

## References

- Alam, M. A., & Mallick, B. N. (2008). Glutamic acid stimulation of the perifornical–lateral hypothalamic area promotes arousal and inhibits non-REM/REM sleep. *Neuroscience Letters*, *439*, 281–286.
- Basheer, R., Strecker, R. E., Thakkar, M. M., & McCarley, R. W. (2004). Adenosine and sleep–wake regulation. *Progress in Neurobiology*, *73*, 379–396.
- Benedetti, F., & Smeraldi, E. (2009). Neuroimaging and genetics of antidepressant response to sleep deprivation: Implications for drug development. *Current Pharmaceutical Design*, *15*, 2637–2649.
- Berridge, C. W. (2008). Noradrenergic modulation of arousal. *Brain Research Reviews*, *58*, 1–17.
- Brevig, H. N., & Baghdoyan, H. A. (2010). Neurotransmitters and neuromodulators regulating sleep and wakefulness. In G. F. Koob, M. Le Moal & R. F. Thompson (Eds.), *Encyclopedia of behavioral neuroscience* (pp. 456–463). Oxford: Elsevier.
- Brown, E. N., Lydic, R., & Schiff, N. D. (2010). General anesthesia, sleep, and coma. *The New England Journal of Medicine*, *363*, 2638–2650.
- Burmeister, J. J., Pomerleau, F., Huettl, P., Gash, C. R., Werner, C. E., Bruno, J. P., et al. (2008). Ceramic-based multisite microelectrode arrays for simultaneous measures of choline and acetylcholine in CNS. *Biosensors & Bioelectronics*, *23*, 1382–1389.
- Carter, L. P., Koek, W., & France, C. P. (2009). Behavioral analyses of GHB: Receptor mechanisms. *Pharmacology & Therapeutics*, *121*, 100–114.
- Chase, M. H., Monoson, R., Watanabe, K., & Babb, M. I. (1976). Somatic reflex response-reversal of reticular origin. *Experimental Neurology*, *50*, 561–567.

- Chaudhuri, K. R., & Logishetty, K. (2009). Dopamine receptor agonists and sleep disturbances in Parkinson's disease. *Parkinsonism & Related Disorders*, *15*(Suppl. 4), S101–S104.
- Chhangani, B. S., Roehrs, T. A., Harris, E. J., Hyde, M., Drake, C., Hudgel, D. W., et al. (2009). Pain sensitivity in sleepy pain-free normals. *Sleep*, *32*, 1011–1017.
- Cirelli, C., & Tononi, G. (2008). Is sleep essential? *PLoS Biology*, *6*, 3216.
- Coleman, C. G., Baghdoyan, H. A., & Lydic, R. (2006). Dialysis delivery of an adenosine A<sub>2A</sub> agonist into the pontine reticular formation of C57BL/6J mouse increases pontine acetylcholine release and sleep. *Journal of Neurochemistry*, *96*, 1750–1759.
- Colten, H. R., & Altevogt, B. M. (Eds.). (2006). *Sleep disorders and sleep deprivation: An unmet public health problem*. Washington, D.C: National Academies Press.
- Dash, M. B., Douglas, C. L., Vyazovshiy, V. V., Cirelli, C., & Tononi, G. (2009). Long-term homeostasis of extracellular glutamate in the rat cerebral cortex across sleep and waking states. *Journal of Neuroscience*, *29*, 620–629.
- Datta, S. (2010). Cellular and chemical neuroscience of mammalian sleep. *Sleep Medicine*, *11*, 431–440.
- Datta, S., & MacLean, R. R. (2007). Neurobiological mechanisms for the regulation of mammalian sleep–wake behavior: Reinterpretation of historical evidence and inclusion of contemporary cellular and molecular evidence. *Neuroscience and Biobehavioral Reviews*, *31*, 775–824.
- de Lecea, L. (2010). A decade of hypocretins: Past, present and future of the neurobiology of arousal. *Acta Physiologica*, *198*, 203–208.
- Dworak, M., McCarley, R. W., Kim, T., Kalinchuck, A. V., & Basheer, R. (2010). Sleep and

