7 Literaturverzeichnis

1. Abbracchio MP, Rainaldi G, Giammarioli AM, Ceruti S, Brambilla R, Cattabeni F, Barbieri D, Franceschi C, Jacobson KA, Malorni W (1997) The A3 adenosine receptor mediates cell spreading, reorganization of actin cytoskeleton, and distribution of Bcl-XL: studies in human astroglioma cells. Biochem Biophys Res Commun 241: 297-304.

2. Altevogt BM, Paul DL (2004) Four classes of intercellular channels between glial cells in the CNS. J Neurosci 24: 4313-4323.

3. Anderson CM, Bergher JP, Swanson RA (2004) ATP-induced ATP release from astrocytes. J Neurochem 88: 246-256.

4. Araque A, Martin ED, Perea G, Arellano JI, Buno W (2002) Synaptically released acetylcholine evokes Ca2+ elevations in astrocytes in hippocampal slices. J Neurosci 22: 2443-2450.

5. Araque A, Parpura V, Sanzgiri RP, Haydon PG (1999) Tripartite synapses: glia, the unacknowledged partner. Trends Neurosci 22: 208-215.

6. Araque A, Sanzgiri RP, Parpura V, Haydon PG (1998) Calcium elevation in astrocytes causes an NMDA receptor-dependent increase in the frequency of miniature synaptic currents in cultured hippocampal neurons. J Neurosci 18: 6822-6829.

7. Arcuino G, Lin JH, Takano T, Liu C, Jiang L, Gao Q, Kang J, Nedergaard M (2002) Intercellular calcium signaling mediated by point-source burst release of ATP. Proc Natl Acad Sci U S A 99: 9840-9845.

8. Bal-Price A, Moneer Z, Brown GC (2002) Nitric oxide induces rapid, calcium-dependent release of vesicular glutamate and ATP from cultured rat astrocytes. Glia 40: 312-323.

9. Basarsky TA, Duffy SN, Andrew RD, MacVicar BA (1998) Imaging spreading depression and associated intracellular calcium waves in brain slices. J Neurosci 18: 7189-7199.

10. Basarsky TA, Feighan D, MacVicar BA (1999) Glutamate release through volume-activated channels during spreading depression. J Neurosci 19: 6439-6445.

11. Beierlein M, Regehr WG (2006) Brief bursts of parallel fiber activity trigger calcium signals in bergmann glia. J Neurosci 26: 6958-6967.

12. Bergles DE, Jahr CE (1997) Synaptic activation of glutamate transporters in hippocampal astrocytes. Neuron 19: 1297-1308.

13. Bergles DE, Roberts JD, Somogyi P, Jahr CE (2000) Glutamatergic synapses on oligodendrocyte precursor cells in the hippocampus. Nature 405: 187-191.

14. Bowser DN, Khakh BS (2004) ATP excites interneurons and astrocytes to increase synaptic inhibition in neuronal networks. J Neurosci 24: 8606-8620.

15. Burnstock G (2006) Purinergic signalling--an overview. Novartis Found Symp 276: 26-48.

16. Cai Z, Schools GP, Kimelberg HK (2000) Metabotropic glutamate receptors in acutely isolated hippocampal astrocytes: developmental changes of mGluR5 mRNA and functional expression. Glia 29: 70-80.

17. Carvalho AC, Sharpe J, Rosenstock TR, Teles AF, Youle RJ, Smaili SS (2004) Bax affects intracellular Ca2+ stores and induces Ca2+ wave propagation. Cell Death Differ 11: 1265-1276.

18. Chagnac-Amitai Y, Connors BW (1989a) Horizontal spread of synchronized activity in neocortex and its control by GABA-mediated inhibition. J Neurophysiol 61: 747-758.

19. Chagnac-Amitai Y, Connors BW (1989b) Synchronized excitation and inhibition driven by intrinsically bursting neurons in neocortex. J Neurophysiol 62: 1149-1162.

20. Charles AC, Merrill JE, Dirksen ER, Sanderson MJ (1991) Intercellular signaling in glial cells: calcium waves and oscillations in response to mechanical stimulation and glutamate. Neuron 6: 983-992.

21. Charles AC, Naus CC, Zhu D, Kidder GM, Dirksen ER, Sanderson MJ (1992) Intercellular calcium signaling via gap junctions in glioma cells. J Cell Biol 118: 195-201.

