

Markus Zeitlinger

M.D., Assoc. Prof.

Date of birth: 09/04/1975

Languages: German, English

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Biosketch

Markus Zeitlinger studied medicine at the Medical University of Vienna and graduated in 2000. He completed his training as specialist in Internal Medicine and Clinical Pharmacology and advanced to his main current position as Head of the Department of Clinical Pharmacology.

In 2007 he received his post-graduate diploma in Clinical Research. Beside clinical trial design his scientific interests cover pharmacokinetics and transporters with focus on early phases of clinical research. He has published over 100 peer reviewed publications and book chapters in particular in the areas of antimicrobial agents and vaccines. He works as scientific expert to the EMA where he was actively involved in more than 200 scientific advice procedures given by SAWP/CHMP. Furthermore, he is associate editor of the International Journal of Clinical Pharmacology and Therapeutics and ad hoc reviewer of over 30 journals.

Academic Career

28.01.2000	Graduation M.D.
Since June 2007	Section Head Clinical Pharmacokinetics/Pharmacogenetics and Imaging, Department of Clinical Pharmacology, Medical University of Vienna
11.10.2007	Diploma in Clinical Research
16.05.2008	Associate Professor of Clinical Pharmacology (Venia docendi for Clinical Pharmacology, "Habilitation")
01.08.2010	Board certification in Internal Medicine
03.06.2011	Board certification in Clinical Pharmacology
Since October 2015	Head of Department of Clinical Pharmacology, Medical University of Vienna

Academic Achievements

Publications: approx. 115 publications in peer reviewed journals, 5 book chapters

Contributions at scientific conferences: over 100 presentations, posters and chairs at national and international conferences

National and International Positions:

May 2005 – present	Expert of the “Committee for Medicinal Products for Human Use” (CHMP)
October 2010 – present	Chair Working group PK/PD of the Paul Ehrlich Gesellschaft für Chemotherapie e.V
January 2011 – present	Member of Steering Committee VKIpha (Annual German Congress on Clinical Pharmacology)
March 2011 – present	Member of Steering Committee Society for Pharmaceutical Medicine (GPMed), since 2014 Executive Director
September 2011 – present	Vice President Section of Clinical Pharmacology, Austrian Pharmacological Society (APHAR)
July 2014 – December 2015	Member of the Ethics Committee Medical University of Vienna
August 2014 – present	Member of the Scientific Drug Advisory Board of Austrian Ministry of Health

Memberships and positions in scientific societies:

International Society of Anti-Infective Pharmacology (ISAP)

Österreichische Pharmakologische Gesellschaft (Austrian Pharmacological Society, APHAR, Vice President Section Clinical Pharmacology)

Österreichische Gesellschaft für antimikrobielle Chemotherapie (ÖGACH, Austrian Society of Antimicrobial Chemotherapy)

Österreichische Gesellschaft für Infektionskrankheiten (ÖGI, Austrian Society of Infectious Diseases)

Paul Ehrlich Gesellschaft für Chemotherapie e.V. (Chair working group PK/PD)

European Society of Clinical Microbiology and Infectious Disease

ESCMID PK/PD of Anti-Infectives Study Group – EPASG

Gesellschaft für Pharmazeutische Medizin (GPMed, Society for Pharmaceutical Medicine, Executive Director, Steering Committee)

European Association for Clinical Pharmacology and Therapeutics (EACPT, Delegate to the council)

Selected recent grants since 2014 (total > 3.000.000 Euro):

2014-2018, Grant of the European IMI program, "New Drugs 4 Bad Bugs" (COMPACTE MAGNET)

2015-2016, Grand of the Austrian National Bank, Cerebral Microdialysis for Determination of Brain Penetration of Antibiotics

2015-2018, Ludwig Boltzmann Institute (LBI) for Applied Diagnostics, Clinical Workpackage Leader

Further third party funding 2010-2014:

> 2.000.000 (in particular Baxter, Affiris, EGIS, Alfa Wassermann, TMB, Apeptico, Nabriva)

Reviewer for International Journals (selected from more than 30):