- brain energy levels: ATP changes during sleep. *Journal of Neuroscience*, *30*, 9007–9016.
- Eisenach, J. C., Rauck, R. L., & Curry, R. (2003). Intrathecal, but not intravenous adenosine reduces allodynia in patients with neuropathic pain. *Pain*, *105*, 65–70.
- Fava, M., McCall, W. V., Krystal, A., Wessell, T., Rubens, R., Caron, J., et al. (2006). Eszopiclone co-administered with fluoxetine in patients with insomnia coexisting with major depressive disorder. *Biological Psychiatry*, *59*, 1052–1060.
- Ferini-Strambi, L., & Manconi, M. (2009). Treatment of restless legs syndrome. *Parkinsonism & Related Disorders*, *15*(Suppl. 4), S65–S70.
- Fink, K. B., & Göthert, M. (2007). 5-HT receptor regulation of neurotransmitter release. *Pharmacological Reviews*, *59*, 360–417.
- Flint, R. R., Chang, T., Lydic, R., & Baghdoyan, H. A. (2010). GABA<sub>A</sub> receptors in the pontine reticular formation of C57BL/6J mouse modulate neurochemical, electrographic, and behavioral phenotypes of wakefulness. *Journal of Neuroscience*, *30*, 12301–12309.
- Friedman, E. B., Sun, Y., Moore, J. T., Hung, H.-T., Meng, Q. C., Perera, P., et al. (2010). A conserved behavioral state barrier impedes transitions between anesthetic-induced unconsciousness and wakefulness: Evidence for neural inertia. *PLoS One*, *5*, e11903.
- Fronczek, R., Baumann, C. R., Lammers, G. J., Bassetti, C. L., & Overeem, S. (2009). Hypocretin/orexin disturbances in neurological disorders. *Sleep Medicine Reviews*, *13*, 9–22.
- Halassa, M. M., Fellin, T., & Haydon, P. G. (2009a). Tripartite synapses: Roles for astrocytic purines in the control of synaptic physiology and behavior. *Neuropharmacology*, *57*, 343–346.

- Halassa, M. M., Florian, C., Fellin, T., Munoz, J. R., Lee, S. -Y., Abel, T., et al. (2009b). Astrocytic modulation of sleep homeostasis and cognitive consequences of sleep loss. *Neuron*, *61*, 213–219.
- Hambrecht-Wiedbusch, V. S., Gauthier, E. A., Baghdoyan, H. A., & Lydic, R. (2010). Benzodiazepine receptor agonists cause drug-specific and state-specific alterations in EEG power and acetylcholine release in rat pontine reticular formation. *Sleep*, *33*, 909–918.
- Harris, R. E., Sundgren, P. C., Craig, A. D., Kirshenbaum, E., Sen, A., Napadow, V., et al. (2009). Elevated insular glutamate in fibromyalgia is associated with experimental pain. *Arthritis and Rheumatism*, *60*, 3146–3152.
- Hass, H. L., Sergeeva, O. A., & Selbach, O. (2008). Histamine in the nervous system. *Physiological Reviews*, *88*, 1183–1241.
- Hassani, O. K., Lee, M. G., Henny, P., & Jones, B. E. (2009). Discharge profiles of identified GABAergic in comparison to cholinergic and putative glutamatergic basal forebrain neurons across the sleep–wake cycle. *Journal of Neuroscience*, *29*, 11828–11840.
- Henny, P., & Jones, B. E. (2006). Innervation of orexin/hypocretin neurons by GABAergic, glutamatergic, or cholinergic basal forebrain terminals evidenced by immunostaining for presynaptic vesicular transporter and postsynaptic scaffolding proteins. *Journal of Comparative Neurology*, *499*, 645–661.
- Henny, P., & Jones, B. E. (2008). Projections from basal forebrain to prefrontal cortex comprise cholinergic, GABAergic and glutamatergic inputs to pyramidal cells or interneurons. *The European Journal of Neuroscience*, *27*, 654–670.
- Herring, W. J., Budd, K. S., Hutzelmann, J., Snyder, E., Snively, D., & Liu, K., et al. (2010).

