ERIC I KNUDSEN
Curriculum vitae

Current position:
Professor
Department of Neurobiology
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Stanford University School of Medicine
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Education:

1967-71	B.A.	University of California, Santa Barbara
1969-70		George August University, Gottingen, Germany
1971		Woods Hole Marine Biological Laboratory
1971-72	M.A.	University of California, Santa Barbara (Advisor: J.F. Case)
1972-76	Ph.D.	University of California, San Diego (Advisor: T.H. Bullock)

Professional Experience:

1976-79	Postdoctoral Research Fellow, California Institute of Technology (Sponsor: Masakazu Konishi)
1979-85	Assistant Professor, Department of Neurobiology, Stanford University School of Medicine
1985-88	Associate Professor, Department of Neurobiology, Stanford University School of Medicine
1988-present	Professor, Department of Neurobiology, Stanford University School of Medicine
1997-2001	Associate Chair, Department of Neurobiology, Stanford University School of Medicine
2001-06	Chair, Department of Neurobiology, Stanford University School of Medicine

Honors and Awards:

1971	B.A., Summa cum laude
1971	Phi Beta Kappa
1978	Newcomb Cleveland Prize: Amer. Assoc. for the Adv. of Science
1980-84	William H. Hume Faculty Scholar
1983-85	Alfred P. Sloan Fellow
1984	Society for Neuroscience Young Investigator Award
1985-87	McKnight Neuroscience Development Award
1988	Troland Research Award: National Academy of Sciences
1991	Claude Pepper Award: Nat. Inst. of Deafness and Commun. Disorders
1995	Neurosciences Research Program, Associate Member
1995	Edward C. and Amy H. Sewall Professorship in the School of Medicine
1996	American Academy of Arts and Sciences, Fellow
1996	Givaudan-Roure Award: Association for Chemoreception Sciences
1997	McKnight Senior Investigator Award

2002	W. Alden Spencer Award: College of Physicians and Surgeons, Columbia University
2002	National Academy of Sciences, Member
2005	Peter Gruber Prize in Neuroscience: Society for Neuroscience
2008	Karl Spencer Lashley Award: American Philosophical Society

Professional Activities:

1986-1988	Associate Editor, Journal of Neuroscience
1986-1989	Associate Editor, Journal of Neurophysiology
1986	Organizer of International Meeting: Advances in Auditory Neuroscience; San Francisco; Satellite of the IUPS
1986	NSF Advisory Panel: Sensory Physiology and Perception
1986-1990	Chair, Stanford Medical Student Scholars Program
1988-1992	Editorial Committee, Annual Review of Neuroscience
1994-1996	Committee on Courses and Curriculum
1995-1998	School of Medicine Appointments and Promotions Committee
1998-2001	Director, Neurosciences Graduate Program
2001-2002	Medical School Strategic Planning; research planning committee
2001-2008	Neuroscience Institute, Executive Committee
2001-2008	Neuroscience Institute, Retreat Planning Committee
2002-2006	Councilor, International Society for Neuroethology
2002-2005	Member: Core research network on early experience and brain development, MacArthur Foundation
2003-2009	National Scientific Council on the Developing Child
2005	National Academy of Sciences Troland Research Awards Committee
2006	NIH R03 study section, Hearing and Balance, *ad hoc*
2006	NSF grant review, Behavioral Systems Cluster, *ad hoc*
2008	Neurosciences Graduate Admissions Committee
2008-2012	Keck Center Program Review; UCSF
2009-present	Chair, Neurosciences Graduate Admissions Committee
2009-present	Assistant Professor Review Committee
2010-present	Neuroscience Graduate Program Committee
2013	NIH study section, Sensorimotor Integration, *ad hoc*

Fellowship and Grant Support:

1977-79	NIH Postdoctoral Fellowship
1980-2008	NIH R01, NINCDS (NIDCD)
1979-80	Biomedical Research Support Grant
1980-82	March of Dimes, Basil O'Connor
1983-87	March of Dimes, Basic Research Grant
1983-85	Alfred P. Sloan, Fellowship
1985-87	The McKnight Foundation, Neuroscience Development Award
1990-93	NIH R0I, NINDS
1997-00	The McKnight Foundation, Senior Investigator Award
2000-03	March of Dimes, Basic Research Grant
2000-04	MacArthur Foundation
2002-2007	NIH R01, NINCDS (NIDCD)
2006-2010	Fidelity
2008-present	NIH R01, NEI
2011-present	NIH R21, NEI
2011-2013	Simons Foundation
2013-pesent	Stanford University: Transformative Innovation in Basic Bioscience

