

## 9 LITERATURVERZEICHNIS

- Alliot, F., Lecain, E., Grima, B., & Pessac, B. (1991). Microglial progenitors with a high proliferative potential in the embryonic and adult mouse brain. *Proc.Natl.Acad.Sci.U.S.A* **88**, 1541-1545.
- Aloisi, F. (2001). Immune function of microglia. *Glia* **36**, 165-179.
- Araujo, D. M. & Cotman, C. W. (1992). Basic FGF in astroglial, microglial, and neuronal cultures: characterization of binding sites and modulation of release by lymphokines and trophic factors. *J.Neurosci.* **12**, 1668-1678.
- Attali, B., Wang, N., Kolot, A., Sobko, A., Cherepanov, V., & Soliven, B. (1997). Characterization of delayed rectifier Kv channels in oligodendrocytes and progenitor cells. *J.Neurosci.* **17**, 8234-8245.
- Banati, R. B., Gehrmann, J., Schubert, P., & Kreutzberg, G. W. (1993). Cytotoxicity of microglia. *Glia* **7**, 111-118.
- Banati, R. B., Hoppe, D., Gottmann, K., Kreutzberg, G. W., & Kettenmann, H. (1991). A subpopulation of bone marrow-derived macrophage-like cells shares a unique ion channel pattern with microglia. *J.Neurosci.Res.* **30**, 593-600.
- Berridge, M. J. (2001). The versatility and complexity of calcium signalling. *Novartis.Found.Symp.* **239**, 52-64.
- Biber, K., Laurie, D. J., Berthele, A., Sommer, B., Tolle, T. R., Gebicke-Harter, P. J., van Calker, D., & Boddeke, H. W. (1999). Expression and signaling of group I metabotropic glutamate receptors in astrocytes and microglia. *J.Neurochem.* **72**, 1671-1680.
- Blinzinger, K. & Kreutzberg, G. (1968). Displacement of synaptic terminals from regenerating motoneurons by microglial cells. *Z.Zellforsch.Mikrosk.Anat.* **85**, 145-157.
- Boje, K. M. & Arora, P. K. (1992). Microglial-produced nitric oxide and reactive nitrogen oxides mediate neuronal cell death. *Brain Res.* **587**, 250-256.
- Boucein, C. (2000) Ramifizierte Mikrogliazellen im akuten Hirnschnitt: ein neues Modell zum Studium des Aktivierungsprozesses. Fachbereich Biologie, Chemie und Pharmazie der Freien Universität Berlin. Dissertation
- Boucein, C., Kettenmann, H., & Nolte, C. (2000). Electrophysiological properties of microglial cells in normal and pathologic rat brain slices. *Eur.J.Neurosci.* **12**, 2049-2058.
- Boucein, C., Zacharias, R., Farber, K., Pavlovic, S., Hanisch, U. K., & Kettenmann, H. (2003). Purinergic receptors on microglial cells: functional expression in acute brain slices and modulation of microglial activation in vitro. *Eur.J.Neurosci.* **17**, 2267-2276.

- Brockhaus, J., Moller, T., & Kettenmann, H. (1996). Phagocytosing ameboid microglial cells studied in a mouse corpus callosum slice preparation. *Glia* **16**, 81-90.
- Chang, J. Y. & Liu, L. Z. (2000). Catecholamines inhibit microglial nitric oxide production. *Brain Res.Bull.* **52**, 525-530.
- Chao, C. C., Hu, S., Molitor, T. W., Shaskan, E. G., & Peterson, P. K. (1992). Activated microglia mediate neuronal cell injury via a nitric oxide mechanism. *J.Immunol.* **149**, 2736-2741.
- Chittajallu, R., Chen, Y., Wang, H., Yuan, X., Ghiani, C. A., Heckman, T., McBain, C. J., & Gallo, V. (2002). Regulation of Kv1 subunit expression in oligodendrocyte progenitor cells and their role in G1/S phase progression of the cell cycle. *Proc.Natl.Acad.Sci.U.S.A* **99**, 2350-2355.
- Chung, S., Joe, E., Soh, H., Lee, M. Y., & Bang, H. W. (1998). Delayed rectifier potassium currents induced in activated rat microglia set the resting membrane potential. *Neurosci.Lett.* **242**, 73-76.
- Chung, S., Jung, W., & Lee, M. Y. (1999). Inward and outward rectifying potassium currents set membrane potentials in activated rat microglia. *Neurosci.Lett.* **262**, 121-124.