- Efficacy and tolerability of the dual orexin receptor antagonist MK-4305 in patients with primary insomnia: randomized, controlled, adaptive crossover polysomnography study. *Sleep*, 33 (Abstr Suppl), A199.
- Hobson, J. A. (1999). *Consciousness*. New York: Scientific American Library.
- Hobson, J. A., & Steriade, M. (1986). The neuronal basis of behavioral state control. In F. E. (1986). Bloom (Ed.), *Handbook of physiology—the nervous system* (Vol. 4, pp. 297–338). Bethesda, MD: American Physiological Society.
- Hong, Z. -Y., Huang, Z. -L., Qu, W. -M., Eguchi, N., Urade, Y., & Hayaishi, O. (2005). An adenosine A<sub>2A</sub> receptor agonist induces sleep by increasing GABA release in the tuberomammillary nucleus to inhibit histaminergic systems in rats. *Journal of Neurochemistry*, 92, 1542–1549.
- Huang, Z. -L., Urade, Y., & Hayaishi, O. (2007). Prostaglandins and adenosine in the regulation of sleep and wakefulness. *Current Opinion in Pharmacology*, 7, 33–38.
- Jasper, H. H., & Tessier, J. (1971). Acetylcholine liberation from cerebral cortex during paradoxical (REM) sleep. *Science*, 172, 601–602.
- John, J., Ramanathan, L., & Siegel, J. M. (2008). Rapid changes in glutamate levels in the posterior hypothalamus across sleep–wake states in freely behaving rats. *American Journal of Physiology. Regulatory, Integrative and Comparative Physiology*, 295, R2041–R2049.
- Jones, B. E. (2005). From waking to sleeping: Neuronal and chemical substrates. *Trends in Pharmacological Sciences*, 26, 578–586.
- Jouvet, M. (1969). Biogenic amines and the states of sleep. *Science*, 163, 32–41.
- Jouvet, M. (1999). Sleep and serotonin: An unfinished story. *Neuropsychopharmacology: Official Publication of the American College of Neuropsychopharmacology*, 21, 24S–27S.

- Kaneko, T., Itoh, K., Shigemoto, R., & Mizuno, N. (1989). Glutaminase-like immunoreactivity in the lower brainstem and cerebellum of the adult rat. *Neuroscience*, *32*, 79–98.
- Kelz, M. B., Sun, Y., Chen, J., Cheng Meng, Q., Moore, J. T., Veasey, S. C., et al. (2008). An essential role for orexins in emergence from general anesthesia. *Proceedings of the National Academy of Sciences of the United States of America*, *1309*–1314.
- Kilduff, T. S., & Peyron, C. (2000). The hypocretin/orexin ligand-receptor system: Implications for sleep and sleep disorders. *Trends in Neurosciences*, *23*, 359–365.
- Kiyashchenko, L. I., Mileykovskiy, B. Y., Maidment, N., Lam, H. A., Wu, M. F., John, J., et al. (2002). Release of hypocretin (orexin) during waking and sleep states. *Journal of Neuroscience*, *22*, 5282–5286.
- Kryger, M. H., Roth, T., & Dement, W. C. (Eds.), (2011). *Principles and practice of sleep medicine* (5th ed.). St. Louis: Elsevier.
- Krystal, A. D., Durrence, H. H., Scharf, M., Jochelson, P., Rogowski, R., Ludington, E., et al. (2010). Efficacy and safety of doxepin 1 mg and 3 mg in a 12-week sleep laboratory and outpatient trial of elderly subjects with chronic primary insomnia. *Sleep*, *33*, 1553–1561.
- Landolt, H.-P. (2008). Sleep homeostasis: A role for adenosine in humans? *Biochemical Pharmacology*, *75*, 2070–2079.
- Landolt, H.-P., & Wehrle, R. (2009). Antagonism of serotonergic 5-HT<sub>2A/2C</sub> receptors: Mutual improvement of sleep, cognition and mood?. *The European Journal of Neuroscience*, *29*, 1795–1809.
- Lavigne, G., Sessle, B. J., Choinière, M., & Soja, P. J. (Eds.), (2007). *Sleep and pain*. Seattle: IASP.