Distinguished Lectureships and Symposia:

2000	Schmitt Visiting Professor, University of Rochester
	Grass Foundation Lecturer, Queens University, Kingston, Ontario
	Johns Hopkins: Symposium "Mechanisms of Hearing"
	Utrecht, Holland: International Symposium "The Nature of Speech Perception"
	Cody, Wyoming: International Symposium "Audition"
	National Institutes of Mental Health: Dynamical Neuroscience: "Scales of Plasticity and Learning"
2001	Woolsey Lecturer, University of Wisconsin
	Neurosciences Research Institute, University of California Santa Barbara
	Distinguished Neuroscience Lecture, Loyola University Chicago
	Neurosciences Research Program, San Diego
	MacArthur and McDonnell Foundations: Research network on early experience and brain development
	Society for Neuroscience Meeting, Symposium on Auditory –Visual Interactions
2002	Solomon Erulkar Memorial Lecture, Philadelphia Chapter, SFN
	Grass Foundation Lecturer, Temple University
	Spencer Lecture, Columbia University
	Riken Institute, Tokyo, Japan. Symposium: "The Plasticity of Sensory Systems"
	Gordon Research Conference: "Neuroethology: behavior, evolution and neurobiology"
	Cold Spring Harbor Meeting: "Axon Guidance and Neural Plasticity"
	Wallenberg Symposium: "Learning and memory - from brains to robots"
2003	Stanford Brain Research Center Retreat
	American Association for the Advancement of Science. Symposium: "The effects of early experience on brain and brain development"
	Keynote Speaker, McKnight Conference on Neuroscience
	Cold Spring Harbor: "Developmental Neurobiology"
	Washington University Sesquencentennial Symposium: "The Brain from Start to Finish
2004	Kuffler Lecture, Harvard Medical School
2005	Helen and Rush Record Lecture, Baylor College of Medicine
	Society for Research in Child Development, Symposium: The Convergence of Child D
	UC Irvine, Keynote speaker, 21st annual meeting of the Center for the Neurobiology of
	National Scientific Council on the Developing Child: Neurobiological and economic advantages of investing in early childhood
	International Workshop on Auditory Processing
	Peter Gruber Lecture, Society for Neuroscience
2006	A Tribute to the Research Passions of Theodore Holmes Bullock, U.C. San Diego
2007	Rodolfo Rivas Memorial Lecture, University of Maryland
	Cosyne meeting: Invited lecture
	Heller Lecturer, Hebrew University
	Heiligenberg Lecture, 8th Congress of the International Society for Neuroethology
2008	Learning and the Brain Conference: Symposium on influences of language and learning
	Nobel Symposium: Genes, brain and behavior. Karolinska Institutet
	H. Lyman Hooker Distinguished Visiting Professor; McMaster University
2009	American Academy of Child and Adolescent Psychiatry; Founders Lecture
2010	Dean's Distinguished Seminar; University of Colorado School of Medicine
2011	Honors Lecture Series, NYU School of Medicine

2012	Champalimaud Neuroscience Symposium
	Stanford Neuroscience Retreat, Keynote speaker
2013	Mark Konishi Festschrift Speaker, Caltech
	Gordon Research Conference: Keynote speaker

Recent Seminars:

