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Karl Ægir Karlsson PhD

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PERSONAL INFORMATION

- Born 1971.
- Icelandic citizen.
- Speak and write Icelandic and English fluently.

EDUCATION

2005 PhD: The University of Iowa; Iowa City, USA

- In my PhD studies I employed *in vivo* electrophysiology, pharmacology, lesioning, tract tracing, as well as histological and behavioral analysis in studies aimed at elucidating mechanisms of sleep development. These efforts lead to multiple publications and a PhD in *Behavioral and Cognitive Neuroscience*; defended in February 2005.

2002 MA: The University of Iowa; Iowa City, USA

- Field of study: *Behavioral and Cognitive Neuroscience*.

1999 BA: The University of Iceland; Reykjavík, Iceland

- Field of study: *Psychology*. As an undergraduate in psychology I placed special emphasis on physiological psychology and philosophy of science.

PROFESSIONAL AND ACADEMIC EXPERIENCE

Academic:

2014-Present: Professor Reykjavik University; Reykjavík, Iceland

2009-2014: Associate Professor Reykjavik University; Reykjavík, Iceland

- I hold the position of assistant professor in biomedical engineering. Main duties include: conducting research, teaching advanced neurophysiology and introductory cell- and molecular biology in addition to performing various administrative tasks.

2006-2009: Assistant Professor Reykjavik University; Reykjavík, Iceland

- I joined Reykjavik University in January of 2006. During 2006-2009 I focused on obtaining funding, setting up my lab, hiring people and starting a research program.

During 2005: Postdoctoral Scholar UCLA; Los Angeles, USA

- I held the position of a postdoctoral scholar in the laboratory of Dr. Jerome Siegel professor at the UCLA School of medicine and the Veterans Administration during the year of 2005. During my time with Dr. Siegel I participated in unique human experiments where microdialysis was employed to assess the secretion patterns of hypocretin/orexin peptides in relation to sleep-wake cycles. This work, which is still unpublished, is currently close to publication.

2000-2005: Research Assistant, the University of Iowa, Iowa City, USA

- Main duties included: basic lab work, animal care, data collection and analysis.

1999-2000: Technician the National University Hospital Reykjavík, Iceland

- Main duties included: maintenance of clinical sleep lab equipment, conducting polysomnography and sleep stage scoring. In this capacity I also ran multiple on-site beta testing of (then) novel sleep scoring algorithms.

1985-1998: Sailor

- I was a sailor (deckhand, cook, and mate) on various fishing vessels in Icelandic waters.

Professional:

- Founder of biotech start-up 3Z ehf. The company's aim is to develop novel way to screen large chemical libraries for CNS active compounds using zebrafish larvae (www.3z.is).

SCHOLARSHIP

Peer reviewed manuscripts in English

- Transient knock-down of *kcna2* reduces sleep in larval zebrafish. Srdanovic, S., Þorsteinsson, H., Friðriksson, Þ., Pétursson, S.Ó., Maier, V.H. & Karlsson, K.Æ. Behavioral Brain Research. (2017). 30; 326:13-21.
- Organization of Sleep-Related Neural Systems of the Brain of the Minke Whale (*Balaenoptera acustrata*) (2015). Leigh-Ann Dell, Karl Æ. Karlsson, Muhammad A. Spocter, Jerome M. Siegel and Paul R. Manger. Journal of Comparative Neuroanatomy DOI 10.1002/cne.23931
- Orexinergic bouton density is lower in the cerebral cortex of cetaceans compared to artiodactyls Journal of Chemical Neuroanatomy. (2015) Nina Patzke, Muhammad A. Spocter, Karl Æ. Karlsson, Mads F. Bertelsen, Mark Haagensen, Richard Chawana, Sonja Streicher, Consolate Kaswera, Emmanuel Gilissen, Abdulaziz N. Alagaili, Osama B. Mohammed, Roger L. Reep, Nigel C. Bennett, Jerry M. Siegel, Amadi O. Ihunwo, Paul R. Manger. Journal Chemical Neuroanatomy 68; 61-76.
- Absence of Rapid Eye Movements during Sleep in Adult Zebrafish. Árnason, B.B, Þorsteinsson, H. & Karlsson, K.Æ. (2015). 15; 291: 189-94
- Sigurgeirsson, B., Þorsteinsson, H., Sigmundsdóttir, S., Lieder, R., Sveinsdóttir, H., Halldórsson, B.V. & Karlsson, K.Æ. Sleep-wake modulation of gene expression in zebrafish. (2013). Behavioural Brain Research. 256: 377-390
- Nina Patzke, Muhammad A. Spocter, Karl Æ. Karlsson, Mads F. Bertelsen, Mark Haagensen, Richard Chawana, Sonja Streicher, Consolate Kaswera, Emmanuel Gilissen, Abdulaziz N. Alagaili, Osama B. Mohammed, Roger L. Reep, Nigel C. Bennett, Jerry M. Siegel, Amadi O. Ihunwo, Paul R. Manger. (2013). In contrast to many other mammals, cetaceans have relatively small hippocampi that appear to lack adult neurogenesis. (2013). Brain Structure and Function. DOI 10.1007/s00429-013-0660-1
- Sorribes, A., Þorsteinsson, H., Arnardóttir, H., Jóhannesdóttir, I., de Polavieja, G. & Karlsson, K.Æ. Ontogeny of sleep-wake cycles in zebrafish and humans. *Frontiers in Neural Circuits*. Vol 7, Article 178 1-13

