

## References

- Aïd, S., & Bosetti, F. (2011). Targeting cyclooxygenases-1 and -2 in neuroinflammation: Therapeutic implications. *Biochimie*, *93*, 46–51.
- Araque, A., & Naverrete, (2010). Glial cells in neuronal network function. *Philosophical Transactions of the Royal Society of London B*, *365*, 2375–2381.
- Ariel, A., & Serhan, C. N. (2007). Resolvins and protectins in the termination program of acute inflammation. *Trends in Immunology*, *28*, 176–183.
- Bannenberg, G., & Serhan, C. N. (2010). Specialized pro-resolving lipid mediators in the inflammatory response: An update. *Biochimica et Biophysica Acta (BBA)—Molecular and Cell Biology of Lipids*, *1801*, 1260–1273.
- Bauer, J., Strauss, S., Schreiter-Gasser, U., Ganter, U., Schlegel, P., Witt, I., et al. (1991). Interleukin-6 and alpha-2-macroglobulin indicate an acute-phase state in Alzheimer's disease cortices. *FEBS Letter*, *285*, 111–114.
- Bazan, N. G. (2006). Cell survival matters: Docosahexaenoic acid signaling, neuroprotection and photoreceptors. *Trends in Neurosciences*, *29*, 263–271.
- Bazan, N. G. (2009). Cellular and molecular events mediated by docosahexaenoic acid-derived neuroprotectin D1 signaling in photoreceptor cell survival and brain protection. *Prostaglandins, Leukotrienes and Essential Fatty Acids*, *81*, 205–211.
- Becker, C. E., & O'Neill, L. A. J. (2007). Inflammasomes in inflammatory disorders: The role of TLRs and their interactions with NLRs. *Seminars in Immunopathology*, *29*, 239–248.
- Biber, K., Neumann, H., Inoue, K., & Boddeke, H. W. (2007). Neuronal 'on' and 'off' signals control microglia. *Trends in Neurosciences*, *30*, 596–602.
- Biron, C. A. (2010). More things in heaven and earth: Defining innate and adaptive immunity.

- Nature Immunology*, 11, 1080–1082.
- Block, M. L., & Calderón-Garcidueñas, L. (2009). Air pollution: Mechanisms of neuroinflammation and CNS disease. *Trends in Neurosciences*, 32, 506–516.
- Block, M. L., Zecca, L., & Hong, J. -S. (2007). Microglia-mediated neurotoxicity: Uncovering the molecular mechanisms. *Nature Reviews Neuroscience*, 8, 57–69.
- Boche, D., Denham, N., Holmes, C., & Nicoll, J. A. R. (2010). Neuropathology after active A $\beta$ 42 immunotherapy: Implications for Alzheimer's disease pathogenesis. *Acta Neuropathologica*, 120, 369–384.
- Campbell, I. L., Abraham, C. R., Masliah, E., Kemper, P., Inglis, J. D., Oldstone, M. B., et al. (1993). Neurologic disease induced in transgenic mice by cerebral overexpression of interleukin-6. *Proceedings of the National Academy of Sciences of the United States of America*, 20, 10061–10065.
- Carson, M. J., Thrash, J. C., & Walter, B. (2006). The cellular response in neuroinflammation: The role of leukocytes, microglia and astrocytes in neuronal death and survival. *Clinical Neuroscience Research*, 6, 237–245.
- Chakraborty, S., Kaushik, D. K., Gupta, M., & Basu, A. (2010). Inflammasome signaling at the heart of central nervous system pathology. *Journal of Neuroscience Research*, 88, 1615–1631.
- Choi, S. H., Aid, S., & Bosetti, F. (2009). The distinct roles of cyclooxygenase-1 and -2 in neuroinflammation: Implications for translational research. *Trends in Pharmacological Sciences*, 30, 174–181.
- Combs, C. K., Karlo, J. C., Kao, S. C., & Landreth, G. E. (2001).  $\beta$ -amyloid stimulation of microglia and monocytes results in TNF $\alpha$ -dependent expression of inducible nitric oxide