- Chung, S., Lee, J., Joe, E. H., & Uhm, D. Y. (2001). Beta-amyloid peptide induces the expression of voltage dependent outward rectifying K<sup>+</sup> channels in rat microglia. *Neurosci.Lett.* **300**, 67-70.
- Colasanti, M., Persichini, T., Di Pucchio, T., Gremo, F., & Lauro, G. M. (1995). Human ramified microglial cells produce nitric oxide upon Escherichia coli lipopolysaccharide and tumor necrosis factor alpha stimulation. *Neurosci.Lett.* **200**, 144-146.
- Colton, C. A., Jia, M., Li, M. X., & Gilbert, D. L. (1994). K<sup>+</sup> modulation of microglial superoxide production: involvement of voltage-gated Ca<sup>2+</sup> channels. *Am.J.Physiol* **266**, C1650-C1655.
- Dawson, V. L., Dawson, T. M., London, E. D., Bredt, D. S., & Snyder, S. H. (1991). Nitric oxide mediates glutamate neurotoxicity in primary cortical cultures. *Proc.Natl.Acad.Sci.U.S.A* **88**, 6368-6371.
- DeCoursey, T. E., Chandy, K. G., Gupta, S., & Cahalan, M. D. (1984). Voltage-gated K<sup>+</sup> channels in human T lymphocytes: a role in mitogenesis? *Nature* **307**, 465-468.
- Deutsch, C. & Chen, L. Q. (1993). Heterologous expression of specific K<sup>+</sup> channels in T lymphocytes: functional consequences for volume regulation. *Proc.Natl.Acad.Sci.U.S.A* **90**, 10036-10040.

- Draheim, H. J., Prinz, M., Weber, J. R., Weiser, T., Kettenmann, H., & Hanisch, U. K. (1999). Induction of potassium channels in mouse brain microglia: cells acquire responsiveness to pneumococcal cell wall components during late development. *Neuroscience* **89**, 1379-1390.
- Eder, C. (1998). Ion channels in microglia (brain macrophages). *Am.J.Physiol* **275**, C327-C342.
- Eder, C., Fischer, H. G., Hadding, U., & Heinemann, U. (1995). Properties of voltage-gated currents of microglia developed using macrophage colony-stimulating factor. *Pflugers Arch.* **430**, 526-533.
- Eder, C. & Heinemann, U. (1996). Proton modulation of outward K<sup>+</sup> currents in interferon-gamma-activated microglia. *Neurosci.Lett.* **206**, 101-104.
- Eder, C., Klee, R., & Heinemann, U. (1996). Blockade of voltage-gated outward K<sup>+</sup> currents of ramified murine microglia by scorpion peptide toxins. *Neurosci.Lett.* **219**, 29-32.
- Eder, C., Klee, R., & Heinemann, U. (1997). Distinct soluble astrocytic factors induce expression of outward K<sup>+</sup> currents and ramification of brain macrophages. *Neurosci.Lett.* **226**, 147-150.
- Farber, K. & Kettenmann, H. (2005). Physiology of microglial cells. *Brain Res.Brain Res.Rev.* **48**, 133-143.
- Farber, K., Pannasch, U., & Kettenmann, H. (2005). Dopamine and noradrenaline control distinct functions in rodent microglial cells. *Mol.Cell Neurosci.* **29**, 128-138.
- Ferrari, D., Chiozzi, P., Falzoni, S., Hanau, S., & Di Virgilio, F. (1997). Purinergic modulation of interleukin-1 beta release from microglial cells stimulated with bacterial endotoxin. *J.Exp.Med.* **185**, 579-582.
- Fischer, H. G., Eder, C., Hadding, U., & Heinemann, U. (1995). Cytokine-dependent K<sup>+</sup> channel profile of microglia at immunologically defined functional states. *Neuroscience* **64**, 183-191.
- Fordyce, C. B., Jagasia, R., Zhu, X., & Schlichter, L. C. (2005). Microglia Kv1.3 channels contribute to their ability to kill neurons. *J.Neurosci.* **25**, 7139-7149.
- Frade, J. M. & Barde, Y. A. (1998). Microglia-derived nerve growth factor causes cell death in the developing retina. *Neuron* **20**, 35-41.
- Ganter, S., Northoff, H., Mannel, D., & Gebicke-Harter, P. J. (1992). Growth control of cultured microglia. *J.Neurosci.Res.* **33**, 218-230.
