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PD Dr. Marco Koch

Date of Birth: 17 December 1975

Institute Address: Universität Leipzig
Medizinische Fakultät
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Current Position: Research Associate Scientist (permanent position)

Academic Training:

2000–2003 Scholarship at DFG Research Training Group GRK 361: Neural Plasticity: Molecules, Structures, Functions. Spokesperson: Professor Herbert Zimmermann
1995–2000 Studies in Biological Sciences, Goethe University Frankfurt/M.

Scientific Certificates:

2013 Habilitation (“Functional role of endocannabinoids for physiological and pathological processes of the central nervous system (CNS)”), Leipzig University, Faculty of Medicine, Institute of Anatomy (Mentor: Professor Ingo Bechmann)
2003 Ph.D. thesis (“Cellular and molecular regulation of melatonin biosynthesis”), Dr. Senckenbergische Anatomie, Anatomy II – Experimental Neurobiology, Medical Faculty, Goethe University Frankfurt/M. (Advisor: Prof. H.-W. Korf)
2000 Diploma in Biological Sciences (“Cellular expression of tagged ecto-nucleotidases”), Institute of Cell Biology and Neuroscience, Faculty of Biological Sciences, Goethe University (Advisor: Prof. H. Zimmermann)

Professional Career:

2013 Habilitation and Lectureship for Anatomy
2011–2014 Visting Research Associate Scientist at Section of Comparative Medicine, School of Medicine, Yale University, New Haven, CT, USA
2010 Fachanatom Anatomische Gesellschaft
2009–present Research Associate Scientist at Institute of Anatomy, Medical Faculty, Leipzig University
2004–2009 Postdoc position at Dr. Senckenbergische Anatomie, Anatomy II – Experimental Neurobiology, Medical Faculty, Goethe University Frankfurt/M
2003–2004 Postdoc position at Collaborative Research Center CRC 269: Molecular and cellular bases of neuronal organisation, Goethe University Frankfurt/M

Scientific Activities, Honors, Awards:

- 2008 Hot Topic Speaker at the 10th Gordon Research Conference on Pineal Cell Biology, 25 April 2008
- 2008 Young Investigator Award, Leopoldina Symposium on Lipid Signalling, 4–7 September 2008
- 2009–present Ad hoc reviewer for: PNAS, Journal of Neurochemistry, Journal of Neuroendocrinology, Molecular Metabolism, Experimental Brain Research, Annals of Anatomy
- 2000–present Memberships: German Society of Neuroscience, Anatomische Gesellschaft

Selected Publications:

- Horvath TL, Kim JG, Sun BH, Dietrich MO, Koch M, Yao GQ, Diano S, Insogna K. AgRP neurons regulate bone homeostasis. *Cell Reports*. 2015;13:8-14.
- Koch M, Ferreirós N, Geisslinger G, Dehghani F, Korf HW: Rhythmic control of endocannabinoids in the rat pineal gland. *Chronobiol Int*. 2015;10:1-6.
- Koch M, Varela L, Kim JG, Kim JD, Hernández-Nuño F, Simonds SE, Castorena CM, Vianna CR, Elmquist JK, Morozov YM, Rakic P, Bechmann I, Cowley MA, Szigeti-Buck K, Gao X-B, Dietrich MO, Diano S, Horvath TL. Hypothalamic POMC neurons promote cannabinoid-induced feeding. *Nature*. 2015;519:45-50.
- Kim JG, Suyama S, Koch M, Szigeti K, Gao Y, Garcia-Caceres C, Yi CX, Chowen J, Tschop MH, Horvath TL. Leptin receptors in astrocytes control synaptic input organization of melanocortin cells and metabolic adaptations. *Nat Neurosci*. 2014;17:908-10.
- Koch M, Horvath TL. Neuronal circuitries that regulate food intake and energy metabolism. *Mol Psych*. 2014;9:752-61.
- Kallendrusch S, Kremzow S, Nowicki M, Hobusch C, Merkwitz C, Winkelmann R, Benz AH, Kraft R, Bechmann I, Dehghani F, Koch M. The GPR55 ligand 1- α -lysophosphatidylinositol exerts microglia-dependent neuroprotection after excitotoxic lesion. *Glia*. 2013;61:1822-31.
- Koch M, Horvath TL. Reward aspects of gastrointestinal hormones mediated by brain g protein-coupled receptors. *Biol Psych*. 2012;72:340-2.
- Koch M, Kreutz S, Böttger C, Grabiec U, Ghadban C, Korf HW, Dehghani F. The cannabinoid WIN 55,212-2-mediated protection of dentate gyrus granule cells is driven by CB1 receptors and modulated by TRPA1 and Cav2.2 channels. *Hippocampus*. 2011;21:554-64.
- Kreutz S*, Koch M*, Böttger C, Ghadban C, Korf HW, Dehghani F: 2-Arachidonoylglycerol elicits neuroprotective effects on excitotoxically lesioned dentate gyrus granule cells via abnormal-cannabidiol-sensitive receptors on microglial cells. *Glia*. 2009;57:286-94. (*contributed equally)
- Koch M, Habazettl I, Dehghani F, Korf HW: The rat pineal gland comprises an endocannabinoid system. *J Pineal Res*. 2008;45:351-60.