- Ashley M. Blouin, Itzhak I. Fried, Charles L. Wilson, Richard J. Staba, Eric J. Behnke, Hoa A. Lam, Nigel T. Maidment, Karl Æ. Karlsson, Jennifer Lapierre & Jerome M. Siegel Hypocretin and melanin concentrating hormone levels in humans: Strong linkage to emotion and social interaction. *Nature Communication*, IN PRESS
- Vargas, R., Þorsteinsson, H. & Karlsson, K.Æ. (2011) SPONTANEOUS NEURAL ACTIVITY OF THE ANTERODORSAL LOBE AND ENTOPEDEUNCULAR NUCLEUS IN ADULT ZEBRAFISH. *Behavioural Brain Research*, doi:10.1016/j.bbr.2011.12.025
- Sigurgeirsson, B., Þorsteinsson, H., Arnardóttir, H., Jóhannesdóttir, I. & Karlsson K.Æ. (2011) EFFECTS OF MODAFINIL ON SLEEP-WAKE CYCLES IN LARVAL ZEBRAFISH. *Zebrafish*. doi:10.1089/zeb.2011.0708
- Vargas, R., Jóhannesdóttir, I.P., Sigurgeirsson, B., Þorsteinsson H. & Karlsson K.Æ. (2011) THE ZEBRAFISH BRAIN IN RESEARCH AND TEACHING: A SIMPLE *IN VIVO* AND *IN VITRO* MODEL FOR THE STUDY OF SPONTANEOUS NEURAL ACTIVITY. *Advances in Physiology Education*. 35: 188-196
- Arnardóttir, H., Þorsteinsson, H. & Karlsson, K.Æ. (2010) DYNAMICS OF SLEEP-WAKE CYCLICITY AT NIGHT ACROSS THE HUMAN LIFESPAN. *Frontiers of Neurology. Front. Neur.* 1:156. doi: 10.3389/fneur.2010.00156
- Karlsson, K. Æ., Arnardóttir, H., Robinson, S. R. & Blumberg, M. S. (2010) DYNAMICS OF SLEEP-WAKE CYCLICITY ACROSS THE FETAL PERIOD IN SHEEP (*Ovis aries*). *Developmental Psychology*. DOI: 10.1002/dev.20495
- Þorsteinsson, H., Reynisson, H.M., Sigurðardóttir, L.Ý., Dagbjartsson, A., & Karlsson, K. Æ. (2010). Behavioral correlates of direct-current coupled electrographic activity in premature infants. *Behavioural Brain Research*. Vol, 211, 11-15
- Karlsson, K. Æ., Windischberger, C., Gerstl, F., Mayr, W., Siegel, J.M., Moser, E.(2010). Modulation of hypothalamus and amygdalar activation levels with stimulus valence. *Neuroimage*, Vol 51, 324-328.
- Þorsteinsson, H. & Karlsson, K.Æ. (2009) Is sleep beyond our control? *The Open Sleep Journal*. Vol 2, 48-55.
- Mohns, E. J., Karlsson, K. Æ., & Blumberg, M.S. (2007) Developmental emergence of transient and persistent hippocampal events and oscillations and their association infant seizure susceptibility. *European Journal of Neuroscience*. Vol 26, 2719-2730.
- Blumberg, M.S., Karlsson, K. Æ. & Seelke, A.M. (2007) Sleep, development and human Health. *Sleep*. Vol 30, 5, 549-550.
- Karlsson, K.Æ.,Vianna Di Prisco, G., Mohns, E.J. & Blumberg M.S. (2006) On the Co-expression of Startles and Sharp Waves in Newborn rats. *Hippocampus*. Vol, 11, 959-965.
- Mohns, E. J., Karlsson, K. Æ., & Blumberg, M.S. (2006) The Ventrolateral Preoptic Area and Basal Forebrain Play Opposing Roles in the Descending Modulation of Sleep and Wakefulness in Infant Rats. *European Journal of Neuroscience*. Vol 20, 1301-1310.
- Blumberg, M.S., Seelke, A. M., Lowen, S.B., & Karlsson, K. Æ. (2005) Dynamics of Sleep-Wake Cyclicity in Developing Rats. *Proceedings of the National Academy of Sciences*. Vol, 102, 14860-14864.