- synthase and neuronal apoptosis. *The Journal of Neuroscience*, *21*, 1179–1188.
- Conde, J. R., & Streit, W. J. (2006). Effect of aging on the microglial response to peripheral nerve injury. *Neurobiology of Aging*, *27*, 1451–1461.
- Danton, G. H., & Dietrich, W. D. (2003). Inflammatory mechanisms after ischemia and stroke. *Journal of Neuropathology & Experimental Neurology*, *62*, 127–136.
- del Rio Hortega, P. (1932). Microglia. In W. Penfield (Ed.), *Cytology and cellular pathology of the nervous system* (pp. 482–534). New York: Hoeber.
- Di Filippo, M., Chiasserini, D., Tozzi, A., Picconi, B., & Calabresi, P. (2010). Mitochondria and the link between neuroinflammation and neurodegeneration. *Journal of Alzheimer's Disease*, *20*, S369–S379.
- Dilger, R. N., & Johnson, R. W. (2008). Aging, microglial cell priming, and the discordant central inflammatory response to signals from the peripheral immune system. *Journal of Leukocyte Biology*, *84*, 932–939.
- DiMauro, S., & Schon, E. A. (2003). Mitochondrial respiratory-chain diseases. *The New England Journal of Medicine*, *348*, 2656–2668.
- Dinarello, C. A. (2010). Anti-inflammatory agents: present and future. *Cell*, *140*, 935–950.
- Dixit, V., & Lamkanfi, M. (2009). Inflammasomes: Guardians of cytosolic sanctity. *Immunological Reviews*, *227*, 95–105.
- Drenth, J. P. H., & van der Meer, J. W. M. (2006). The inflammasome—a linebacker of innate defense. *The New England Journal of Medicine*, *355*, 730–732.
- Ferger, A. I., Campanelli, L., Reimer, V., Muth, K. N., Merdian, I., Ludolph, A. C., et al. (2010). Effects of mitochondrial dysfunction on the immunological properties of microglia. *Journal of Neuroinflammation*, *45*.

- Frank-Cannon, T., Alto, L., McAlpine, F., & Tansey, M. (2009). Does neuroinflammation fan the flame in neurodegenerative diseases? *Molecular Neurodegeneration*, *4*(1), 47.
- Frank-Cannon, T. C., Alto, L. T., McAlpine, F. E., & Tansey, M. G. (2009). Does neuroinflammation fan the flame in neurodegenerative diseases? *Molecular Neurodegeneration*, *4*.
- Garden, G. A., & Moller, T. (2006). Microglia biology in health and disease. *Journal of Neuroimmune Pharmacology*, *1*, 127–137.
- Gehrmann, J., Matsumoto, Y., & Kreutzberg, G. (1995). Microglia: Intrinsic immuneffector cell of the brain. *Brain Research Reviews*, *20*, 269–287.
- Godbout, J. P., & Johnson, R. W. (2004). Interleukin-6 in the aging brain. *Journal of Neuroimmunology*, *147*, 141–144.
- Godbout, J. P., Chen, J., Abraham, J., Richwine, A. F., Berg, B. M., Kelley, K. W., et al. (2005). Exaggerated neuroinflammation and sickness behavior in aged mice following activation of the peripheral innate immune system. *The FEBS Journal*, *19*, 1329–1331.
- Godbout, J. P., Moreau, M., Lestage, J., Chen, J., Sparkman, N. L., O'Connor, J., et al. (2008). Aging exacerbates depressive-like behavior in mice in response to activation of the peripheral immune system. *Neuropsychopharmacology*, *33*, 2341–2351.
- Gonzalez-Scarano, F., & Baltuch, G. (1999). Microglia as mediators of inflammatory and degenerative diseases. *Annual Review of Neuroscience*, *22*, 219–240.
- Haga, S., Akai, K., & Ishii, T. (1989). Demonstration of microglial cells in and around senile (neuritic) plaques in the Alzheimer's brain. An immunohistochemical study using a novel monoclonal antibody. *Acta Neuropathologica*, *77*, 569–575.
- Henry, C. J., Huang, Y., Wynne, A., & Godbout, J. P. (2009). Peripheral lipopolysaccharide