International Journal of Clinical Pharmacology and Therapeutics (Section Editor)

Journal of Antimicrobial Chemotherapy

Clinical Pharmacokinetics

Critical Care Medicine

The Journal of Clinical Pharmacology

Teaching: Supervision of 8 doctoral thesis (postdoc) and 20 diploma thesis

20 selected publications from the last 5 years (out of overall approx. 115 peer reviewed publications):

- 1) Bauer M, Karch R, Neumann F, Wagner CC, Kletter K, Müller M, Löscher W, Zeitlinger M, Langer O. Assessment of regional differences in tariquidar induced P-glycoprotein modulation at the human blood-brain barrier. *J Cereb Blood Flow Metab.* 2010 Mar;30(3):510-5.
- 2) Latzke D, Marhofer P, Zeitlinger M, Machata A, Neumann F, Lackner E, Kettner SC. Minimal local anaesthetic volumes for sciatic nerve block: evaluation of ED99 in volunteers. *Br J Anaesth.* 2010 Feb;104(2):239-44.
- 3) Wagner CC, Simpson M, Zeitlinger M, Bauer M, Karch R, Abraham A, Feurstein T, Schütz M, Kletter K, Müller M, Lappin G, Langer O. A Combined Accelerator Mass Spectrometry-Positron Emission Tomography Human Microdose Study with ¹⁴C- and ¹¹C-Labelled Verapamil. *Clin Pharmacokinet.* 2011 Feb 1;50(2):111-20.
- 4) Leitner I, Nemeth J, Feurstein T, Abraham A, Matzneller P, Lagler H, Erker T, Langer O, Zeitlinger M. The third-generation P-glycoprotein inhibitor tariquidar may overcome bacterial multidrug resistance by increasing intracellular drug concentration. *J Antimicrob Chemother.* 2011 Apr;66(4):834-9.
- 5) Zeitlinger MA, Derendorf H, Mouton JW, Cars O, Craig WA, Andes D, Theuretzbacher U. Protein binding - do we ever learn? *Antimicrob Agents Chemother.* 2011 Jul;55(7):3067-74.
- 6) Bauer M, Zeitlinger M, Karch R, Matzneller P, Stanek J, Jäger W, Böhmendorfer M, Wadsak W, Mitterhauser M, Bankstahl JP, Löscher W, Koeppe M, Kuntner C, Müller M, Langer O. Pgp-Mediated Interaction Between (R)-[¹¹C]Verapamil and Tariquidar at the Human Blood-Brain Barrier: A Comparison With Rat Data. *Clin Pharmacol Ther.* 2012 Feb;91(2):227-33.
- 7) Burian B, Zeitlinger M, Donath O, Reznicek G, Sauermann R. Penetration of doripenem into skeletal muscle and subcutaneous adipose tissue in healthy volunteers. *Antimicrob Agents Chemother.* 2012 Jan;56(1):532-5.
- 8) Jäger U, Fridrik M, Zeitlinger M, Heintel D, Hopfinger G, Burgstaller S, Mannhalter C, Oberaigner W, Porpaczy E, Skrabs C, Einberger C, Drach J, Raderer M, Gaiger A, Putman M, Greil R. Rituximab serum concentrations during immuno-chemotherapy of