- Seelke, A. M., Karlsson, K. Æ., Gall, A. J. & Blumberg M. S. (2005) Extraocular Muscle Activity, Rapid Eye Movements, and the Development of Active and Quiet Sleep. *European Journal of Neuroscience*. 22, 911-920.
- Karlsson, K. Æ., Gall, A. J. Mohns, E. J. & Blumberg, M.S. (2005) The Neural Substrates of Infant Sleep in Rats. *Public Library of Science Biology*. 3(5): e143
- Karlsson, K. Æ. & Blumberg, M.S. (2005) Active Control of Atonia in Week-Old Rats. *Neuroscience*. 130, 275-283.
- Blumberg, M.S., Karlsson, K. Æ., Seelke, A.M.H. & Mohns, E. (2004) The Ontogeny of Mammalian Sleep: A Reply to Frank and Heller (2003). *Journal of Sleep Research*, 14, 91-101.
- Karlsson, K. Æ. & Blumberg, M.S. (2004) Temperature-Induced Reciprocal Activation of Hippocampal Field Activity in vivo. *Journal of Neurophysiology*, 91, 583-588.
- Karlsson, K. Æ., Kreider, J.C. & Blumberg, M.S. (2004) Hypothalamic Contributions to Sleep-Wake Cycle Development, *Neuroscience*, 123, 575-582.
- Karlsson, K. Æ. & Blumberg, M. S. (2003). Hippocampal Theta in the Newborn Rat is Revealed Under Conditions That Promote REM sleep. *The Journal of Neuroscience*, 23(4) 1114-1118.
- Karlsson, K. Æ., & Blumberg, M. S. (2002). Union of the State: Myoclonic Twitching is Coupled with Muscle Atonia in Infant Rats. *Behavioral Neuroscience*, 116, 912-917.

Peer reviewed manuscripts in Icelandic

- Karlsson, K. Æ., Ingadottir, S., Halldorsdottir, B., Gislason, T., & Bjornsson, E. (2004) Ambulatory measurements are better tolerated than in-hospital measurements of sleep apnea. *Læknablaðið (Journal of the Icelandic Medical Association)*. Vol 90, 311-3.
- Karlsson, K. Æ. (2000). What makes Wittgenstein a non-behaviorist? *Hugur (Icelandic Journal of Philosophy)*. Vol 10-11, 88-100 .

Non-peer reviewed publications

- Fjölvar Darri Rafnsson, Karl Ægir Karlsson & Matthías Gísli Þorvaldsson (2000). Ungir Ökumenn. Reykjavík, Dómsmálaráðuneytið. (Report for the Icelandic ministry of Justice).
- Af hverju sofum við? Morgunblaðið (Lesbók) 20. maí 2006. (Article about sleep for the general public in Icelandic).

Posters and Conference Proceedings

- Effects of transient MEIS1 knock-down on sleep in larval Zebrafish, 2018 ZDM, Leiden, Netherlands. 2018
- Karlsson, K.Æ. Sleep in VMAT2 mutant zebrafish. 10th European Zebrafish Meeting, Budapest, Hungary.
- Srdanovic, S., Þorsteinsson, H., Jung, M.L., & Karlsson, K.Æ. High-Throughput behavioral sleep assay for larval zebrafish, ZDM9, Singapore.