22. Cho RH, Segawa S, Mizuno A, Kaneko T (2004) Intracellularly labeled pyramidal neurons in the cortical areas projecting to the spinal cord. I. Electrophysiological properties of pyramidal neurons. Neurosci Res 50: 381-394.

23. Ciccarelli R, Ballerini P, Sabatino G, Rathbone MP, D'Onofrio M, Caciagli F, Di Iorio P (2001) Involvement of astrocytes in purine-mediated reparative processes in the brain. Int J Dev Neurosci 19: 395-414.

24. Clark BA, Barbour B (1997) Currents evoked in Bergmann glial cells by parallel fibre stimulation in rat cerebellar slices. J Physiol 502 (Pt 2): 335-350.

25. Cornell-Bell AH, Finkbeiner SM, Cooper MS, Smith SJ (1990) Glutamate induces calcium waves in cultured astrocytes: long-range glial signaling. Science 247: 470-473.

26. Cotrina ML, Lin JH, Alves-Rodrigues A, Liu S, Li J, Azmi-Ghadimi H, Kang J, Naus CC, Nedergaard M (1998a) Connexins regulate calcium signaling by controlling ATP release. Proc Natl Acad Sci U S A 95: 15735-15740.

27. Cotrina ML, Lin JH, Nedergaard M (1998b) Cytoskeletal assembly and ATP release regulate astrocytic calcium signaling. J Neurosci 18: 8794-8804.

28. Crank J (1975) The mathematics of diffusion. Oxford, U.K.: Clarendon.

29. D'Ambrosio R, Wenzel J, Schwartzkroin PA, McKhann GM, Janigro D (1998) Functional specialization and topographic segregation of hippocampal astrocytes. J Neurosci 18: 4425-4438.

30. Dani JW, Chernjavsky A, Smith SJ (1992) Neuronal activity triggers calcium waves in hippocampal astrocyte networks. Neuron 8: 429-440.

31. Dermietzel R, Gao Y, Scemes E, Vieira D, Urban M, Kremer M, Bennett MV, Spray DC (2000) Connexin43 null mice reveal that astrocytes express multiple connexins. Brain Res Brain Res Rev 32: 45-56.

32. Dermietzel R, Meier C, Bukauskas F, Spray DC (2003) Following tracks of hemichannels.\par. Cell Commun Adhes \par 10\par: 335-340.

33. Diamond JS, Bergles DE, Jahr CE (1998) Glutamate release monitored with astrocyte transporter currents during LTP. Neuron 21: 425-433.

34. Duan S, Anderson CM, Keung EC, Chen Y, Chen Y, Swanson RA (2003) P2X7 receptor-mediated release of excitatory amino acids from astrocytes. J Neurosci 23: 1320-1328.

35. Feldmeyer D, Lubke J, Sakmann B (2006) Efficacy and connectivity of intracolumnar pairs of layer 2/3 pyramidal cells in the barrel cortex of juvenile rats. J Physiol 575: 583-602.

36. Fellin T, Pozzan T, Carmignoto G (2006) Purinergic receptors mediate two distinct glutamate release pathways in hippocampal astrocytes. J Biol Chem 281: 4274-4284.

37. Ferrari D, Chiozzi P, Falzoni S, Dal Susino M, Collo G, Buell G, Di Virgilio F (1997) ATP-mediated cytotoxicity in microglial cells. Neuropharmacology 36: 1295-1301.

38. Filippov MA, Hormuzdi SG, Fuchs EC, Monyer H (2003) A reporter allele for investigating connexin 26 gene expression in the mouse brain. Eur J Neurosci 18: 3183-3192.

39. Finkbeiner S (1992) Calcium waves in astrocytes-filling in the gaps. Neuron 8: 1101-1108.

40. Fontanez DE, Porter JT (2006) Adenosine A1 receptors decrease thalamic excitation of inhibitory and excitatory neurons in the barrel cortex. Neuroscience 137: 1177-1184.

41. Gallagher CJ, Salter MW (2003) Differential properties of astrocyte calcium waves mediated by P2Y1 and P2Y2 receptors. J Neurosci 23: 6728-6739.

42. Games D, Adams D, Alessandrini R, Barbour R, Berthelette P, Blackwell C, Carr T, Clemens J, Donaldson T, Gillespie F, . (1995) Alzheimer-type neuropathology in transgenic mice overexpressing V717F beta-amyloid precursor protein. Nature 373: 523-527.