- Garcia-Calvo, M., Leonard, R. J., Novick, J., Stevens, S. P., Schmalhofer, W., Kaczorowski, G. J., & Garcia, M. L. (1993). Purification, characterization, and biosynthesis of margatoxin, a component of *Centruroides margaritatus* venom

- that selectively inhibits voltage-dependent potassium channels. *J.Biol.Chem.* **268**, 18866-18874.
- Gerdes, J., Dallenbach, F., Lennert, K., Lemke, H., & Stein, H. (1984). Growth fractions in malignant non-Hodgkin's lymphomas (NHL) as determined in situ with the monoclonal antibody Ki-67. *Hematol.Oncol.* **2**, 365-371.
- Giulian, D., Baker, T. J., Shih, L. C., & Lachman, L. B. (1986). Interleukin 1 of the central nervous system is produced by ameboid microglia. *J.Exp.Med.* **164**, 594-604.
- Gollapudi, S. V., Vayuvegula, B. S., Thadepalli, H., & Gupta, S. (1988). Effect of K<sup>+</sup> channel blockers on anti-immunoglobulin-induced murine B cell proliferation. *J.Clin.Lab Immunol.* **27**, 121-125.
- Goody, R. J., Hoyt, C. C., & Tyler, K. L. (2005). Reovirus infection of the CNS enhances iNOS expression in areas of virus-induced injury. *Exp.Neurol.* **195**, 379-390.
- Grissmer, S., Nguyen, A. N., Aiyar, J., Hanson, D. C., Mather, R. J., Gutman, G. A., Karmilowicz, M. J., Auperin, D. D., & Chandy, K. G. (1994). Pharmacological characterization of five cloned voltage-gated K<sup>+</sup> channels, types Kv1.1, 1.2, 1.3, 1.5, and 3.1, stably expressed in mammalian cell lines. *Mol.Pharmacol.* **45**, 1227-1234.
- Hamill, O. P., Marty, A., Neher, E., Sakmann, B., & Sigworth, F. J. (1981). Improved patch-clamp techniques for high-resolution current recording from cells and cell-free membrane patches. *Pflugers Arch.* **391**, 85-100.
- Hao, C., Richardson, A., & Fedoroff, S. (1991). Macrophage-like cells originate from neuroepithelium in culture: characterization and properties of the macrophage-like cells. *Int.J.Dev.Neurosci.* **9**, 1-14.
- Hasko, G., Deitch, E. A., Nemeth, Z. H., Kuhel, D. G., & Szabo, C. (2002). Inhibitors of ATP-binding cassette transporters suppress interleukin-12 p40 production and major histocompatibility complex II up-regulation in macrophages. *J.Pharmacol.Exp.Ther.* **301**, 103-110.
- Hasty, P., Rivera-Perez, J., & Bradley, A. (1991). The length of homology required for gene targeting in embryonic stem cells. *Mol.Cell Biol.* **11**, 5586-5591.
- Heinemann, S., Rettig, J., Scott, V., Parcej, D. N., Lorra, C., Dolly, J., & Pongs, O. (1994). The inactivation behaviour of voltage-gated K-channels may be determined by association of alpha- and beta-subunits. *J.Physiol Paris* **88**, 173-180.
- Hetier, E., Ayala, J., Bousseau, A., & Prochiantz, A. (1991). Modulation of interleukin-1 and tumor necrosis factor expression by beta-adrenergic agonists in mouse ameboid microglial cells. *Exp.Brain Res.* **86**, 407-413.

- Hoek, R. M., Ruuls, S. R., Murphy, C. A., Wright, G. J., Goddard, R., Zurawski, S. M., Blom, B., Homola, M. E., Streit, W. J., Brown, M. H., Barclay, A. N., & Sedgwick, J. D. (2000). Down-regulation of the macrophage lineage through interaction with OX2 (CD200). *Science* **290**, 1768-1771.
- Hoffmann, A., Kann, O., Ohlemeyer, C., Hanisch, U. K., & Kettenmann, H. (2003). Elevation of basal intracellular calcium as a central element in the activation of brain macrophages (microglia): suppression of receptor-evoked calcium signaling and control of release function. *J.Neurosci.* **23**, 4410-4419.
- Hofstra, C. L., Desai, P. J., Thurmond, R. L., & Fung-Leung, W. P. (2003). Histamine H4 receptor mediates chemotaxis and calcium mobilization of mast cells. *J.Pharmacol.Exp.Ther.* **305**, 1212-1221.
- Honda, S. & Kohsaka, S. (2001). [Regulation of microglial cell function by ATP]. *Nihon Shinkei Seishin Yakurigaku Zasshi* **21**, 89-93.