- Srdanovic, S., Þorsteinsson, H., Friðriksson, Þ., Pétursson, S.Ó. & Karlsson, K.Æ The effects of transient knock-down of *kcnk2* on sleep in larval zebrafish, SfN, San Diego
- Srdanović, S., Þorsteinsson, H., Ágústsdóttir A.B., & Karlsson, K.Æ Kinase Inhibitor Effects on Sleep-Wake parameters in Larval zebrafish: HT Screen Using the SYNLibrary 190 Library. IceBio2015. Reykjavik, Iceland.
- Kolbeinsdóttir, M., Þorsteinsson, H. & Karlsson, K.Æ. Effects of group size on sleep-wake patterns in zebrafish. IceBio2015. Reykjavik, Iceland.
- Kruger, J.L., Þorsteinsson, H., Karlsson, K.Æ. Heritability of sleep patterns in zebrafish. IceBio2015. Reykjavik, Iceland.
- Serwatko, M., Agustsson, J., S. Torfason, R., Hoskuldsson S., Karlsson, K.Æ., Gislason, T. & Arnardottir, E. Validation of a novel method non-invasive to assess respiratory effort. IceBio2015. Reykjavik, Iceland.
- Srdanović, S., Þorsteinsson, H., Ágústsdóttir A.B., & Karlsson, K.Æ. Kinase Inhibitor Effects on Sleep-Wake parameters in Larval zebrafish: HT Screen Using the SYNLibrary 190 Library. 9th European Zebrafish Meeting, Oslo, Norway.
- Validation of a new method to assess respiratory effort non-invasively M. Serwatko, J.S. Agustsson, R. Torfason, S. Hoskuldsson, K.Æ. Karlsson, T. Gislason, E.S. Arnardottir. (2015). 7th WSF Congress, Istanbul, Turkey.
- Kinase Inhibitor Effects on Sleep-Wake parameters in Larval zebrafish: HT Screen Using the SYNLibrary 190 Library Srdanović, S., Þorsteinsson, H., Ágústsdóttir A.B., & Karlsson, K.Æ. (2015). 9th EU Zebrafish Meeting, Oslo, Norway.
- High throughput behavioral sleep assay for larval zebrafish K. KARLSSON, A. ÁGUSTSDÓTTIR, H. THORSTEINSSON. (2014). SFN, Washington DC, USA.
- Organization and neuroanatomy of the Cetartiodactyl hippocampus: an examination of 18 species N. PATZKE, K. Æ. KARLSSON, A. N. ALAGAILI, O. B. MOHAMMED, N. C. BENNETT, P. R. MANGER. (2014). SFN, Washington DC, USA.
- Absence of Rapid Eye Movements during Sleep in Adult Zebrafish. Árnason, B.B, Þorsteinsson, H. & Karlsson, K.Æ. (2014). ESRS, Tallinn, Estonia.
- Karlsson, K.Æ., Ágústsdóttir, A., Ammendrup, K.E., Del Río-Bermúdez & Þorsteinsson, H. The effects of transient *Kcna2* knock-down on rest-activity cycles in larval zebrafish (2014), European Zebrafish PI Meeting, Ein Gedi, Israel.
- Karlsson, K.Æ., Ágústsdóttir, A., Ammendrup, K.E., Del Río-Bermúdez & Þorsteinsson, H. The effects of transient *Kcna2* knock-down on rest-activity cycles in larval zebrafish (2014), Federation of European Neuroscience Societies, Milano, Italy.
- Karlsson, K.Æ., Árnason, B.B., & Þorsteinsson, H. Absence of rapid eye movements during sleep in zebrafish (2014) Federation of European Neuroscience Societies, Milano, Italy.
- Þorsteinsson, H., Ágústsdóttir A.B., Jung, M.,l & Karlsson, K.Æ., High throughput behavioral sleep assay for larval zebrafish (2014) Federation of European Neuroscience Societies, Milano, Italy.
- Þorsteinsson, H., Ágústsdóttir A.B., Jung, M.,l & Karlsson, K.Æ.,

- High throughput behavioral sleep assay for larval zebrafish (2014) International Society for Medicinal Chemistry, Lisbon, Portugal
- Karlsson, K.Æ., Árnason, B.B., & Þorsteinsson, H. Absence of rapid eye movements during sleep in zebrafish (2014) European Sleep Research Society, Tallinn, Estonia
 - Karl Ægir Karlsson, Arna Björg Ágústsdóttir, Marie-Louise Jung & Haraldur Þorsteinsson High throughput behavioral sleep assay for larval zebrafish. Zebrafish Models in Translational Medicine, 2013, Courcelles-sur-Yvette, France
 - Sigurgeirsson, B., Sigmundsdóttir, S., Guðmundsdóttir, S., Þorsteinsson, H., Reynisdóttir, S.R., Sigurjónsson, Ó.E., Halldórsson, B.V., & Karlsson, K.Æ. Sleep, sleep deprivation and gene expression in zebrafish. 8th European Zebrafish Meeting, 2013, Barcelona
 - Sorribes, A., Jóhannesdóttir, I.Þ., Arnardóttir, H., Þorsteinsson, H., Karlsson, K.Æ. The ontogeny of sleep-wake cycles in zebrafish. Federation of European Neuroscience Societies, Barcelona 2012
 - Sigurgeirsson, B., Sigmundsdóttir, S., Guðmundsdóttir, S., Þorsteinsson, H., Lieder, R., Sigurjónsson, Ó.E., Halldórsson, B.V., & Karlsson, K.Æ. Sleep-wake modulation of genetic expression in zebrafish. Federation of European Neuroscience Societies, Barcelona 2012
 - Sigurgeirsson, B., Sigmundsdóttir, S., Guðmundsdóttir, S., Þorsteinsson, H., Reynisdóttir, S.R., Sigurjónsson, Ó.E., Halldórsson, B.V., & Karlsson, K.Æ. Sleep-wake modulation of genetic expression in zebrafish. 7th European Zebrafish meeting, 2011, Edinburgh, Scotland.
 - Sigmundsdóttir, S., Guðmundsdóttir, S., Þorsteinsson, H., Sigurjónsson Ó.E., Reynisdóttir, S., Karlsson K.Æ. Sleep deprivation in zebrafish. 14th Nordic Sleep Conference, 2011 Reykjavik, Iceland
 - Þorsteinsson, H. Arnardóttir, H., Jóhannesdóttir, I.Þ. Sigurgeirsson, B. & Karlsson K.Æ. Effects of modafinil on sleep-wake cycles in zebrafish. 14th Nordic Sleep Conference, 2011 Reykjavik, Iceland
 - Jóhannesdóttir, I.Þ., Arnardóttir, H., Þorsteinsson, H. & Karlsson K.Æ. The ontogeny of sleep-wake cycles in zebrafish. 14th Nordic Sleep Conference, 2011 Reykjavik, Iceland
 - Karlsson, K.Æ. & Vargas, R. GABA-A RECEPTOR MEDIATED SPONTANEOUS ELECTRICAL ACTIVITY IN ANTERIOR DORSAL AND ENTOPENDUNCULAR NUCLEI IN ADULT ZEBRAFISH. Society for Neuroscience, 2010, San Diego.
 - Karl Ægir Karlsson, Hrönn Arnardóttir, Janet Best & Haraldur Þorsteinsson. DYNAMICS OF SLEEP-WAKE CYCLICITY AT NIGHT ACROSS THE HUMAN LIFESPAN. Federation of European Neuroscience Societies, Amsterdam, 2010.
 - Matthias Krenn, Florian Gerstl, Christian Windischberger, Karl Ægir Karlsson, Ewald Moser and Winfried Mayr. Development of a facial video recording system for magnetic resonance scanners. BMT 2010 Rostock, Deutschland.
 - Karl Ægir Karlsson, Hrönn Arnardóttir, Janet Best & Haraldur Þorsteinsson DYNAMICS OF SLEEP-WAKE CYCLICITY AT NIGHT ACROSS THE