- Lee, M. G., Hassani, O. K., & Jones, B. E. (2005). Discharge of identified orexin/hypocretin neurons across the sleep–waking cycle. *Journal of Neuroscience*, *25*, 6716–6720.
- Lenfant, C. (2003). 2003 National sleep disorders research plan. In [http://www.nhlbi.nih.gov/health/prof/sleep/res\\_plan/preface.html](http://www.nhlbi.nih.gov/health/prof/sleep/res_plan/preface.html): National Institutes of Health.
- Li, Y., Gao, X.-B., Sakurai, T., & van den Pol, A. N. (2002). Hypocretin/orexin excites hypocretin neurons via a local glutamate neuron—a potential mechanism for orchestrating the hypothalamic arousal system. *Neuron*, *36*, 1169–1181.
- Liang, C. L., & Marks, G. A. (2009). A novel GABAergic afferent input to the pontine reticular formation: The mesopontine GABAergic column. *Brain Research*, *1297*, 32–40.
- Liu, Z.-W., & Gao, X.-B. (2007). Adenosine inhibits activity of hypocretin/orexin neurons by the A1 receptor in the lateral hypothalamus: A possible sleep-promoting effect. *Journal of Neurophysiology*, *97*, 837–848.
- López-Rodríguez, F., Kohlmeier, K., Morales, F. R., & Chase, M. H. (1994). State dependency of the effects of microinjection of cholinergic drugs into the nucleus pontis oralis. *Brain Research*, *649*, 271–281.
- Lydic, R., & Baghdoyan, H. A. (2002). Ketamine and MK-801 decrease acetylcholine release in the pontine reticular formation, slow breathing, and disrupt sleep. *Sleep*, *25*, 615–620.
- Lydic, R., & Baghdoyan, H. A. (2005). Sleep, anesthesiology, and the neurobiology of arousal state control. *Anesthesiology*, *103*, 1268–1295.
- Lydic, R., & Baghdoyan, H. A. (2007). Neurochemical mechanisms mediating opioid-induced REM sleep disruption. In G. Lavigne, B. J. Sessle, M. Choinière & P. J. Soja (Eds.), *Sleep and pain*

- (pp. 99–122). Seattle: IASP.
- Lydic, R., & Baghdoyan, H. A. (2008). Acetylcholine modulates sleep and wakefulness: A synaptic perspective. In J. M. Monti, S. R. Pandi-Perumal & C. M. Sinton (Eds.), *Neurochemistry of sleep and wakefulness* (pp. 109–143). New York: Cambridge University Press.
- Mamelak, M. (2009). Narcolepsy and depression and the neurobiology of gammahydroxybutyrate. *Progress in Neurobiology*, *89*, 193–219.
- Manfridi, A., Brambilla, D., & Mancina, M. (1999). Stimulation of NMDA and AMPA receptors in the rat nucleus basalis of Meynert affects sleep. *American Journal of Physiology. Regulatory, Integrative and Comparative Physiology*, *277*, R1488–R1492.
- Marks, G. A., Shaffery, J. P., Speciale, S. G., & Birabil, C. G. (2003). Enhancement of rapid eye movement sleep in the rat by actions at A1 and A2a adenosine receptor subtypes with a differential sensitivity to atropine. *Neuroscience*, *116*, 913–920.
- McKenna, J. T., Tartar, J. L., Ward, C. P., Thakkar, M. M., Cordeira, J. W., McCarley, R. W., et al. (2007). Sleep fragmentation elevates behavioral, electrographic and neurochemical measures of sleepiness. *Neuroscience*, *146*, 1462–1473.
- Mileykovskiy, B. Y., Kiyashchenko, L. I., & Siegel, J. M. (2005). Behavioral correlates of activity in identified hypocretin/orexin neurons. *Neuron*, *46*, 787–798.
- Monti, J. M., & Monti, D. (2007). The involvement of dopamine in the modulation of sleep and waking. *Sleep Medicine Reviews*, *11*, 113–133.
- Moore, J. T., & Kelz, M. B. (2009). Opiates, sleep and pain. The adenosinergic link. *Anesthesiology*, *111*, 1175–1176.



- Nelson, A. M., Battersby, A. S., Baghdoyan, H. A., & Lydic, R. (2009). Opioid induced decreases in rat brain adenosine levels are reversed by inhibiting adenosine deaminase. *Anesthesiology*, *111*, 1327–1333.
- NIH Consensus Panel Report, (2005). National Institutes of Health state of the science conference statement: Manifestations and management of chronic insomnia in adults. *Sleep*, *28*, 1049–1057.
- Nishino, S., Okuro, M., Kotorii, N., Anegawa, E., Ishimaru, Y., Matsumura, M., et al. (2010). Hypocretin/orexin and narcolepsy: New basic and clinical insights. *Acta Physiologica*, *198*, 209–222.
- Nofzinger, E. A. (2005). Neuroimaging and sleep medicine. *Sleep Medicine Reviews*, *9*, 157–172.
- Nofzinger, E. A. (2008). Functional neuroimaging of sleep disorders. *Current Pharmaceutical Design*, *14*, 3417–3429.
- Oishi, Y., Huang, Z. -L., Fredholm, B. B., Urade, Y., & Hayaishi, O. (2008). Adenosine in the tuberomammillary nucleus inhibits the histaminergic system via A<sub>1</sub> receptors and promotes non-rapid eye movement sleep. *Proceedings of the National Academy of Sciences of the United States of America*, *105*, 19992–19997.
- Pace-Schott, E. F., & Hobson, J. A. (2002). The neurobiology of sleep: Genetics, cellular physiology, and subcortical networks. *Nature Reviews Neuroscience*, *3*, 591–605.
- Parmentier, R., Anaclet, C., Guhenec, C., Brousseau, E., Bricout, D., Giboulot, T., et al. (2007). The brain H<sub>3</sub>-receptor as a novel therapeutic target for vigilance and sleep–wake disorders. *Biochemical Pharmacology*, *73*, 1157–1171.
- Porkka-Heiskanen, T., Strecker, R. E., & McCarley, R. W. (2000). Brain site-specificity of