- Hoshi, T., Zagotta, W. N., & Aldrich, R. W. (1990). Biophysical and molecular mechanisms of Shaker potassium channel inactivation. *Science* **250**, 533-538.
- Hoshi, T., Zagotta, W. N., & Aldrich, R. W. (1991). Two types of inactivation in Shaker K<sup>+</sup> channels: effects of alterations in the carboxy-terminal region. *Neuron* **7**, 547-556.
- Huether, G., Fetzko, I., Keilhoff, G., & Wolf, G. (1997). Serotonin acts as a radical scavenger and is oxidized to a dimer during the respiratory burst of activated microglia. *J.Neurochem.* **69**, 2096-2101.
- Ilshner, S., Nolte, C., & Kettenmann, H. (1996). Complement factor C5a and epidermal growth factor trigger the activation of outward potassium currents in cultured murine microglia. *Neuroscience* **73**, 1109-1120.
- Ilshner, S., Ohlemeyer, C., Gimpl, G., & Kettenmann, H. (1995). Modulation of potassium currents in cultured murine microglial cells by receptor activation and intracellular pathways. *Neuroscience* **66**, 983-1000.
- Imamoto, K. & Leblond, C. P. (1978). Radioautographic investigation of gliogenesis in the corpus callosum of young rats. II. Origin of microglial cells. *J.Comp Neurol.* **180**, 139-163.
- Jaber, M., Robinson, S. W., Missale, C., & Caron, M. G. (1996). Dopamine receptors and brain function. *Neuropharmacology* **35**, 1503-1519.
- Jiang, X., Newell, E. W., & Schlichter, L. C. (2003). Regulation of a TRPM7-like current in rat brain microglia. *J.Biol.Chem.* **278**, 42867-42876.
- Jonakait, G. M., Luskin, M. B., Wei, R., Tian, X. F., & Ni, L. (1996). Conditioned medium from activated microglia promotes cholinergic differentiation in the basal forebrain in vitro. *Dev.Biol.* **177**, 85-95.

- Jou, I., Pyo, H., Chung, S., Jung, S. Y., Gwag, B. J., & Joe, E. H. (1998). Expression of Kv1.5 K<sup>+</sup> channels in activated microglia in vivo. *Glia* **24**, 408-414.
- Kamb, A., Iverson, L. E., & Tanouye, M. A. (1987). Molecular characterization of Shaker, a Drosophila gene that encodes a potassium channel. *Cell* **50**, 405-413.
- Kanazawa, H., Ohsawa, K., Sasaki, Y., Kohsaka, S., & Imai, Y. (2002). Macrophage/microglia-specific protein Iba1 enhances membrane ruffling and Rac activation via phospholipase C-gamma -dependent pathway. *J.Biol.Chem.* **277**, 20026-20032.
- Katoh, Y., Niimi, M., Yamamoto, Y., Kawamura, T., Morimoto-Ishizuka, T., Sawada, M., Takemori, H., & Yamatodani, A. (2001). Histamine production by cultured microglial cells of the mouse. *Neurosci.Lett.* **305**, 181-184.
- Kettenmann, H., Hoppe, D., Gottmann, K., Banati, R., & Kreutzberg, G. (1990). Cultured microglial cells have a distinct pattern of membrane channels different from peritoneal macrophages. *J.Neurosci.Res.* **26**, 278-287.
- Khanna, R., Roy, L., Zhu, X., & Schlichter, L. C. (2001). K<sup>+</sup> channels and the microglial respiratory burst. *Am.J.Physiol Cell Physiol* **280**, C796-C806.
- Kohli, J. D., Horn, P. T., Glock, D., Brewster, W. K., & Nichols, D. E. (1993). Dihydroxydopamine: a new potent peripheral dopamine D1 receptor agonist. *Eur.J.Pharmacol.* **235**, 31-35.
- Kokovay, E. & Cunningham, L. A. (2005). Bone marrow-derived microglia contribute to the neuroinflammatory response and express iNOS in the MPTP mouse model of Parkinson's disease. *Neurobiol.Dis.* **19**, 471-478.
- Konishi, T. (1989). Voltage-dependent potassium channels in mouse Schwann cells. *J.Physiol* **411**, 115-130.
- Korotzer, A. R. & Cotman, C. W. (1992). Voltage-gated currents expressed by rat microglia in culture. *Glia* **6**, 81-88.