- HUMAN LIFESPAN. Federation of European Neuroscience Societies, Amsterdam, 2010.
- Moser E, Windischberger C, Gerstl F, Siegel JM, Karlsson K.Æ. Hypothalamus and amygdala activation during the processing of emotional stimuli. Human Brain Mapping, 2010, Barcelona.
 - Schöpf V., Fischmeister F., Windischberger C, Gerstl F, Karlsson K. Æ, Wolzt M, Moser E. Do increased blood glucose levels affect the processing of emotional stimuli? Human Brain Mapping, 2010, Barcelona.
 - Þorsteinsson, H., Jóhannesdóttir, I.Þ., Arnardóttir, H., & Karlsson, K.Æ. THE ONTOGENY OF SLEEP-WAKE CYCLES IN ZEBRAFISH. International Society for Developmental Psychobiology, 2009, Chicago, USA.
 - Gerstl, F., Karlsson, K.Æ., Windischberger, C. & Moser, E. Emotional valence of visual stimuli modulates the BOLD-response in the hypothalamus. Organization for Human Brain Mapping 2009 Annual Meeting.
 - Vargas, R., Jóhannesdóttir, I.Þ., & Karlsson, K.Æ. HOLDING POTENTIAL IN LOOSE CELL ATTACHED RECORDINGS AS A TOOL FOR STUDYING NEURAL CIRCUITS OF ZEBRAFISH NERVOUS SYSTEM DURING DEVELOPMENT. International Society for Developmental Psychobiology, 2009, Chicago, USA.
 - Moser, E., Derntl, B., Gerstl, F., Robinson, S.D., Karlsson, K.Æ. Windischberger, C. Functional MR-imaging of human emotions: towards single subject diagnosis, 2009, MEDICAL PHYSICS AND BIOMEDICAL ENGINEERING WORLD CONGRESS, München.
 - Karlsson, K.Æ., Jóhannesdóttir, I.Þ., Arnardóttir, H., Þorsteinsson, H. The ontogeny of sleep-wake cycles in zebrafish. The 6th European Genetics and Development Meeting, 2009, Rome.
 - Karlsson, K.Æ., Þorsteinsson, H., Reynisson, H.M., Sigurðardóttir, L.Ý., Dagbjartsson, A. Behavioral correlates of direct-current coupled EEG activity in premature humans. Society for Neuroscience, 2009, Chicago.
 - Moser, E., Derntl, B., Gerstl, F., Robinson, S., Karlsson, K.Æ., & Windischberger, C. Functional MR-imaging of human emotions: towards single subject diagnosis. World Congress of Medical Physics and Biomedical Engineering, 2009, München
 - Karlsson K.Æ., Gerstl, F., Windischberger, C., Siegel, J.M., Moser, E. Valence - dependent modulation of hypothalamic activity. Society for Neuroscience 2008, Washington DC.
 - Karlsson K.Æ., Reynisson, H.M. Patterns of electrographic activity and movement in premature humans. International Society for Developmental Psychobiology, 2008, Washington DC.
 - Moser, E., Windischberger, C., Gerstl, F., Karlsson, K.Æ. Very funny and sad stimuli modulate BOLD-response in the human hypothalamus. European Society for Magnetic Resonance in Medicine and Biology, 2008, Valencia, Spain.
 - Sævarsson, G., Keating, G., Arnarsson, H., Hilmarsson, Ó., Karlsson, K.Æ., Decker, M. Validation of commercially available rodent polysomnographic scoring algorithm. Associated Professional Sleep Societies, 2008, Minneapolis MN.