2003	Harvard University
	UC San Diego
	UC Berkeley
2004	University of Utah
	University of Chicago
	University of Illinois
	Harvard University
	Massachusetts Institute of Technology
	Princeton
2005	Stanford, Dept of Biology
	Baylor
	UC Irvine
	Neurosciences Institute at Stanford
	University of Pennsylvania
	Yale
	UC San Francisco
	American Association of Laboratory Animal Scientists
	Johns Hopkins
2006	University of Minnesota
	Harvard University
	University of North Carolina
2007	University of Maryland
	Cosyne meeting
	Hebrew University
	Technion, Israel
	Victoria, Australia
	California Institute of Technology
	International Society for Neuroethology
	UC San Diego
	Georgia State University
2008	University of Pittsburgh
	North Carolina State University
	Karlolinska Institute
	National Scientific Council on the Developing Child
	McMaster University
	UC Davis
2009	Jenalia Farm, Howard Hughes Medical Institute
	Boston University
	UC San Diego, Retreat
	American Academy of Child and Adolescent Psychiatry
	NEOUCOM, Northeastern Ohio Universities
	UC Riverside
	Rockefeller University
2010	California Institute of Technology
	University of Southern California
	Columbia University
	University of Colorado, School of Medicine

2011	Harvard University
	New York University, School of Medicine
	Cold Spring Harbor
2012	Champalimaud, Portugal
	Stanford Neuroscience Retreat
	Cornell
2013	California Institute of Technology
	UC Berkeley
	Gordon Conference; Easton
	Gatsby Conference: Assembly and Function of Neuronal Circuits; Ascona, Switzerland
	University of Maryland

Teaching:

Course director
Neuro 218

Lecturer
Neuro 206
Human Biology
Psych 206
Psych 1
Neuro 250
Bio 163/263
Psych 202

Graduate Student Trainees

Name	Year of Ph.D.	Current Position
Sascha DuLac	1989	Professor, UCSD/Salk Institute
Michael Brainard	1994	Professor, UCSF
Daniel Feldman	1996	Professor, UCBerkeley
Joshua Gold	1997	Assist. Prof., U. Penn.
Greg Miller	1999	Science writer, Science
Peter Hyde	2001	Instructor, Roxbury Latin Academy
Brie Linkenhoker	2003	Science consutant, San Francisco
Joseph Bergen	2007	Post doc., Harvard University
Kristen Maczko	2008	Research division, Google
Ilana Witten	2008	Assist. Prof., Princeton
Sridhar Devarajan	2010	Post doc., Stanford University
Astra Bryant	current	

Senior Honors Theses

Name	Year
Peter Ro	2005
Dan Ro	2005
Amy Kaing	2010
Deepa Ramamurthy	2011
Benjamin Belai	2012

List of Publications

Theses

Knudsen, E. I. Neural and muscular activity underlying ventilation and swimming in the horseshoe crab, Limulus polyphemus (Linnaeus). Master's Thesis, University of California, Santa Barbara, 1972.

Knudsen, E. I. Structure and function in the electroreceptive midbrain of catfish. Ph.D. Thesis, University of California, San Diego, 1976.

Papers

Knudsen, E. I. Muscular activity underlying ventilation and swimming in the horseshoe crab, Limulus polyphemus (Linnaeus). Biol. Bull. 144: 355-367, 1973.

Knudsen, E. I. The location of functionally related motoneurons in the abdominal ganglia of Limulus polyphemus . Comp. Biochem. Physiol. 45A: 671-677,1973.

Knudsen, E. I. Behavioral thresholds to electric signals in high frequency electric fish. J. Comp. Physiol. 91: 333-353, 1974.

Knudsen, E. I. Centralgenic motoneuron bursts accompanying various gill plate movements in Limulus polyphemus (Linneaus). Comp. Biochem. Physiol 51A: 465-469, 1975.

Knudsen, E. I. Spatial aspects of the electric fields generated by weakly electric fish. J. Comp. Physiol. 99: 103-118, 1975.

Knudsen, E. I. Midbrain responses to electroreceptive input in catfish: evidence of orientation preferences and somatotopic organization. J. Comp. Physiol. 106: 51-67, 1976.

Knudsen, E. I. Midbrain units in catfish: response properties to electroreceptive input. J. Comp. Phyiol. 109: 215-235, 1976.

Knudsen, E. I. Distinct auditory and lateral line nuclei in the midbrain of catfishes. J. Comp. Neurol. 173: 417-431, 1977.

Knudsen, E. I., Konishi, M. and Pettigrew, J. D. Receptive fields of auditory neurons in the owl. Science 198: 1278-1280, 1977.

Knudsen, E. I. Functional organization in the electroreceptive midbrain of the catfish. J. Neurophysiol. 41: 350-364, 1978.