43. Garcia-Barcina JM, Matute C (1996) Expression of kainate-selective glutamate receptor subunits in glial cells of the adult bovine white matter. Eur J Neurosci 8: 2379-2387.

44. Garthwaite J, Boulton CL (1995) Nitric oxide signaling in the central nervous system. Annu Rev Physiol 57: 683-706.

45. Gehrmann J, Mies G, Bonnekoh P, Banati R, Iijima T, Kreutzberg GW, Hossmann KA (1993) Microglial reaction in the rat cerebral cortex induced by cortical spreading depression. Brain Pathol 3: 11-17.

46. Giaume C, Venance L (1998) Intercellular calcium signaling and gap junctional communication in astrocytes. Glia 24: 50-64.

47. Grynkiewicz G, Poenie M, Tsien RY (1985) A new generation of Ca2+ indicators with greatly improved fluorescence\par properties.\par. J Biol Chem \par 260\par: 3440-3450.

48. Guthrie PB, Knappenberger J, Segal M, Bennett MVL, Charles AC, Kater SB (1999) ATP released from astrocytes mediates glial calcium waves. J Neurosci 19: 520-528.

49. Haas, B. Charakterisierung von glialen Calciumwellen im akuten Hirnschnitt. 25-1-2003. Universität Hannover. Diplomarbeit

50. Haraguchi Y, Shimizu T, Yamato M, Kikuchi A, Okano T (2006) Electrical coupling of cardiomyocyte sheets occurs rapidly via functional gap junction formation. Biomaterials 27: 4765-4774.

51. Harris-White ME, Zanotti SA, Frautschy SA, Charles AC (1998) Spiral intercellular calcium waves in hippocampal slice cultures. J Neurophysiol 79: 1045-1052.

52. Hasko G, Pacher P, Vizi ES, Illes P (2005) Adenosine receptor signaling in the brain immune system. Trends Pharmacol Sci 26: 511-516.

53. Hassinger TD, Guthrie PB, Atkinson PB, Bennett MV, Kater SB (1996) An extracellular signaling component in propagation of astrocytic calcium waves. Proc Natl Acad Sci U S A 93: 13268-13273.

54. Haughey NJ, Mattson MP (2003) Alzheimer's amyloid beta-peptide enhances ATP/gap junction-mediated calcium-wave propagation in astrocytes. Neuromolecular Med 3: 173-180.

55. Hide I, Tanaka M, Inoue A, Nakajima K, Kohsaka S, Inoue K, Nakata Y (2000) Extracellular ATP triggers tumor necrosis factor-alpha release from rat microglia. J Neurochem 75: 965-972.

56. Hirase H, Qian L, Bartho P, Buzsaki G (2004) Calcium dynamics of cortical astrocytic networks in vivo. PLoS Biol 2: E96.

57. Hofer T, Venance L, Giaume C (2002) Control and plasticity of intercellular calcium waves in astrocytes: a modeling approach. J Neurosci 22: 4850-4859.

58. Innocenti B, Parpura V, Haydon PG (2000) Imaging extracellular waves of glutamate during calcium signaling in cultured astrocytes. J Neurosci 20: 1800-1808.

59. Israel JM, Schipke CG, Ohlemeyer C, Theodosis DT, Kettenmann H (2003) GABAA receptor-expressing astrocytes in the supraoptic nucleus lack glutamate uptake and receptor currents. Glia 44: 102-110.

60. John GR, Scemes E, Suadicani SO, Liu JS, Charles PC, Lee SC, Spray DC, Brosnan CF (1999) IL-1beta differentially regulates calcium wave propagation between primary human fetal astrocytes via pathways involving P2 receptors and gap junction channels. Proc Natl Acad Sci U S A 96: 11613-11618.

61. Kang J, Jiang L, Goldman SA, Nedergaard M (1998) Astrocyte-mediated potentiation of inhibitory synaptic transmission. Nat Neurosci 1: 683-692.

62. Kasischke KA, Vishwasrao HD, Fisher PJ, Zipfel WR, Webb WW (2004) Neural activity triggers neuronal oxidative metabolism followed by astrocytic glycolysis. Science 305: 99-103.