- extracellular adenosine concentration changes during sleep deprivation and spontaneous sleep: An *in vivo* microdialysis study. *Neuroscience*, *99*, 507–517.
- Robinson, D. L., Hermans, A., Seipel, A. T., & Wightman, R. M. (2008). Monitoring rapid chemical communication in the brain. *Chemical Reviews*, *108*, 2554–2584.
- Rodrigo-Angulo, M. L., Heredero, S., Rodríguez-Veiga, E., & Reinoso-Suárez, F. (2008). GABAergic and non-GABAergic thalamic, hypothalamic and basal forebrain projections to the ventral oral pontine reticular formation: Their implication in REM sleep modulation. *Brain Research*, *1210*, 116–125.
- Roth, T., Lines, C., Vandormael, K., Ceesay, P., Anderson, D., & Snavely, D. (2010). Effect of gaboxadol on patient-reported measures of sleep and waking function in patients with primary insomnia: Results from two randomized, controlled, 3-month studies. *Journal of Clinical Sleep Medicine*, *6*, 30–40.
- Roth, T., Rogowski, R., Hull, S., Schwartz, H., Koshorek, G., Corser, B., et al. (2007). Efficacy and safety of doxepin 1 mg, 3 mg, and 6 mg in adults with primary insomnia. *Sleep*, *30*, 1555–1561.
- Sakurai, T. (2007). The neural circuit of orexin (hypocretin): Maintaining sleep and wakefulness. *Nature Reviews Neuroscience*, *8*, 171–181.
- Sakurai, T., Mieda, M., & Tsujino, N. (2010). The orexin system: Roles in sleep/wake regulation. *Annals of the New York Academy of Sciences*, *1200*, 149–161.
- Sander, K., Kottke, T., & Stark, H. (2008). Histamine H<sub>3</sub> receptor antagonists go to clinics. *Biological & Pharmaceutical Bulletin*, *31*, 2163–2181.
- Saul, S. (2006). Record sales of sleeping pills are causing worries. *New York Times*
- Scharf, M. T., Naidoo, N., Zimmerman, J. E., & Pack, A. I. (2008). The energy hypothesis of

- sleep revisited. *Progress in Neurobiology*, 86, 264–280.
- Sebastião, A. M., & Ribeiro, J. A. (2009). Adenosine receptors and the central nervous system. In C. N. Wilson & S. J. Mustafa (Eds.), *Adenosine receptors in health and disease* (pp. 471–534). Berlin: Springer.
- Siegel, J. M. (2009). Sleep viewed as a state of adaptive inactivity. *Nature Reviews Neuroscience*, 10, 747–753.
- Stenberg, D. (2007). Neuroanatomy and neurochemistry of sleep. *Cellular and Molecular Life Sciences*, 64, 1187–1204.
- Stepanski, E. J. (2002). The effect of sleep fragmentation on daytime function. *Sleep*, 25, 268–276.
- Steriade, M., & McCarley, R. W. (2005). *Brain control of wakefulness and sleep* (2nd ed.). New York: Plenum.
- Szymusiak, R., Gvilia, I., & McGinty, D. (2007). Hypothalamic control of sleep. *Sleep Medicine*, 8, 291–301.
- Takahashi, K., Lin, J. -S., & Sakai, K. (2006). Neuronal activity of histaminergic tuberomammillary neurons during wake–sleep states in the mouse. *Journal of Neuroscience*, 26, 10292–10298.
- Tanase, D., Baghdoyan, H. A., & Lydic, R. (2004). Dialysis delivery of an adenosine A<sub>1</sub> receptor agonist to the pontine reticular formation decreases acetylcholine release and increases anesthesia recovery time. *Anesthesiology*, 98, 912–920.
- Thakkar, M. M., Winston, S., & McCarley, R. W. (2002). Orexin neurons of the hypothalamus express adenosine A<sub>1</sub> receptors. *Brain Research*, 944, 190–194.
- Thakkar, M. M., Engemann, S. C., Walsh, K. M., & Sahota, P. K. (2008). Adenosine and the