Knudsen, E. I. and Konishi, M. A neural map of auditory space in the owl. Science 200: 795-797, 1978.

Knudsen, E. I. and Konishi, M. Space and frequency are represented separately in the auditory midbrain of the owl. J. Neurophysiol 41: 870-884, 1978.

Knudsen, E. I. and Konishi, M. Center-surround organization of auditory receptive fields in the owl. Science 202: 778-780, 1978.

Knudsen, E. I., Blasdel, G. G., and Konishi, M. Sound localization by the barn owl measured with the search coil technique. J. Comp. Physiol 133: 1-11, 1979.

Knudsen, E. I, and Konishi, M. Mechanisms of sound localization in the barn owl (Tyto alba). J. Comp. Physiol. 133: 13-21, 1979.

Konishi, M. and Knudsen, E. I. The oilbird: Hearing and echolocation. Science 204: 425-427, 1979.

Knudsen, E. I. and Konishi, M. Monaural occlusion shifts the receptive field locations of auditory midbrain units in the owl. J. Neurophysiol. 44: 687-695, 1980.

Knudsen, E.I. The hearing of the barn owl. Sci. Am. 245: 112-125, 1981.

Knudsen, E. I. Auditory and visual maps of space in the optic tectum of the owl. J. Neurosci. 2: 1177-1194, 1982.

Knudsen, E. I, Knudsen, P. F., and Esterly, S. D. Early auditory experience modifies sound localization in barn owls. Nature 295: 238-240, 1982.

Knudsen, E. I. Early auditory experience aligns the auditory map of space in the optic tectum of the barn owl. Science 222: 939-942, 1983.

Knudsen, E. I. Subdivisions of the inferior colliculus in the barn owl (Tyto alba). J. Comp. Neurol. 218: 174-186, 1983.

Knudsen, E. I. and Knudsen, P. F. Space-mapped auditory projections from the inferior colliculus to the optic tectum in the barn owl (Tyto alba). J. Comp. Neurol. 218: 187-196, 1983.

Knudsen, E. I Auditory properties of space-tuned units in owl's optic tectum. J. Neurophysiol. 52: 709-723, 1984.

Knudsen, E. I., Esterly, S. D. and Knudsen, P.F. Monaural occlusion alters sound localization during a sensitive period in the barn owl. J. Neurosci. 4: 1001-1011, 1984.

Knudsen, E. I., Knudsen, P. F. and Esterly, S.D. A critical period for the recovery of sound localization accuracy following monaural occlusion in the barn owl. J Neurosci. 4: 10121020,1984.

Middlebrooks, J. C. and Knudsen, E. I. A neural code for auditory space in the cat's superior colliculus. J. Neurosci. 4: 2621-2634, 1984.

Knudsen, E.I. Experience alters spatial tuning of auditory units in the optic tectum during a sensitive period in the barn owl. J. Neurosci. 5: 3094-3109, 1985.

Knudsen, E.I. and Knudsen, P.F. Vision guides the adjustment of auditory localization in young barn owls. Science 230: 545-548, 1985.

Knudsen, E.I. and Knudsen, P.F. The sensitive period for auditory localization in barn owls is limited by age, not by experience. J. Neurosci. 6: 1918-1924, 1986.

Middlebrooks, J.C. and Knudsen, E.I. Changes in external ear position modify the spatial tuning of auditory units in the cat's superior colliculus. J. Neurophysiol. 57: 672-687, 1987.

Knudsen, E.I. Early blindness results in a degraded auditory map of space in the owl's optic tectum. Proc. Natl. Acad. Sci. 85: 6211-6214, 1988.

Knudsen, E.I. Fused binocular vision is required for development of proper eye alignment in barn owls. Vis. Neurosci. 2: 35-40, 1989.

Knudsen, E.I. and Knudsen, P.F. Visuomotor adaptation to displacing prisms by adult and baby barn owls. J. Neurosci. 9: 3297-3305, 1989.

Knudsen, E.I. and Knudsen, P.F. Vision calibrates sound localization in developing barn owls. J. Neurosci. 9: 3306-3313, 1989.