- (LPS) challenge promotes microglial hyperactivity in aged mice that is associated with exaggerated induction of both pro-inflammatory IL-1 $\alpha$  and anti-inflammatory IL-10 cytokines. *Brain, Behavior, and Immunity*, 23, 309–317.
- Heyen, J. R., Ye, S., Finck, B. N., & Johnson, R. W. (2000). Interleukin (IL)-10 inhibits IL-6 production in microglia by preventing activation of NF-kappaB. *Brain Research Molecular Brain Research*, 77, 138–147.
- Huell, M., Strauss, S., Volk, B., Berger, M., & Bauer, J. (1995). Interleukin-6 is present in early stages of plaque formation and is restricted to the brains of Alzheimer's disease patients. *Acta Neuropathologica*, 89, 544–551.
- Irizarry, M. C., Soriano, F., McNamara, M., Page, K. J., Schenk, D., Games, D., et al. (1997). Abeta deposition is associated with neurophil changes, but not with overt neuronal loss in the human amyloid precursor protein V717F (PDAPP) transgenic mouse. *Journal of Neuroscience*, 17, 7053–7059.
- Johnson, R. W., & Godbout, J. P. (2006). Aging, neuroinflammation, and behavior. In *Physcconeuroimmunology* (Vol. 1). Burlington, MA: Elsevier Academic Press, pp. 379–391.
- Kanneganti, T. D. (2010). Central roles of NLRs and inflammasomes in viral infection. *Nature Reviews Immunology*, 10, 688–698.
- Kawai, T., & Akira, S. (2010). The role of pattern-recognition receptors in innate immunity: Update on Toll-like receptors. *Nature Immunology*, 11, 373–384.
- Khoury, J. E., Hickman, S. E., Thomas, C. A., Cao, L., Silverstein, S. C., & Loike, J. D. (1996). Scavenger receptor-mediated adhesion of microglia to beta-amyloid fibrils. *Nature*, 382, 716–719.

- Khoury, J. E., Hickman, S. E., Thomas, C. A., Loike, J. D., & Silverstein, S. C. (1998). Microglia, scavenger receptors, and the pathogenesis of Alzheimer's disease. *Neurobiology of Aging*, *19*, S81–S84.
- Korotzer, A. R., Pike, C. J., & Cotman, C. W. (1993).  $\beta$ -amyloid peptides induce degeneration of cultured rat microglia. *Brain Research*, *624*, 121–125.
- Lamkanfi, M., Kanneganti, T. D., Franchi, L., & Nunez, G. (2007). Caspase-1 inflammasomes in infection and inflammation. *Journal of Leukocyte Biology*, *82*, 220–225.
- Lemere, C. A., & Masliah, E. (2010). Can Alzheimer disease be prevented by amyloid- $\beta$  immunotherapy? *Nature Reviews Neurology*, *6*, 108–119.
- Leteimbre, M., Hao, W., Liu, Y., Walter, S., Mihaljevic, I., Rivest, S., et al. (2007). Innate immune receptor expression in normal brain aging. *Neuroscience*, *146*, 248–254.
- Mahad, D., Lassmann, H., & Turnbull, D. (2008). Mitochondria and disease progression in multiple sclerosis. *Neuropathology and Applied Neurobiology*, *34*, 577–589.
- Martinon, F., Mayor, A., & Tschopp, J. (2009). The inflammasomes: Guardians of the body. *Annual Review of Immunology*, *27*, 229–265.
- McRae, A., Dahlstrom, A., & Ling, E. A. (1997). Microglia in neurodegenerative disorders: Emphasis on Alzheimer's disease. *Gerontology*, *43*, 95–108.
- Montaner, J., Rovira, A., Molina, C., Arenillas, J. F., Ribo, M., Chacon, P., et al. (2003). Plasmatic level of neuroinflammatory markers predict the extent of diffusion-weighter image lesions in hyperacute stroke. *Journal of Cerebral Blood Flow and Metabolism*, *23*, 1403–1407.
- Napoli, I., & Neumann, H. (2010). Protective effects of microglia in multiple sclerosis.

*Experimental Neurology*, 225, 24–28.

Nicholls, D. G. (2008). Oxidative stress and energy crises in neuronal dysfunction. *Annals of the New York Academy of Sciences*, 1147, 53–60.

Patten, D. A., Germain, M., Kelly, M. A., & Slack, R. S. (2010). Reactive oxygen species: Stuck in the middle of neurodegeneration. *Journal of Alzheimer's Disease*, 20, S357–S367.

Petasis, N. A., Akritopoulou-Zanze, I., Fokin, V. V., Bernasconi, G., Keledjian, R., Yang, R., et al. (2005). Design, synthesis and bioactions of novel stable mimetics of lipoxins and aspirin-triggered lipoxins. *Prostaglandins, Leukotrienes and Essential Fatty Acids*, 73, 301–321.

Qiu, Z., Sweeney, D. D., Netzeband, J. G., & Gruol, D. L. (1998). Chronic interleukin-6 alters NMDA receptor-mediated membrane responses and enhances neurotoxicity in developing CNS neurons. *The Journal of Neuroscience*, 18, 10445–10456.

Rock, R. B., Gekker, G., Hu, S., Sheng, W. S., Cheeran, M., Lokensgard, J. R., et al. (2004). Role of microglia in central nervous system infections. *Clinical Microbiology Reviews*, 17, 942–964.