63. Kettenmann, H. and Ransom, B. R. Neuroglia. 2005. Oxford University Press.

64. King BF, Neary JT, Zhu Q, Wang S, Norenberg MD, Burnstock G (1996) P2 purinoceptors in rat cortical astrocytes: expression, calcium-imaging and signalling studies. Neuroscience 74: 1187-1196.

65. Kirischuk S, Scherer J, Kettenmann H, Verkhratsky A (1995) Activation of P2-purinoreceptors triggered Ca2+ release from InsP3-sensitive internal stores in mammalian oligodendrocytes. J Physiol Lond 483: 41-57.

66. Kunkler PE, Kraig RP (1998) Calcium waves precede electrophysiological changes of spreading depression in hippocampal organ cultures. J Neurosci 18: 3416-3425.

67. Kunzelmann P, Schroder W, Traub O, Steinhauser C, Dermietzel R, Willecke K (1999) Late onset and increasing expression of the gap junction protein connexin30 in adult murine brain and long-term cultured astrocytes. Glia 25: 111-119.

68. Lehrmann E, Christensen T, Zimmer J, Diemer NH, Finsen B (1997) Microglial and macrophage reactions mark progressive changes and define the penumbra in the rat neocortex and striatum after transient middle cerebral artery occlusion. J Comp Neurol 386: 461-476.

69. Lian XY, Stringer JL (2004) Astrocytes contribute to regulation of extracellular calcium and potassium in the rat cerebral cortex during spreading depression. Brain Res 1012: 177-184.

70. Lubke J, Roth A, Feldmeyer D, Sakmann B (2003) Morphometric analysis of the columnar innervation domain of neurons connecting layer 4 and layer 2/3 of juvenile rat barrel cortex. Cereb Cortex 13: 1051-1063.

71. Magistretti, P. J. and Ransom, B. Astrocytes. Davis, K. L., Charney, D., Coyle, J. T., and Nemeroff, C. Neuropsychopharmacology The Fifth Generation of Progress . 1-2-2002. Lippincott Williams & Wilkins. Ref Type: Generic

72. Maienschein V, Marxen M, Volknandt W, Zimmermann H (1999) A plethora of presynaptic proteins associated with ATP-storing organelles in cultured astrocytes. Glia 26: 233-244.

73. Makowski L, Caspar DL, Phillips WC, Goodenough DA (1977) Gap junction structures. II. Analysis of the x-ray diffraction data. J Cell Biol 74: 629-645.

74. Matthias K, Kirchhoff F, Seifert G, Huttmann K, Matyash M, Kettenmann H, Steinhauser C (2003) Segregated expression of AMPA-type glutamate receptors and glutamate transporters defines distinct astrocyte populations in the mouse hippocampus. J Neurosci.

75. Matyash V, Filippov V, Mohrhagen K, Kettenmann H (2001) Nitric oxide signals parallel fiber activity to Bergmann glial cells in the mouse cerebellar slice. Mol Cell Neurosci 18: 664-670.

76. Mongin AA, Kimelberg HK (2002) ATP potently modulates anion channel-mediated excitatory amino acid release from cultured astrocytes. Am J Physiol Cell Physiol 283: C569-C578.

77. Muller T, Moller T, Berger T, Schnitzer J, Kettenmann H (1992) Calcium entry through kainate receptors and resulting potassium-channel blockade in Bergmann glial cells. Science 256: 1563-1566.

78. Nadal A, Fuentes E, Pastor J, McNaughton PA (1997) Plasma albumin induces calcium waves in rat cortical astrocytes. Glia 19: 343-351.

79. Nagy JI, Patel D, Ochalski PA, Stelmack GL (1999) Connexin30 in rodent, cat and human brain: selective expression in gray matter astrocytes, co-localization with connexin43 at gap junctions and late developmental appearance. Neuroscience 88: 447-468.

80. Nakase T, Fushiki S, Sohl G, Theis M, Willecke K, Naus CC (2003) Neuroprotective role of astrocytic gap junctions in ischemic stroke. Cell Commun Adhes 10: 413-417.

81. Naus CC, Bani-Yaghoub M, Rushlow W, Bechberger JF (1999) Consequences of impaired gap junctional communication in glial cells. Adv Exp Med Biol 468: 373-381.

82. Nedergaard M (1994) Direct signaling from astrocytes to neurons in cultures of mammalian brain cells. Science 263: 1768-1771.