- Kotecha, S. A. & Schlichter, L. C. (1999). A Kv1.5 to Kv1.3 switch in endogenous hippocampal microglia and a role in proliferation. *J.Neurosci.* **19**, 10680-10693.
- Kreutzberg, G. W. (1996). Principles of neuronal regeneration. *Acta Neurochir.Suppl* **66**, 103-106.
- Kuhn, S. A., van Landeghem, F. K., Zacharias, R., Farber, K., Rappert, A., Pavlovic, S., Hoffmann, A., Nolte, C., & Kettenmann, H. (2004). Microglia express GABA(B) receptors to modulate interleukin release. *Mol.Cell Neurosci.* **25**, 312-322.
- Lee, d. Y., Oh, Y. J., & Jin, B. K. (2005). Thrombin-activated microglia contribute to death of dopaminergic neurons in rat mesencephalic cultures: dual roles of mitogen-activated protein kinase signaling pathways. *Glia* **51**, 98-110.

- Lee, S. C., Liu, W., Dickson, D. W., Brosnan, C. F., & Berman, J. W. (1993). Cytokine production by human fetal microglia and astrocytes. Differential induction by lipopolysaccharide and IL-1 beta. *J.Immunol.* **150**, 2659-2667.
- Lemmer, K., Ahnert-Hilger, G., Hopfner, M., Hoegerle, S., Faiss, S., Grabowski, P., Jockers-Scherubl, M., Riecken, E. O., Zeitz, M., & Scherubl, H. (2002). Expression of dopamine receptors and transporter in neuroendocrine gastrointestinal tumor cells. *Life Sci.* **71**, 667-678.
- Lewis, R. S. & Cahalan, M. D. (1995). Potassium and calcium channels in lymphocytes. *Annu.Rev.Immunol.* **13**, 623-653.
- Li-Smerin, Y., Hackos, D. H., & Swartz, K. J. (2000). alpha-helical structural elements within the voltage-sensing domains of a K(+) channel. *J.Gen.Physiol* **115**, 33-50.
- Liman, E. R., Tytgat, J., & Hess, P. (1992). Subunit stoichiometry of a mammalian K+ channel determined by construction of multimeric cDNAs. *Neuron* **9**, 861-871.
- Ling, E. A. & Wong, W. C. (1993). The origin and nature of ramified and amoeboid microglia: a historical review and current concepts. *Glia* **7**, 9-18.
- Liu, X. S., Xu, Y. J., Zhang, Z. X., & Ni, W. (2003). [Effects of potassium channel blockers on the proliferation of rat bronchial smooth muscle cells]. *Yao Xue.Xue.Bao.* **38**, 333-336.
- MacFarlane, S. N. & Sontheimer, H. (2000). Modulation of Kv1.5 currents by Src tyrosine phosphorylation: potential role in the differentiation of astrocytes. *J.Neurosci.* **20**, 5245-5253.
- Mahe, C., Loetscher, E., Dev, K. K., Bobirnac, I., Otten, U., & Schoeffter, P. (2005). Serotonin 5-HT7 receptors coupled to induction of interleukin-6 in human microglial MC-3 cells. *Neuropharmacology* **49**, 40-47.
- Mallat, M., Marin-Teva, J. L., & Cheret, C. (2005). Phagocytosis in the developing CNS: more than clearing the corpses. *Curr.Opin.Neurobiol.* **15**, 101-107.
- Marin-Teva, J. L., Dusart, I., Colin, C., Gervais, A., van Rooijen, N., & Mallat, M. (2004). Microglia promote the death of developing Purkinje cells. *Neuron* **41**, 535-547.
- McLarnon, J. G., Sawyer, D., & Kim, S. U. (1995). Cation and anion unitary ion channel currents in cultured bovine microglia. *Brain Res.* **693**, 8-20.
- McLarnon, J. G., Xu, R., Lee, Y. B., & Kim, S. U. (1997). Ion channels of human microglia in culture. *Neuroscience* **78**, 1217-1228.
- Miller, K. J., Mariano, C. L., & Cruz, W. R. (1997). Serotonin 5HT2A receptor activation inhibits inducible nitric oxide synthase activity in C6 glioma cells. *Life Sci.* **61**, 1819-1827.

- Miyazaki, I., Asanuma, M., Diaz-Corrales, F. J., Miyoshi, K., & Ogawa, N. (2004). Direct evidence for expression of dopamine receptors in astrocytes from basal ganglia. *Brain Res.* **1029**, 120-123.