Olsen, J.F., Knudsen, E.I. and Esterly, S.D. Neural maps of interaural time and intensity differences in the optic tectum of the barn owl. J. Neurosci. 9: 2591-2605, 1989.

du Lac, S. and Knudsen, E.I. Neural maps of head movement vector and speed in the optic tectum of the barn owl. J. Neurophysiol. 63: 131-149, 1990.

Knudsen, E.I. and Knudsen, P.F. Sensitive and critical periods for visual calibration of sound localization by barn owls. J. Neurosci. 63: 131-149, 1990.

Masino, T. and Knudsen, E.I. Horizontal and vertical components of head movement are controlled by distinct neural circuits in the barn owl. Nature 345: 434-437, 1990.

du Lac, S. and Knudsen, E.I. Early visual deprivation results in a degraded motor map in the optic tectum of barn owls. PNAS. 88: 3426-3430, 1991.

Knudsen, E.I. and Brainard, M.S. Visual instruction of the neural map of auditory space in the developing optic tectum. Science 253: 85-87, 1991.

Knudsen, E.I., Esterly, S.D. and du Lac, S. Stretched and upside-down maps of auditory space in the optic tectum of blind-reared owls; acoustic basis and behavioral correlates. J. Neurosci. 11: 1727-1747, 1991.

Brainard, M.D., Knudsen, E.I. and Esterly, S.D. Neural derivation of sound source location: resolution of spatial ambiguity in binaural cues. J. Acoust. Soc. Am. 91: 1015-1027,1992.

Knudsen, E.I. and Mogdans, J. Vision-independent adjustment of unit tuning to sound localization cues in response to monaural occlusion in developing owl optic tectum. J. Neurosci. 12: 3485-3493, 1992.

Masino, T. and Knudsen, E.I. Anatomical pathways from the optic tecturn to the spinal cord subserving orienting movements in the barn owl. Exp. Brain Res. 92: 194-208, 1992.

Mogdans, J. and Knudsen, E.I. Adaptive adjustment of unit tuning to sound localizaiton cues in response to monaural occlusion in developing owl optic tectum. J. Neurosci. 12: 3473-3484, 1992.

Brainard, M.S. and Knudsen, E.I. Experience-dependent plasticity in the inferior colliculus: a site for visual calibration of the neural representation of auditory space in the barn owl. J. Neurosci. 13: 4589-4608, 1993.

Knudsen, E.I., Knudsen, P.F. and Masino, T. Parallel pathways mediating both sound localization and gaze control in the forebrain and midbrain of the barn owl. J. Neurosci. 13: 2837-2852, 1993.

Masino, T. and Knudsen, E.I. Orienting head movements resulting from electrical microstimulation of the brainstem tegmentum in the barn owl. J. Neurosci. 13: 351-370, 1993.

Mogdans, J. and Knudsen, E.I. Early monaural occlusion alters the neural map of interaural level difference in the inferior colliculus of the barn owl. Brain Research 619: 29-38, 1993.

Cohen, Y.E. and Knudsen, E.I. Auditory tuning for spatial cues in the barn owl basal ganglia. J.Neurophysiol. 72: 285-298, 1994.

Feldman, D.E. and Knudsen, E.I. NMDA and non-NMDA glutamate receptors in auditory transmission in the barn owl inferior colliculus. J. Neurosci. 14: 5939-5958, 1994.

Knudsen, E.I., Esterly, S.D. and Olsen, J.F. Adaptive plasticity of the auditory space map in the optic tectum of adult and baby barn owls in response to external ear modification. J. Neurophysiol. 71: 79-94, 1994.

Mogdans, J. and Knudsen, E.I. Representation of interaural level difference in the VLVp, the first site of binaural comparison in the barn owl's auditory system. Hearing Res. 74: 148-164, 1994.

Mogdans, J. and Knudsen, E.I. Site of auditory plasticity in the brainstem (VLVp) of the owl revealed by early monaural occlusion. J. Neurophysiol. 72: 2875-2891, 1994.

Brainard, M.S. and Knudsen, E.I. Dynamics of visually guided auditory plasticity in the optic tectum of the barn owl. J. Neurophysiol. 73: 595-614, 1995.

Cohen, Y.E. and Knudsen, E.I. Binaural tuning of auditory units in the forebrain archistriatal gaze fields of the barn owl: local organization but no space map. J. Neurosci. 15: 5152-5168, 1995.