- Fürsatz, M., Windischberger, C., Karlsson K.Æ., Moser, E. Successful fMRI of the hypothalamus at 3T. International Society for Magnetic Resonance in Medicine 2008, Toronto, Canada.
- Fürsatz, M., Windischberger, C., Karlsson K.Æ., Mayr, W., Moser, E. Valence - dependent modulation of hypothalamic activity. Human Brain Mapping 2008. Melbourne, Australia.
- Blouin, A., Fried I., Staba, R., Behnke., Lam, H.A., Maidment, N.T., Karlsson K.Æ., Ackerson, L.C., Wilson, C.L., Siegel, J.M. Hypocretin release during wake and sleep in the human brain. Society for Neuroscience 2007, San Diego, CA.
- Mohns, E.J., Karlsson K.Æ., & Blumberg M.S. Effects of Modafinil on Developing Sleep Patterns in Infant Rats. Society for Neuroscience 2005, Washington, DC.
- Karlsson K.Æ., Mohns, E.J., Vianna di Prisco, G., & Blumberg M.S. Are Hippocampal Sharp Waves and Startles Causally Linked? Society for Neuroscience 2005, Washington, DC.
- Seelke, A.M.H., Karlsson, K.Æ., Gall, A. & Blumberg, M. The Ontogeny of Sleep-Related Phasic Activity in the Infant Rat. International Society for Developmental Psychobiology, 2005, Washington, DC.
- Mohns, E.J., Karlsson K.Æ., & Blumberg M.S. The Ventrolateral Preoptic Area and Basal Forebrain Play Opposing Roles in the Descending Modulation of Sleep-Wake Cyclicity in Infant rats.
- Associated Professional Sleep Societies 2005, Denver, CO. Karlsson, K. Æ. Mohns, E.J., & Blumberg, M. S. The Neural Substrates of Infant sleep.
- Associated Professional Sleep Societies 2005, Denver, CO. Karlsson, K. Æ. & Blumberg, M. S. Medullary Control of REM Sleep Atonia in Infant Rats. Society for Neuroscience 2004, San Diego CA.
- Mohns, E., Karlsson, K. Æ. & Blumberg, M. S. Hypothalamic Modulation of Sleep-Wake Cyclicity in Infant Rats. Society for Neuroscience 2004, San Diego CA.
- Karlsson, K. Æ. & Blumberg, M. S. Effects of Brain Temperature on Hippocampal Activity in Anesthetized Infant Rats. Society for Neuroscience 2003, New Orleans, LA.
- Blumberg, M.S., Karlsson, K. Æ. and Kreider, J.C. Hypothalamic Contributions to Sleep Cycle Development, Society for Neuroscience 2003, New Orleans, LA.
- Karlsson, K. Æ. & Blumberg, M. S. Nuchal Atonia and Hippocampal Theta Characterize the Sleep of Rats as Two days of Age. Associated Professional Sleep Societies 2003, Chicago, IL.
- Karlsson, K. Æ. & Blumberg, M. S. Active sleep or REM sleep: Lets call the whole thing off. Society for Neuroscience 2002, Orlando, FL.
- Karlsson, K. Æ. & Blumberg, M. S. Hippocampal Theta in Neonatal Rats. International Society for Developmental Psychobiology, 2002, Orlando, FL.
- Karlsson, K. Æ. & Blumberg, M. S. Union of the State: An Argument for Developmental Continuity Between Active and REM sleep. International Society for Developmental Psychobiology, 2001, San Diego, Cal.
- Karlsson K. Æ., Bjornsson E, Halldorsdottir B, Ingadottir S, Gislason T. Patients prefer ambulatory CPAP follow-up compared to in-hospital. European Sleep Research Society, 2000, Istanbul, Turkey.

- Karlsson K. Æ., Kjartansson G, Gunnarsdottir A, Ingadottir S, Gislason T, Tomasson K. Health related quality of life in untreated sleep apnea syndrome and after one year of CPAP treatment. European Sleep Research Society, 2000, Istanbul, Turkey.

