



MEDICAL UNIVERSITY  
OF VIENNA

## **Colloquia in Cellular Signaling**

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# **“NECAB2 is a Ca<sup>2+</sup> binding protein involved in striatal function”**

**Prof. Dr. Axel Methner**

Professor of Neurology, Head of the section acute neurology  
Forschungszentrum Translationale Neurowissenschaften  
University of Mainz, Department of Neurology

Host: M. Freissmuth / K. Nowikovsky

**Wednesday, February 15th 2017**

**4 pm**

Center for Physiology and Pharmacology

1090 Institute of Pharmacology, Währingerstrasse 13a, Leseraum

# Biosketch



Axel Methner is Professor of Neurology and Head of the section Acute Neurology at the Johannes Gutenberg University Medical Center Mainz. Besides clinical work, he heads a research lab that is part of the Focus program Translational Neuroscience (FTN) at the Johannes Gutenberg University Mainz. The research goal of the Methner lab is to understand how neuronal cell death occurs and how to prevent it. His laboratory studies the mechanisms of resistance against oxidative stress, the role of the calcium machinery in cell death and protection, and transcriptional effectors of cell survival in models of neurological disease by employing a combination of molecular and cell biological, biochemical, and genetic approaches using neurons and neuronal stem cells in primary culture.

## Recent selected publications

1. Lisak, D., Schacht, T., Gawlitzka, A., Albrecht, P., Aktas, O., Koop, B., Gliem, M., Hofstetter, H. H., Zanger, K., Bultynck, G., Parys, J. B., De Smedt, H., Kindler, T., Adams-Quack, P., Hahn, M., Waisman, A., Reed, J. C., Hövelmeyer, N., **and Methner, A.** "BAX Inhibitor-1 Is a  $\text{Ca}^{2+}$  Channel Critically Important for Immune Cell Function and Survival" *Cell death and differentiation* (2015): 1–11. doi:10.1038/cdd.2015.115
2. Bultynck, G., Kiviluoto, S., **and Methner, A.** "Bax Inhibitor-1 Is Likely a pH-Sensitive Calcium Leak Channel, Not a  $\text{H}^{+}/\text{Ca}^{2+}$  Exchanger." *Science signaling* 7, no. 343 (2014): pe22–pe22. doi:10.1126/scisignal.2005764
3. Henke, N., Albrecht, P., Bouchachia, I., Ryazantseva, M., Knoll, K., Lewerenz, J., Kaznacheyeva, E., Maher, P., **and Methner, A.** "The Plasma Membrane Channel ORAI1 Mediates Detrimental Calcium Influx Caused by Endogenous Oxidative Stress." *Cell death & disease* 4, no. 1 (2013): e470. doi:10.1038/cddis.2012.216
4. Henke, N., Albrecht, P., Pfeiffer, A., Toutzaris, D., Zanger, K., **and Methner, A.** "Stromal Interaction Molecule 1 (STIM1) Is Involved in the Regulation of Mitochondrial Shape and Bioenergetics and Plays a Role in Oxidative Stress." *Journal of Biological Chemistry* 287, no. 50 (2012): 42042–42052. doi:10.1074/jbc.M112.417212
5. Bultynck, G., Kiviluoto, S., Henke, N., Ivanova, H., Schneider, L., Rybalchenko, V., Luyten, T., Nuyts, K., De Borggraeve, W., Bezprozvanny, I., Parys, J. B., De Smedt, H., Missiaen, L., **and Methner, A.** "The C Terminus of Bax Inhibitor-1 Forms a  $\text{Ca}^{2+}$ -Permeable Channel Pore." *Journal of Biological Chemistry* 287, no. 4 (2012): 2544–2557. doi:10.1074/jbc.M111.275354
6. Noack, R., Frede, S., Albrecht, P., Henke, N., Pfeiffer, A., Knoll, K., Dehmel, T., Meyer Zu Hörste, G., Stettner, M., Kieseier, B. C., Summer, H., Goltz, S., Kochanski, A., Wiedau-Pazos, M., Arnold, S., Lewerenz, J., **and Methner, A.** "Charcot-Marie-Tooth Disease CMT4A: GDAP1 Increases Cellular Glutathione and the Mitochondrial Membrane Potential." *Human molecular genetics* 21, no. 1 (2012): 150–162. doi:10.1093/hmg/ddr450
7. Steinbeck, J. A., Henke, N., Opatz, J., Gruszczynska-Biegala, J., Schneider, L., Theiss, S., Hamacher, N., Steinfarz, B., Goltz, S., Brüstle, O., Kuznicki, J., **and Methner, A.** "Store-Operated Calcium Entry Modulates Neuronal Network Activity in a Model of Chronic Epilepsy" *Experimental Neurology* 232, no. 2 (2011): 185–194. doi:10.1016/j.expneurol.2011.08.022
8. Dittmer, S., Kovacs, Z., Yuan, S. H., Siszler, G., Kögl, M., Summer, H., Geerts, A., Goltz, S., Shioda, T., **and Methner, A.** "TOX3 Is a Neuronal Survival Factor That Induces Transcription Depending on the Presence of CITED1 or Phosphorylated CREB in the Transcriptionally Active Complex." *Journal of cell science* 124, no. Pt 2 (2011): 252–260. doi:10.1242/jcs.068759
9. Lewerenz, J., Albrecht, P., Tien, M.-L. T., Henke, N., Karumbayaram, S., Kornblum, H. I., Wiedau-Pazos, M., Schubert, D., Maher, P., **and Methner, A.** "Induction of Nrf2 and xCT Are Involved in the Action of the Neuroprotective Antibiotic Ceftriaxone in Vitro." *Journal of neurochemistry* 111, no. 2 (2009): 332–343. doi:10.1111/j.1471-4159.2009.06347.x
10. Lewerenz, J., Klein, M., **and Methner, A.** "Cooperative Action of Glutamate Transporters and Cystine/Glutamate Antiporter System Xc<sup>-</sup> Protects From Oxidative Glutamate Toxicity." *Journal of neurochemistry* 98, no. 3 (2006): 916–925. doi:10.1111/j.1471-4159.2006.03921.x