- Moller, T., Nolte, C., Burger, R., Verkhratsky, A., & Kettenmann, H. (1997). Mechanisms of C5a and C3a complement fragment-induced  $[Ca^{2+}]_i$  signaling in mouse microglia. *J.Neurosci.* **17**, 615-624.
- Mori, K., Ozaki, E., Zhang, B., Yang, L., Yokoyama, A., Takeda, I., Maeda, N., Sakanaka, M., & Tanaka, J. (2002). Effects of norepinephrine on rat cultured microglial cells that express alpha1, alpha2, beta1 and beta2 adrenergic receptors. *Neuropharmacology* **43**, 1026-1034.
- Muyderman, H., Sinclair, J., Jardemark, K., Hansson, E., & Nilsson, M. (2001). Activation of beta-adrenoceptors opens calcium-activated potassium channels in astroglial cells. *Neurochem.Int.* **38**, 269-276.
- Nakajima, K., Kikuchi, Y., Ikoma, E., Honda, S., Ishikawa, M., Liu, Y., & Kohsaka, S. (1998). Neurotrophins regulate the function of cultured microglia. *Glia* **24**, 272-289.
- Newell, E. W. & Schlichter, L. C. (2005). Integration of  $K^+$  and  $Cl^-$  currents regulate steady-state and dynamic membrane potentials in cultured rat microglia. *J.Physiol* **567**, 869-890.
- Nimmerjahn, A., Kirchhoff, F., & Helmchen, F. (2005). Resting microglial cells are highly dynamic surveillants of brain parenchyma in vivo. *Science* **308**, 1314-1318.
- Noda, M., Nakanishi, H., Nabekura, J., & Akaike, N. (2000). AMPA-kainate subtypes of glutamate receptor in rat cerebral microglia. *J.Neurosci.* **20**, 251-258.
- Norenberg, W., Appel, K., Bauer, J., Gebicke-Haerter, P. J., & Illes, P. (1993). Expression of an outwardly rectifying  $K^+$  channel in rat microglia cultivated on teflon. *Neurosci.Lett.* **160**, 69-72.
- Norenberg, W., Cordes, A., Blohbaum, G., Frohlich, R., & Illes, P. (1997). Coexistence of purino- and pyrimidinoreceptors on activated rat microglial cells. *Br.J.Pharmacol.* **121**, 1087-1098.
- Norenberg, W., Gebicke-Haerter, P. J., & Illes, P. (1992). Inflammatory stimuli induce a new  $K^+$  outward current in cultured rat microglia. *Neurosci.Lett.* **147**, 171-174.
- Norenberg, W., Gebicke-Haerter, P. J., & Illes, P. (1994). Voltage-dependent potassium channels in activated rat microglia. *J.Physiol* **475**, 15-32.
- Numberger, M. & Draghun A. (1996). *Patch-Clamp-Technik* Spektrum Akad. Verlag, Heidelberg, Berlin, Oxford..

- Pasuit, J. B., Li, Z., & Kuzhikandathil, E. V. (2004). Multi-modal regulation of endogenous D1 dopamine receptor expression and function in the CAD catecholaminergic cell line. *J.Neurochem.* **89**, 1508-1519.
- Perry, V. H. & Gordon, S. (1991). Macrophages and the nervous system. *Int.Rev.Cytol.* **125**, 203-244.
- Platten, M., Eitel, K., Wischhusen, J., Dichgans, J., & Weller, M. (2003). Involvement of protein kinase Cdelta and extracellular signal-regulated kinase-2 in the suppression of microglial inducible nitric oxide synthase expression by N-[3,4-dimethoxycinnamoyl]-anthranilic acid (tranilast). *Biochem.Pharmacol.* **66**, 1263-1270.
- Priller, J. Glia und hämatopoetische Zellen im zentralen Nervensystem. 2002. Medizinische Fakultät Charité der Humboldt-Universität Berlin.  
Ref Type: Thesis/Dissertation
- Prinz, M., Hausler, K. G., Kettenmann, H., & Hanisch, U. (2001). beta-adrenergic receptor stimulation selectively inhibits IL-12p40 release in microglia. *Brain Res.* **899**, 264-270.
- Prinz, M., Kann, O., Draheim, H. J., Schumann, R. R., Kettenmann, H., Weber, J. R., & Hanisch, U. K. (1999). Microglial activation by components of gram-positive and -negative bacteria: distinct and common routes to the induction of ion channels and cytokines. *J.Neuropathol.Exp.Neurol.* **58**, 1078-1089.