Talks and Public Lectures

- Sebrafiskalíkan af ALS sjúkdómi: Fiskað eftir nýjum lyfjum. (Zebrafish models of ALS disease: fishing for new cures). Invited talk at the annual ALS association of Iceland. 2017.
- Fishing for new drugs. Talk at Gervigreindarhátíðin (the AI congress). 2017
- Fishing for new drugs: How a neuroscientist got caught in IT: UT messann (IT congress). 2016
- Zebrafish as a sleep model: The knowns, the unknowns and the unknowables, University of Helsinki, August 2014
- Notkun sebrafiska í svefnrannsóknum. Vísindadagar, Keldum, 2014
- *Hypothalamic Contributions to Sleep Cycle Development: The Role of the Medulla*. Associated Professional Sleep Societies, 2004, Philadelphia, PA.
- *The Ontogeny of Hippocampal Population Patterns*. Northwestern University, Chicago, IL. 2004.
- *Hypothalamic Contributions to Sleep Cycle Development*. International Society for Developmental Psychobiology, 2003, New Orleans, LA.
- *The Neural Substrates of Infant Sleep*. Reykjavik University, Reykjavik, Iceland, winter 2006.
- *Sleep in infants: Beyond control*. University of Iceland, Reykjavik, Iceland, fall 2006.
- *Er svefn nauðsynlegur?* Verk og Vit, Reykjavík winter 2007.
- *Svefn: ungir og aldnir*. Hjartavernd, Reykjavík spring 2007
- *Sharp waves and startles: A mechanistic link between two early neonatal sleep events*. The 12th nordic sleep conference, Bergen, Norway, spring 2007.
- *Hypocretin og virkni þess í svefni og vöku*. Læknadagar, National University Hospital, January 2008.
- *Sleep, emotion and the human brain*. Experiment marathon. Reykjavik Art Gallery 2008.
- *Measuring sleep in complex and simple organisms*. Measuring Behavior Conference, Maastricht, Holland 2008.
- *Behavioral correlates of DC-coupled EEG in human infants*. Joint Committee of Nordic Medical Councils (NOS-M) symposium. Helsinki, Finland (October) 2009.
- *LESS IS MORE: CHARACTERIZATION OF BEHAVIORAL STATES USING SLEEP-WAKE CYCLE DYNAMICS*. International Society for Developmental Psychobiology, (October) 2009, Chicago, USA.
- *SPONTANEOUS NEURAL ACTIVITY OF THE ANTERODORSAL LOBE AND ENTOPEDUNCULAR NUCLEUS IN ADULT ZEBRAFISH: A PUTATIVE ZEBRAFISH HOMOLOGUE OF HIPPOCAMPAL SHARP WAVES*. Scandinavian Physiological Society, Bergen 2011.

- Early ontogenetic sleep development: fish, rats and humans. Finnish Physiological Society, Helsinki, 2012.

ORGANIZING COMMITTEES

- Member of organizing committee of the Joint Committee of Nordic Medical Councils (NOS-M) symposium: Early development of brain functions: basic, clinical and translational studies. Helsinki, 2009.
- Member of the organizing committee for the 14th Nordic Sleep Research meeting in Reykjavik, May 2011.
- Member of the organizing committee for the 1st Nordic Zebrafish Meeting in Stockholm, November 2012.

SERVICE

- Ad hoc reviewer for the journals: Epilepsia, Behavioral Brain Research, Sleep, Neuroscience and Biobehavioral Reviews, Journal of Neurophysiology, The Clinical Respiratory Journal, Psychopharmacology, Frontiers in Sleep and Chronobiology and Behavioral Neuroscience.
- Ad hoc reviewer the Associated Professional Sleep Societies annual conference 2007, 2008 and 2009, 2010, 2013.
- Reviewer of grant proposals for the Icelandic Centre for Research (RANNÍS).
- Reviewer of grant proposals for the National University Hospital of Iceland.
- Served as a student member on the faculty recruiting committee for the Behavioral and Cognitive Neuroscience training area at the University of Iowa 2004-5.
- A member of an in-house committees advising on new constructions, faculty hiring, and research policy at Reykjavik University. Reykjavik University School of Science and Engineering dean of research May 2008 – September 2009.
- Member of a pan-European task force for increased neuroscience funding. Organized by FENS president, Sten Grillner, 2011.

EDITORIAL WORK

- 2010 – present: Review editor for the journal Frontiers Sleep and Chronobiology

PROFESSIONAL MEMBERSHIP

- Society for Neuroscience (SFN).
- Sleep Research Society (SRS).
- International Society for Developmental Psychobiology (ISDP).
- Co-founder and first chairman of the Icelandic Society for Neuroscience (ISfN; www.ti.is). Spearheaded the entry of ISfN into the larger Federation of European Neuroscience Societies.
- Vice chairman of the Icelandic Sleep Research Society since 2011-13.

AWARDS

- **The University of Iowa 2005 Lewis award.** Awarded annually in honor of Professor Don Lewis to “a graduate student that shows great promise to become a highly productive scientist”.
- **The 2005 National Bank of Iceland award** for outstanding performance in PhD studies abroad.
- **The 2004 Gormezano Research Award.** Awarded annually to an outstanding student of the behavioral and cognitive neuroscience training area at the University of Iowa.
- **American-Scandinavian Research Fellowship;** Thor Thors Memorial Fund. Awarded for the school year of 2002-2003.
- **The 2004 Sleep Research Society’s Trainee Merit Based Travel Award** for the Associated Professional Sleep Societies meeting in 2004. Included was an opportunity to give a lecture at the meeting.
- **NIH travel award** to attend the International Society for Developmental Psychobiology meeting in 2002.
- **NIH travel award** to attend the International Society for Developmental Psychobiology meeting in 2001.