83. Nedergaard M, Cooper AJ, Goldman SA (1995) Gap junctions are required for the propagation of spreading depression. J Neurobiol 28: 433-444.

84. Nedergaard M, Hansen AJ (1993) Characterization of cortical depolarizations evoked in focal cerebral ischemia. J Cereb Blood Flow Metab 13: 568-574.

85. Nedergaard M, Ransom B, Goldman SA (2003) New roles for astrocytes: redefining the functional architecture of the brain. Trends Neurosci 26: 523-530.

86. Newman EA (2001) Propagation of intercellular calcium waves in retinal astrocytes and Muller cells. J Neurosci 21: 2215-2223.

87. Newman EA (2003) Glial cell inhibition of neurons by release of ATP. J Neurosci 23: 1659-1666.

88. Newman EA, Zahs KR (1997) Calcium waves in retinal glial cells. Science 275: 844-847.

89. Nimmerjahn A, Kirchhoff F, Kerr JN, Helmchen F (2004) Sulforhodamine 101 as a specific marker of astroglia in the neocortex in vivo. Nat Methods 1: 31-37.

90. Nolte C, Matyash M, Pivneva T, Schipke CG, Ohlemeyer C, Hanisch UK, Kirchhoff F, Kettenmann H (2001) GFAP promoter-controlled EGFP-expressing transgenic mice: a tool to visualize astrocytes and astrogliosis in living brain tissue. Glia 33: 72-86.

91. Orkand RK, Nicholls JG, Kuffler SW (1966) Effect of nerve impulses on the membrane potential of glial cells in the central nervous system of amphibia. J Neurophysiol 29: 788-806.

92. Parpura V, Haydon PG (2000) Physiological astrocytic calcium levels stimulate glutamate release to modulate adjacent neurons. Proc Natl Acad Sci U S A 97: 8629-8634.

93. Parri HR, Gould TM, Crunelli V (2001a) Spontaneous astrocytic Ca2+ oscillations in situ drive NMDAR-mediated neuronal excitation. Nat Neurosci 4: 803-812.

94. Parri HR, Gould TM, Crunelli V (2001b) Spontaneous astrocytic Ca2+ oscillations in situ drive NMDAR-mediated neuronal excitation. Nat Neurosci 4: 803-812.

95. Pascual O, Casper KB, Kubera C, Zhang J, Revilla-Sanchez R, Sul JY, Takano H, Moss SJ, McCarthy K, Haydon PG (2005) Astrocytic purinergic signaling coordinates synaptic networks. Science 310: 113-116.

96. Perea G, Araque A (2005) Properties of synaptically evoked astrocyte calcium signal reveal synaptic information processing by astrocytes. J Neurosci 25: 2192-2203.

97. Perez Velazquez JL, Kokarovtseva L, Sarbaziha R, Jeyapalan Z, Leshchenko Y (2006) Role of gap junctional coupling in astrocytic networks in the determination of global ischaemia-induced oxidative stress and hippocampal damage. Eur J Neurosci 23: 1-10.

98. Peters O, Schipke CG, Hashimoto Y, Kettenmann H (2003) Different mechanisms promote astrocyte Ca2+ waves and spreading depression in the mouse neocortex. J Neurosci 23: 9888-9896.

99. Petersen CC (2003) The barrel cortex--integrating molecular, cellular and systems physiology. Pflugers Arch 447: 126-134.

100. Phillis JW (1990) The selective adenosine A2 receptor agonist, CGS 21680, is a potent depressant of cerebral cortical neuronal activity. Brain Res 509: 328-330.

101. Porter JT, McCarthy KD (1995a) Adenosine receptors modulate [Ca2+]i in hippocampal astrocytes in situ. J Neurochem 65: 1515-1523.

102. Porter JT, McCarthy KD (1995b) GFAP-positive hippocampal astrocytes in situ respond to glutamatergic neuroligands with increases in [Ca2+]i. Glia 13: 101-112.

103. Ralevic V, Burnstock G (1998) Receptors for purines and pyrimidines. Pharmacol Rev 50: 413-492.

104. Rathbone MP, Middlemiss PJ, DeLuca B, Jovetich M (1991) Extracellular guanosine increases astrocyte cAMP: inhibition by adenosine A2 antagonists. Neuroreport 2: 661-664.