Rodolfo, C., Ciccocanti, F., Giacomo, G., Piacentini, M., & Fimia, G. (2010). Proteomic analysis of mitochondrial dysfunction in neurodegenerative disease. *Expert Review of Proteomics*, 7, 519–542.

Ross, C. A., & Poirier, M. A. (2004). Protein aggregation and neurodegenerative disease. *Nature Medicine*, 10, S10–S17.

Rozovsky, I., Finch, C. E., & Morgan, T. E. (1998). Age-related activation of microglia and astrocytes: In vitro studies show persistent phenotypes of aging, increased proliferation, and resistance to down-regulation. *Neurobiology of Aging*, 19, 97–103.

- Saiwai, H., Ohkawa, Y., Yamada, H., Kumamaru, H., Harada, A., Okano, H., et al. (2010). The LTB4-BLT1 axis mediates neutrophil infiltration and secondary injury in experimental spinal cord injury. *The American Journal of Pathology*, *176*, 2352–2366.
- Sawada, M., Suzumura, A., Hosoya, H., Marunouchi, T., & Nagatsu, T. (2001). Interleukin-10 inhibits both production of cytokines and expression of cytokine receptors in microglia. *Journal of Neurochemistry*, *72*, 1466–1471.
- Schroder, K., & Tschopp, J. (2010). The Inflammasomes. *Cell*, *140*, 821–832.
- Schwartz, M., Butovsky, O., Bruck, W., & Uwe-Karsten, H. (2006). Microglial phenotype: Is the commitment reversible? *Trends in Neuroscience*, *29*.
- Serhan, C. N. (2005). Lipoxins and aspirin-triggered 15-epi-lipoxins are the first lipid mediators of endogenous anti-inflammation and resolution. *Prostaglandins, Leukotrienes and Essential Fatty Acids*, *73*, 141–162.
- Serhan, C. N. (2010). Novel Lipid Mediators and Resolution Mechanisms in Acute Inflammation: To Resolve or Not? *The American Journal of Pathology*, *177*, 1576–1591.
- Serhan, C. N., Chiang, N., & Van Dyke, T. E. (2008a). Resolving inflammation: Dual anti-inflammatory and pro-resolution lipid mediators. *Nature Reviews Immunology*, *8*, 349–361.
- Serhan, C. N., Yacoubian, S., & Yang, R. (2008b). Anti-inflammatory and proresolving lipid mediators. *Annual Review of Pathology: Mechanisms of Disease*, *3*, 279–312.
- Simard, J. M., Kent, T. A., Chen, M., Tarasov, K. V., & Gerzanich, V. (2007). Brain oedema in focal ischaemia: Molecular pathophysiology and theoretical implications. *Lancet Neurology*, *6*, 258–268.
- Skaper, S. D. (2007). The brain as a target for inflammatory processes and neuroprotective



- strategies. *Annals of the New York Academy of Sciences*, 1122, 23–24.
- Sparkman, N. L., & Johnson, R. W. (2008). Neuroinflammation associated with aging sensitizes the brain to the effects of infection or stress. *Neuroimmunomodulation*, 15, 323–330.
- Streit, W. J. (2006). Microglial senescence: Does the brain's immune system have an expiration date? *Trends in Neuroscience*, 29, 506–510.
- Streit, W. J., Mrak, R. E., & Griffin, W. S. T. (2004). Microglia and neuroinflammation: A pathological perspective. *Journal of Neuroinflammation*, 1, 14.
- Streit, W. J., Sammons, N. W., Kuhns, A. J., & Sparks, D. L. (2004). Dystrophic microglia in the aging human brain. *Glia*, 45, 208–212.
- Takeuchi, O., & Akira, S. (2010). Pattern recognition receptors and inflammation. *Cell*, 140, 805–820.
- Taupin, P. (2008). Adult neurogenesis, neuroinflammation and therapeutic potential of adult neural stem cells. *International Journal of Medical Sciences*, 5, 127–132.
- Wong, A. M., Patel, N. V., Patel, N. K., Wei, M., Mogan, T. E., de Beer, M. C., et al. (2005). Macrosialin increases during normal brain aging are attenuated by caloric restriction. *Neuroscience Letters*, 390, 76–80.
- Wyss-Corray, T., & Mucke, L. (2002). Inflammation in neurodegenerative disease—a double-edged sword. *Neuron*, 36, 419–432.
- Ye, S. M., & Johnson, R. W. (1999). Increased interleukin-6 expression by microglia from brain of aged mice. *Journal of Neuroimmunology*, 93, 139–148.