- follicular lymphoma correlate with patient gender, bone marrow infiltration and clinical response. *Haematologica*. 2012 Apr 17.
- 9) Sauermann R, Burian B, Burian A, Jäger W, Höferl M, Stella A, Theurer S, Riedl M, Zeitlinger M. Tissue pharmacokinetics of ertapenem at steady-state in diabetic patients with leg infections. *J Antimicrob Chemother*. 2013 Apr;68(4):895-9.
 - 10) Matzneller P, Krasniqi S, Kinzig M, Sörgel F, Hüttner S, Lackner E, Müller M, Zeitlinger M. Blood, tissue and intracellular concentrations of Azithromycin and after end of therapy. *Antimicrob Agents Chemother*. 2013 Apr;57(4):1736-42.
 - 11) Marhofer D, Marhofer P, Kettner SC, Fleischmann E, Prayer D, Schernthaner M, Lackner E, Willschke H, Schwetz P, Zeitlinger M. Magnetic Resonance Imaging Analysis of the Spread of Local Anesthetic Solution after Ultrasound-guided Lateral Thoracic Paravertebral Blockade: A Volunteer Study. *Anesthesiology*. 2013 May;118(5):1106-12.
 - 12) Wressnigg N, Pöllabauer EM, Aichinger G, Portsmouth D, Löw-Baselli A, Fritsch S, Livey I, Crowe BA, Schwendinger M, Brühl P, Pilz A, Dvorak T, Singer J, Firth C, Luft B, Schmitt B, Zeitlinger M, Müller M, Kollaritsch H, Paulke-Korinek M, Esen M, Kremsner PG, Ehrlich HJ, Barrett PN. Safety and immunogenicity of a novel multivalent OspA vaccine against Lyme borreliosis in healthy adults: a double-blind, randomised, dose-escalation phase 1/2 trial. *Lancet Infect Dis*. 2013 Aug;13(8):680-9.
 - 13) Bauer M, Karch R, Zeitlinger M, Stanek J, Philippe C, Wadsak W, Mitterhauser M, Jäger W, Haslacher H, Müller M, Langer O. Interaction of 11C-Tarividar and 11C-Elacridar with P-Glycoprotein and Breast Cancer Resistance Protein at the Human Blood-Brain Barrier. *J Nucl Med*. 2013 Aug;54(8):1181-7.
 - 14) Wulkersdorfer B, Wanek T, Bauer M, Zeitlinger M, Müller M, Langer O. Using Positron Emission Tomography to Study Transporter-Mediated Drug-Drug Interactions in Tissues. *Clin Pharmacol Ther*. 2014 Aug;96(2):206-13.
 - 15) Zheng S, Matzneller P, Zeitlinger M, Schmidt S. Development of a population pharmacokinetic model characterizing the tissue distribution of azithromycin in healthy subjects. *Antimicrob Agents Chemother*. 2014 Nov;58(11):6675-84.
 - 16) Bauer M, Karch R, Zeitlinger M, Liu J, Koeppe MJ, Asselin MC, Sisodiya SM, Hainfellner JA, Wadsak W, Mitterhauser M, Müller M, Pataria E, Langer O. In vivo P-glycoprotein function before and after epilepsy surgery. *Neurology*. 2014 Oct 7;83(15):1326-31.
 - 17) Bauer M, Karch R, Zeitlinger M, Philippe C, Römermann K, Stanek J, Maier-Salamon A, Wadsak W, Jäger W, Hacker M, Müller M, Langer O. Approaching complete inhibition of P-glycoprotein at the human blood-brain barrier: an (R)-[(11)C]verapamil PET study. *J Cereb Blood Flow Metab*. 2015 May;35(5):743-6.
 - 18) Crevenna R, Burian A, Oesterreicher Z, Lackner E, Jäger W, Rezcicek G, Keilani M, Zeitlinger M. Iontophoresis driven concentrations of topically administered diclofenac in skeletal muscle and blood of healthy subjects. *Eur J Clin Pharmacol*. 2015 Nov;71(11):1359-64.
 - 19) Hosmann A, Schober A, Gruber A, Sterz F, Testori C, Warenits A, Weihs W, Högler S, Scherer T, Janata A, Laggner A, Zeitlinger M. Cerebral and Peripheral Metabolism to Predict Successful Reperfusion After Cardiac Arrest in Rats: A Microdialysis Study. *Neurocrit Care*. 2015 Nov 18. [Epub ahead of print]
 - 20) Zeitlinger M, Schwameis R, Burian A, Burian B, Matzneller P, Müller M, Wicha WW, Strickmann DB, Prince W. Simultaneous assessment of the pharmacokinetics of a pleuromutilin, lefamulin, in plasma, soft tissues and pulmonary epithelial lining fluid. *J Antimicrob Chemother*. 2016 Jan 7. pii: dkv442. [Epub ahead of print] PubMed PMID: 26747098.