- Pyo, H., Chung, S., Jou, I., Gwag, B., & Joe, E. H. (1997). Expression and function of outward K<sup>+</sup> channels induced by lipopolysaccharide in microglia. *Mol.Cells* **7**, 610-614.
- Raivich, G., Moreno-Flores, M. T., Moller, J. C., & Kreutzberg, G. W. (1994). Inhibition of posttraumatic microglial proliferation in a genetic model of macrophage colony-stimulating factor deficiency in the mouse. *Eur.J.Neurosci.* **6**, 1615-1618.
- Ramirez-Solis, R., Davis, A. C., & Bradley, A. (1993). Gene targeting in embryonic stem cells. *Methods Enzymol.* **225**, 855-878.
- Rettig, J., Heinemann, S. H., Wunder, F., Lorra, C., Parcej, D. N., Dolly, J. O., & Pongs, O. (1994). Inactivation properties of voltage-gated K<sup>+</sup> channels altered by presence of beta-subunit. *Nature* **369**, 289-294.
- Ricci, A. & Amenta, F. (1994). Dopamine D5 receptors in human peripheral blood lymphocytes: a radioligand binding study. *J.Neuroimmunol.* **53**, 1-7.
- Ricci, A., Vega, J. A., & Amenta, F. (1994). Pharmacological characterization and autoradiographic localization of dopamine D1-like receptors in the thymus. *J.Neuroimmunol.* **50**, 133-138.

- Richardson, A., Hao, C., & Fedoroff, S. (1993). Microglia progenitor cells: a subpopulation in cultures of mouse neopallial astroglia. *Glia* **7**, 25-33.
- Rouleau, A., Heron, A., Cochois, V., Pillot, C., Schwartz, J. C., & Arrang, J. M. (2004). Cloning and expression of the mouse histamine H3 receptor: evidence for multiple isoforms. *J.Neurochem.* **90**, 1331-1338.
- Ruppersberg, J. P., Schroter, K. H., Sakmann, B., Stocker, M., Sewing, S., & Pongs, O. (1990). Heteromultimeric channels formed by rat brain potassium-channel proteins. *Nature* **345**, 535-537.
- Sansom, M. S., Shrivastava, I. H., Bright, J. N., Tate, J., Capener, C. E., & Biggin, P. C. (2002). Potassium channels: structures, models, simulations. *Biochim.Biophys.Acta* **1565** , 294-307.
- Santambrogio, L., Lipartiti, M., Bruni, A., & Dal Toso, R. (1993). Dopamine receptors on human T- and B-lymphocytes. *J.Neuroimmunol.* **45**, 113-119.
- Schiefer, J., Kampe, K., Dodt, H. U., Zieglgansberger, W., & Kreutzberg, G. W. (1999). Microglial motility in the rat facial nucleus following peripheral axotomy. *J.Neurocytol.* **28**, 439-453.
- Schilling, T. & Eder, C. (2003). Effects of kinase inhibitors on TGF-beta induced upregulation of Kv1.3 K<sup>+</sup> channels in brain macrophages. *Pflugers Arch.* **447**, 312-315.
- Schilling, T., Nitsch, R., Heinemann, U., Haas, D., & Eder, C. (2001). Astrocyte-released cytokines induce ramification and outward K<sup>+</sup> channel expression in microglia via distinct signalling pathways. *Eur.J.Neurosci.* **14**, 463-473.
- Schilling, T., Quandt, F. N., Cherny, V. V., Zhou, W., Heinemann, U., DeCoursey, T. E., & Eder, C. (2000). Upregulation of Kv1.3 K<sup>(+)</sup> channels in microglia deactivated by TGF-beta. *Am.J.Physiol Cell Physiol* **279**, C1123-C1134.
- Schlichter, L. C., Sakellaropoulos, G., Ballyk, B., Pennefather, P. S., & Phipps, D. J. (1996). Properties of K<sup>+</sup> and Cl<sup>-</sup> channels and their involvement in proliferation of rat microglial cells. *Glia* **17**, 225-236.
- Shatwell, K. P. & Segal, A. W. (1996). NADPH oxidase. *Int.J.Biochem.Cell Biol.* **28**, 1191-1195.
- Shimojo, M., Nakajima, K., Takei, N., Hamanoue, M., & Kohsaka, S. (1991). Production of basic fibroblast growth factor in cultured rat brain microglia. *Neurosci.Lett.* **123**, 229-231.
- Sigworth, F. J. (1985). Open channel noise. I. Noise in acetylcholine receptor currents suggests conformational fluctuations. *Biophys.J.* **47**, 709-720.