- homeostatic control of sleep: Effects of A1 receptor blockade in the perifornical lateral hypothalamus on sleep–wakefulness. *Neuroscience*, *153*, 875–880.
- Torrealba, F., Yanagisawa, M., & Saper, C. B. (2003). Colocalization of orexin A and glutamate immunoreactivity in axon terminals in the tuberomammillary nucleus in rats. *Neuroscience*, *119*, 1033–1044.
- Trenkwalder, C., & Paulus, W. (2010). Restless legs syndrome: Pathophysiology, clinical presentation and management. *Nature Reviews Neurology*, *6*, 337–346.
- Tsujino, N., & Sakurai, T. (2009). Orexin/hypocretin: A neuropeptide at the interface of sleep, energy homeostasis, and reward system. *Pharmacological Reviews*, *61*, 162–176.
- Ursin, R. (2002). Serotonin and sleep. *Sleep Medicine Reviews*, *6*, 57–69.
- Van Dort, C. J., Baghdoyan, H. A., & Lydic, R. (2009). Adenosine A<sub>1</sub> and A<sub>2A</sub> receptors in mouse prefrontal cortex modulate acetylcholine release and behavioral arousal. *Journal of Neuroscience*, *29*, 871–881.
- Vanini, G., Baghdoyan, H. A., & Lydic, R. (2010). Relevance of sleep neurobiology for cognitive neuroscience and anesthesiology. In G. A. Mashour (Ed.), *Consciousness, awareness, and anesthesia* (pp. 1–23). Cambridge University Press.
- Vanini, G., Watson, C. J., Lydic, R., & Baghdoyan, H. A. (2008). GABAergic neurotransmission in the pontine reticular formation modulates hypnosis, immobility, and breathing during isoflurane anesthesia. *Anesthesiology*, *109*, 978–988.
- Vanini, G., Baracy, C. R., Lydic, R., Baghdoyan, H.A. (2010b). GABA levels in cat basal forebrain and cortex are greater during non-rapid eye movement (NREM) sleep than during REM sleep and wakefulness. Society for Neuroscience Meeting Planner Online

Program No.:798.1.

- Vanini, G., Torterolo, P., Baghdoyan, H. A., & Lydic, R. (2011). The shared circuits of sleep and anesthesia. In G. A. Mashour & R. Lydic (Eds.), *The Neuroscientific Foundations of Anesthesiology* (pp. 33–44). New York: Oxford University Press.
- Vanini, G., Wathen, B. L., Lydic, R., & Baghdoyan, H. A. (2011). Endogenous GABA levels in the pontine reticular formation are greater during wakefulness than during rapid eye movement sleep. *Journal of Neuroscience*, *31*, 2649–2656.
- Wang, H. -L., & Morales, M. (2009). Pedunculo-pontine and laterodorsal tegmental nuclei contain distinct populations of cholinergic, glutamatergic and GABAergic neurons in the rat. *The European Journal of Neuroscience*, *29*, 340–358.
- Watson, C. J., Venton, B. J., & Kennedy, R. T. (2006). *In vivo* measurements of neurotransmitters using microdialysis sampling. *Analytical Chemistry*, *78*, 1391–1399.
- Watson, C. J., Baghdoyan, H. A., & Lydic, R. (2010). Neuropharmacology of sleep and wakefulness. *Sleep Medicine Clinical*, *5*, 513–528.
- Wigren, H.-K., Schepens, M., Matto, V., Stenberg, D., & Porkka-Heiskanen, T. (2007). Glutamatergic stimulation of the basal forebrain elevates extracellular adenosine and increases the subsequent sleep. *Neuroscience*, *147*, 811–823.
- Xi, M. C., & Chase, M. H. (2010). The injection of hypocretin-1 into the nucleus pontis oralis induces either active sleep or wakefulness depending on the behavioral state of the animal when it is administered. *Sleep*, *33*, 1236–1243.
- Zhang, Y., Conklin, D. R., Li, X., & Eisenach, J. C. (2005). Intrathecal morphine reduces allodynia after peripheral nerve injury in rats via activation of a spinal A1 adenosine

receptor. *Anesthesiology*, 102, 416–420.