vivo imaging of ABC transporters with positron emission tomography. Drug Metabolism Discussion Group meeting, March 24-25, Budapest, Hungary (2011)
52. Use of PET to study ABC transporter function and expression in vivo. Digestive Diseases Research Seminar "Recent progress in hepatobiliary transport as a molecular basis for functional imaging, February 2, Vienna, Austria (2011)
53. Positron emission tomography in drug development. TranSVIR Imaging Workshop, February 1-2, Vienna, Austria (2011)
54. Use of scintigraphic imaging as a tool in drug development. 8th Summer School of the European Association for Clinical Pharmacology and Therapeutics (EACPT), September 30-October 2, Dresden, Germany (2010)
55. PET imaging of ABC transporters at the blood-brain barrier. Third Annual Symposium of SFB35 „Transmembrane Transporters in Health and Disease“, September 3-4, Vienna, Austria (2010)
56. Use of positron emission tomography in microdose studies. TNO conference: "Microdosing: tracing the tracer", June 3, Baarn, The Netherlands (2010)
57. Imaging and microdosing - how do they fit for antimicrobial agents? 20th European Congress of Clinical Microbiology and Infectious Diseases, April 10-13, Vienna, Austria (2010)
58. New approaches to imaging cerebral P-glycoprotein with PET. American Epilepsy Society 63rd annual meeting, December 4-8, Boston, USA (2009)
59. Translational neuroimaging of efflux transporter activity at the blood-brain barrier with positron emission tomography. First Annual Symposium of SFB35 „Transmembrane Transporters in Health and Disease“, September 26-27, Vienna, Austria (2008)

60. Positron emission tomography in drug development. Drug Discovery from Nature, Lecture series, University of Vienna, Faculty of Life Sciences, November 15, Vienna, Austria (2007)
61. Use of positron emission tomography (PET) to conduct microdosing studies in humans. World Pharmaceutical Congress – Microdosing & Phase 0 meeting, June 12-13, Philadelphia, USA (2007)
62. Combined microdialysis/positron emission tomography for in-vivo assessment of intracellular drug pharmacokinetics in humans. 2006 AAPS Annual Meeting, October 29-November 2, San Antonio, Texas, USA (2006)
63. PET microdosing, a powerful tool for early clinical drug development. CRO Alliance Summit 2006, October 19-20, Lugano, Switzerland (2006)