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SFB 1089

Bonn Lecture Series in Neuroscience

The potential role of microglia in neuroprotection and depression

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Friday, October 23rd 2015, 11:00h
Life & Brain Center
Seminar Room, Ground Floor

In my group we are interested to understand how microglia communicate with neurons in the healthy and diseased brain. Specifically we are interested about how endangered neurons inform microglia about their current status and have identified a variety of signals that threatened neurons release to ask for microglia aid. To understand how microglia respond to these signals and how these responses influence neuronal function was central to our work in the last decade. To address these questions we have been using an inter-disciplinary approach ranging from molecular biological techniques, to organotypic brain slice cultures, animal disease models and the generation of cell specific, inducible transgenic mouse lines. We have mainly been working in mouse disease models for neuropathic pain, stroke, Alzheimers disease and more recently depression.

Selected Publications

Serchov T, Clement HW, Schwarz MK, Iasevoli F, Tosh DK, Idzko M, Jacobson KA, de Bartolomeis A, Normann C, **Biber K**, van Calker D. (2015) Increased Signaling via Adenosine A 1 Receptors, Sleep Deprivation, Imipramine, and Ketamine Inhibit Depressive-like Behavior via Induction of Homer1a. *Neuron*, 87: 549-562.

Rolyan H, Scheffold A, Heinrich A, Begus-Nahrmann Y, Langkopf BH, Hölter SM, Vogt-Weisenhorn DM, Liss B, Wurst W, Lie DC, Thal DR, **Biber K**, Rudolph KL. (2011) Telomere shortening reduces Alzheimer's disease amyloid pathology in mice. *Brain*, 134(Pt 7): 2044-2056.

Biber K, Tsuda M, Tozaki-Saitoh H, Tsukamoto K, Toyomitsu E, Masuda T, Boddeke H, Inoue K. (2011) Neuronal CCL21 up-regulates microglia P2X4 expression and initiates neuropathic pain development. *The EMBO Journal*, 30: 1864-1873.

Biber K, Neumann H, Inoue K, Boddeke HWGM. (2007) Neuronal 'On' and 'Off' signals control microglia. *Trends Neurosci*, 30(11): 596-602.

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