105. Scemes E, Dermietzel R, Spray DC (1998) Calcium waves between astrocytes from Cx43 knockout mice. Glia 24: 65-73.

106. Scemes E, Suadicani SO, Spray DC (2000) Intercellular communication in spinal cord astrocytes: fine tuning between gap junctions and P2 nucleotide receptors in calcium wave propagation. J Neurosci 20: 1435-1445.

107. Schipke CG, Boucsein C, Ohlemeyer C, Kirchhoff F, Kettenmann H (2002) Astrocyte Ca2+ waves trigger responses in microglial cells in brain slices. FASEB J 16: 255-257.

108. Schipke CG, Kettenmann H (2004) Astrocyte responses to neuronal activity. Glia 47: 226-232.

109. Schipke CG, Ohlemeyer C, Matyash M, Nolte C, Kettenmann H, Kirchhoff F (2001) Astrocytes of the mouse neocortex express functional N-methyl-D-aspartate receptors. FASEB J 15: 1270-1272.

110. Schools GP, Kimelberg HK (2001) Metabotropic glutamate receptors in freshly isolated astrocytes from rat hippocampus. Prog Brain Res 132: 301-312.

111. Schwartz A.B., Wise S.P (2004) Motor Cortex. In: Encyclopedia of Neuroscience, 3rd Edition (Adelmann G, Smith B.H., eds), Elsevier.

112. Seifert G, Steinhauser C (1995) Glial cells in the mouse hippocampus express AMPA receptors with an intermediate Ca2+ permeability. Eur J Neurosci 7: 1872-1881.

113. Serrano A, Haddjeri N, Lacaille JC, Robitaille R (2006) GABAergic network activation of glial cells underlies hippocampal heterosynaptic depression. J Neurosci 26: 5370-5382.

114. Simard M, Arcuino G, Takano T, Liu QS, Nedergaard M (2003) Signaling at the gliovascular interface. J Neurosci 23: 9254-9262.

115. Siushansian R, Bechberger JF, Cechetto DF, Hachinski VC, Naus CC (2001) Connexin43 null mutation increases infarct size after stroke. J Comp Neurol 440: 387-394.

116. Slezak M, Pfrieger FW (2003) New roles for astrocytes: regulation of CNS synaptogenesis. Trends Neurosci 26: 531-535.

117. Smetters D, Majewska A, Yuste R (1999) Detecting action potentials in neuronal populations with calcium imaging. Methods 18: 215-221.

118. Sneyd J, Charles AC, Sanderson MJ (1994) A model for the propagation of intercellular calcium waves. Am J Physiol 266: C293-C302.

119. Steinhauser, C. and Kettenmann, H. Neurotransmitter and hormone receptors on astrocytes. Encyclopedia of Neuroscience 4th edition. 2007. Elsevier.

120. Stout CE, Costantin JL, Naus CC, Charles AC (2002) Intercellular calcium signaling in astrocytes via ATP release through connexin hemichannels. J Biol Chem 277: 10482-10488.

121. Suadicani SO, Brosnan CF, Scemes E (2006) P2X7 receptors mediate ATP release and amplification of astrocytic intercellular Ca2+ signaling. J Neurosci 26: 1378-1385.

122. Suadicani SO, Pina-Benabou MH, Urban-Maldonado M, Spray DC, Scemes E (2003) Acute downregulation of Cx43 alters P2Y receptor expression levels in mouse spinal cord astrocytes. Glia 42: 160-171.

123. Swadlow HA, Gusev AG, Bezdudnaya T (2002) Activation of a cortical column by a thalamocortical impulse. J Neurosci 22: 7766-7773.

124. Teubner B, Michel V, Pesch J, Lautermann J, Cohen-Salmon M, Sohl G, Jahnke K, Winterhager E, Herberhold C, Hardelin JP, Petit C, Willecke K (2003) Connexin30 (Gjb6)-deficiency causes severe hearing impairment and lack of endocochlear potential. Hum Mol Genet 12: 13-21.

125. Theis M, Jauch R, Zhuo L, Speidel D, Wallraff A, Doring B, Frisch C, Sohl G, Teubner B, Euwens C, Huston J, Steinhauser C, Messing A, Heinemann U, Willecke K (2003) Accelerated hippocampal spreading depression and enhanced locomotory activity in mice with astrocyte-directed inactivation of connexin43. J Neurosci 23: 766-776.