- Streit, W. J. (2001). Microglia and macrophages in the developing CNS. *Neurotoxicology* **22**, 619-624.

- Streit, W. J. (2005). Microglial cells. In *Neuroglia*, eds. Kettenmann, H. & Ransom, B. R., pp. 60-71. Oxford University Press.
- Streit, W. J., Walter, S. A., & Pennell, N. A. (1999). Reactive microgliosis. *Prog.Neurobiol.* **57**, 563-581.
- Sullivan, R. M., Talangbayan, H., Einat, H., & Szechtman, H. (1998). Effects of quinpirole on central dopamine systems in sensitized and non-sensitized rats. *Neuroscience* **83**, 781-789.
- Takimoto, K., Fomina, A. F., Gealy, R., Trimmer, J. S., & Levitan, E. S. (1993). Dexamethasone rapidly induces Kv1.5 K<sup>+</sup> channel gene transcription and expression in clonal pituitary cells. *Neuron* **11**, 359-369.
- Tanaka, K. F., Kashima, H., Suzuki, H., Ono, K., & Sawada, M. (2002). Existence of functional beta1- and beta2-adrenergic receptors on microglia. *J.Neurosci.Res.* **70**, 232-237.
- Tanaka, R., Komine-Kobayashi, M., Mochizuki, H., Yamada, M., Furuya, T., Migita, M., Shimada, T., Mizuno, Y., & Urabe, T. (2003). Migration of enhanced green fluorescent protein expressing bone marrow-derived microglia/macrophage into the mouse brain following permanent focal ischemia. *Neuroscience* **117**, 531-539.
- Taylor, D. L., Diemel, L. T., Cuzner, M. L., & Pocock, J. M. (2002). Activation of group II metabotropic glutamate receptors underlies microglial reactivity and neurotoxicity following stimulation with chromogranin A, a peptide up-regulated in Alzheimer's disease. *J.Neurochem.* **82**, 1179-1191.
- Town, T., Nikolic, V., & Tan, J. (2005). The microglial "activation" continuum: from innate to adaptive responses. *J.Neuroinflammation.* **2**, 24.
- Vicente, R., Escalada, A., Coma, M., Fuster, G., Sanchez-Tillo, E., Lopez-Iglesias, C., Soler, C., Solsona, C., Celada, A., & Felipe, A. (2003). Differential voltage-dependent K<sup>+</sup> channel responses during proliferation and activation in macrophages. *J.Biol.Chem.* **278**, 46307-46320.
- Vicente, R., Escalada, A., Villalonga, N., Texidó, L., Roura, M., Martín-Satué, M., Soler, C., Tamkun, M. M., Solsona, C., & Felipe, A. (2005). Does Kv1.5 have a physiological role in the main voltage dependent K<sup>+</sup> current in macrophages? *J.Physiol.Biochem.*, **61**, 61.
- Visentin, S., Agresti, C., Patrizio, M., & Levi, G. (1995). Ion channels in rat microglia and their different sensitivity to lipopolysaccharide and interferon-gamma. *J.Neurosci.Res.* **42**, 439-451.
- Visentin, S. & Levi, G. (1997). Protein kinase C involvement in the resting and interferon-gamma-induced K<sup>+</sup> channel profile of microglial cells. *J.Neurosci.Res.* **47**, 233-241.

- Visentin, S., Renzi, M., & Levi, G. (2001). Altered outward-rectifying K(+) current reveals microglial activation induced by HIV-1 Tat protein. *Glia* **33**, 181-190.
- Wang, Y., Gao, J., Mathias, R. T., Cohen, I. S., Sun, X., & Baldo, G. J. (1998). alpha-Adrenergic effects on Na<sup>+</sup>-K<sup>+</sup> pump current in guinea-pig ventricular myocytes. *J.Physiol* **509 ( Pt 1)**, 117-128.
- Yao, J., Keri, J. E., Taffs, R. E., & Colton, C. A. (1992). Characterization of interleukin-1 production by microglia in culture. *Brain Res.* **591**, 88-93.
- Zhou, W., Cayabyab, F. S., Pennefather, P. S., Schlichter, L. C., & DeCoursey, T. E. (1998). HERG-like K<sup>+</sup> channels in microglia. *J.Gen.Physiol* **111**, 781-794.
- Zhu, J., Watanabe, I., Gomez, B., & Thornhill, W. B. (2003). Heteromeric Kv1 potassium channel expression: amino acid determinants involved in processing and trafficking to the cell surface. *J.Biol.Chem.* **278**, 25558-25567.