FUNDING

- **Marie Curie International Reintegration Grant:** Awarded by the European Research Council in June 2006 for the project “Sleep Development”. Direct costs: 80.000 Euros over three years.
- **Icelandic Research Council:** Pilot grant awarded in June 2006 to complete a research/grant proposal bringing together talent from the United States, Iceland, and Austria. The aim is to employ state-of-the-art 7T fMRI to understand the human hypocretin system. Direct costs: 500.000 ISK.
- **Icelandic Research Council:** Project grant awarded in February 2007 funding a project where aim is to utilize fMRI to understand the human hypocretin system. Direct costs: 4.200.000 ISK over one and a half year.
- **Icelandic Research Council:** Pilot grant awarded in April 2007 for funding a project where it is attempted to use novel statistical methods to characterize behavioral states precocial fetal mammals. Direct costs: 500.000 ISK.
- **Icelandic Student Innovation Fund:** Same as above.
- **Icelandic Research Council:** Equipment grant awarded in April 2007 for funding the purchase of various lab equipment for sleep research using zebrafish (*Danio rerio*) as a model system. Direct costs: 1.500.000 ISK over one year.
- **Icelandic Research Council:** Grant awarded in April 2007 for funding salaries and running costs of sleep research using zebrafish (*Danio rerio*) as a model system. Direct costs: 14.000.000 ISK over three years.
- **Reykjavik University Development Fund.** Project grant awarded in April 2007 for continuation fMRI-based methods aimed at understanding the human hypocretin system; in particular the neural underpinnings of cataplectic attacks. Direct costs: 2.700.000 ISK (single installment).

- **Reykjavik University Development Fund.** Grant awarded in August 2008 for funding salaries and running costs of sleep research using zebrafish (*Danio rerio*) as a model system. Direct costs: 3.200.000 ISK over one year.
- **Icelandic Research Council:** Equipment grant awarded in January 2009 for funding the purchase equipment for in vitro electrophysiology. Direct costs: 4.493.000 ISK over one year.
- **Reykjavik University Development Fund.** Grant awarded in the fall of 2008 to fund salaries for a post-doctoral fellow in my laboratory. Direct costs: 2.490.000 ISK.
- **Reykjavik University Development Fund.** Grant awarded in April of 2009 to fund a microarray-based project aimed at elucidating sleep-wake modulation of gene expression in zebrafish. Direct costs: 2.500.000 ISK.
- **Icelandic Research Council:** Equipment grant awarded in May 2009 for funding the purchase equipment for in vitro electrophysiology. Direct costs: 6.314.000 ISK over one year.
- **Icelandic Research Council:** Technical Development Grant awarded in December of 2009. Grant intended to continue development of methods using zebrafish for drug screening. Direct costs: 30.000.000 ISK over 3 years.
- **Icelandic Research Council:** Technical Development Grant awarded in December of 2013. Grant intended to continue development of methods using zebrafish for drug screening. Direct costs: 30.000.000 ISK over 3 years.
- **Icelandic Research Council:** Research grant awarded in 2013 for studying the role of *Kcna2* and *DEC2* on sleep in zebrafish. Direct costs 8.400.000 over 2 years.
- **Icelandic Research Council:** Research grant awarded in 2013 for running artificial selection experiments, breeding for high and low zebrafish sleepers. Directs costs over 15.000.000 over 3 years.
- Marketing Grant from RANNIS (10.000.000 ISK) 2016
- Technology Development Fund (45.000.000) for three years. Novel models of ALS. 2017
- Marketing Grant from RANNIS (10.000.000 ISK) 2018
- Infrastructure Fund. Funds for establishing the “Reykjavik University Sleep Institute”. (21.000.000 ISK). 2019
- Technology Development Fund. Novel models of Excessive Daytime Sleepiness (50.000.000 ISK) for two years. 2020
- Infrastructure Fund. Cell Physiology Core Facility. (24.000.000 ISK). A grant to form a joint RU and UI cell physiology facility. 2020

OTHER ACTIVITES

- Former consultant to and shareholder in start-up company SignalOne (now a part of NoxMedical). Nox medical is an up-and-coming provider of simple solutions for sleep research (<http://www.noxmedical.com/>).
 - Board member of Biotech start-up Platome (www.platome.com) since 2016.
 - Board member of MATÍS (www.matis.is) a government run applied research organization 2017-2018.
 - Chairman of Icelandic Research Council Infrastructure fund. 2016 – 2018.
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PROFESSIONAL REFERENCES

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