126. Thomson AM, West DC, Hahn J, Deuchars J (1996) Single axon IPSPs elicited in pyramidal cells by three classes of interneurones in slices of rat neocortex. J Physiol 496 (Pt 1): 81-102.

127. Tucker TR, Katz LC (2003) Recruitment of local inhibitory networks by horizontal connections in layer 2/3 of ferret visual cortex. J Neurophysiol 89: 501-512.

128. Venance L, Stella N, Glowinski J, Giaume C (1997) Mechanism involved in initiation and propagation of receptor-induced intercellular calcium signaling in cultured rat astrocytes. J Neurosci 17: 1981-1992.

129. Verderio C, Matteoli M (2001) Atp mediates calcium signaling between astrocytes and microglial cells: modulation by ifn-gamma. J Immunol 166: 6383-6391.

130. Verkhratsky A, Kettenmann H (1996) Calcium signalling in glial cells. Trends Neurosci 19: 346-352.

131. Wallraff A, Kohling R, Heinemann U, Theis M, Willecke K, Steinhauser C (2006) The impact of astrocytic gap junctional coupling on potassium buffering in the hippocampus. J Neurosci 26: 5438-5447.

132. Wallraff A, Odermatt B, Willecke K, Steinhauser C (2004) Distinct types of astroglial cells in the hippocampus differ in gap junction coupling. Glia 48: 36-43.

133. Walz W (2000) Role of astrocytes in the clearance of excess extracellular potassium. Neurochem Int 36: 291-300.

134. Wang X, Lou N, Xu Q, Tian GF, Peng WG, Han X, Kang J, Takano T, Nedergaard M (2006) Astrocytic Ca2+ signaling evoked by sensory stimulation in vivo. Nat Neurosci 9: 816-823.

135. Wang Z, Haydon PG, Yeung ES (2000) Direct observation of calcium-independent intercellular ATP signaling in astrocytes. Anal Chem 72: 2001-2007.

136. Wang Z, Tymianski M, Jones OT, Nedergaard M (1997) Impact of cytoplasmic calcium buffering on the spatial and temporal characteristics of intercellular calcium signals in astrocytes. J Neurosci 17: 7359-7371.

137. Willmott NJ, Wong K, Strong AJ (2000a) A fundamental role for the nitric oxide-G-kinase signaling pathway in mediating intercellular Ca(2+) waves in glia. J Neurosci 20: 1767-1779.

138. Willmott NJ, Wong K, Strong AJ (2000b) Intercellular Ca(2+) waves in rat hippocampal slice and dissociated glial-neuron cultures mediated by nitric oxide. FEBS Lett 487: 239-247.

139. Yagodin S, Holtzclaw LA, Russell JT (1995) Subcellular calcium oscillators and calcium influx support agonist-induced\par calcium waves in cultured astrocytes. Mol Cell Biochem 149-150: 137-144.

140. Ye ZC, Wyeth MS, Baltan-Tekkok S, Ransom BR (2003) Functional hemichannels in astrocytes: a novel mechanism of glutamate release. J Neurosci 23: 3588-3596.

141. Zahs KR (1998) Heterotypic coupling between glial cells of the mammalian central nervous system. Glia 24: 85-96.

142. Zanotti S, Charles A (1997) Extracellular calcium sensing by glial cells: low extracellular calcium induces intracellular calcium release and intercellular signaling. J Neurochem 69: 594-602.

143. Zhang JM, Wang HK, Ye CQ, Ge W, Chen Y, Jiang ZL, Wu CP, Poo MM, Duan S (2003) ATP released by astrocytes mediates glutamatergic activity-dependent heterosynaptic suppression. Neuron 40: 971-982.

144. Zhu Y, Kimelberg HK (2001) Developmental expression of metabotropic P2Y(1) and P2Y(2) receptors in freshly isolated astrocytes from rat hippocampus. J Neurochem 77: 530-541.

145. Zonta M, Angulo MC, Gobbo S, Rosengarten B, Hossmann KA, Pozzan T, Carmignoto G (2003a) Neuron-to-astrocyte signaling is central to the dynamic control of brain microcirculation. Nat Neurosci 6: 43-50.

146. Zonta M, Sebelin A, Gobbo S, Fellin T, Pozzan T, Carmignoto G (2003b) Glutamate-mediated cytosolic calcium oscillations regulate a pulsatile prostaglandin release from cultured rat astrocytes. J Physiol 553: 407-414.