Knudsen, E.I., Cohen, Y.E. and Masino, T. Characterization of a forebrain gaze field in the archistriatum of the barn owl: microstimulation and anatomical connections. J. Neurosci. 15: 5139-5151, 1995.

Feldman, D.E., Brainard, M.S. and Knudsen, E.I. Newly learned auditory responses mediated by NMDA receptors in the owl inferior colliculus. Science 271: 525-528, 1996.

Knudsen, E.I. and Knudsen, P.F. Contribution of the forebrain archistriatal gaze fields to auditory orienting behavior in the barn owl. Exp. Brain Res. 108: 23-32, 1996.

Cohen, Y.E. and Knudsen, E.I. Representation of frequency in the primary auditory field of the barn owl forebrain. J. Neurophysiol. 76: 3682-3692, 1996.

Knudsen, E.I. and Knudsen, P.F. Disruption of auditory spatial working memory by inactivation of the forebrain archistriatum in barn owls. Nature 383: 428-431, 1996.

Feldman, D.E. and Knudsen, E.I. An anatomical basis for visual calibration of the auditory space map in the barn owl's midbrain. J. Neurosci. 17: 6820-6837, 1997.

Cohen, Y.E. and Knudsen, E.I. Representation of binaural spatial cues in Field L of the barn owl forebrain. J.Neurophysiol. 79: 879-890, 1998.

Cohen, Y.E., Miller, G.L. and Knudsen, E.I. Forebrain pathway for auditory space processing in the barn owl. J. Neurophysiol. 79: 891-902, 1998.

Knudsen, E.I. Capacity for plasticity in the adult owl auditory system expanded by juvenile experience. Science 279: 1531-1533, 1998.

Brainard, M.S. and Knudsen, E.I. Sensitive periods for visual calibration of the auditory space map in the barn owl optic tectum. J. Neurosci. 18: 3929-3942,1998.

Feldman, D.E. and Knudsen, E.I. Pharmacological specialization of learned auditory responses in the inferior colliculus of the barn owl. J. Neurosci. 18: 3073-3087, 1998.

Miller, G.L. and Knudsen, E.I. Early visual experience shapes the representation of auditory space in the forebrain gaze fields of the barn owl. J. Neurosci. 19: 2326-2336, 1999.

Zheng, W. and Knudsen, E.I. Functional selection of adaptive auditory space map by $GABA_A$ -mediated inhibition. Science 284: 962-965, 1999.

Gold, J. 1. and Knudsen, E.I. Hearing impairment induces frequency-specific adjustments in auditory spatial tuning in the optic tectum of young owls. J.Neurophysiol. 82: 2197-2209, 1999.

Gold, J.1. and Knudsen, E.I. Abnormal auditory experience induces frequency-specific adjustments in unit tuning for binaural localization cues in the optic tectum of juvenile owls. J. Neurosci. 20: 862-877, 2000.

Hyde, P.S. and Knudsen, E.I. A topographic projection from the optic tectum to the auditory space map in the inferior colliculus of the barn owl. J. Comp. Neurol. 421: 146-160,2000.

Gold, J.1. and Knudsen, E.I. A site of auditory experience-dependent plasticity in the neural representation of auditory space in the barn owl's inferior colliculus. J. Neurosci. 20:3469-3486,2000.

Gold, J.1. and Knudsen, E.I. Adaptive adjustment of connectivity in the inferior colliculus revealed by focal pharmacological inactivation. J. Neurophysiol . 85:1575-1584, 2001.

DeBello, W.M., Feldman, D.E. and Knudsen, E.I. Adaptive axonal remodeling in the midbrain auditory space map. J. Neurosci. 21: 3161-3174, 2001.

Zheng, W. and Knudsen, E.I. GABAergic inhibition antagonizes adaptive adjustment of the owl's auditory space map during the early stages of plasticity. J. Neurosci. 21: 4356-4365, 2001.

Miller, G.L. and Knudsen, E.I. Early auditory experience induces frequency-specific, adaptive plasticity in the forebrain gaze fields of the barn owl. J. Neurophysiol. 85: 2184-2194, 2001.

Hyde, P.S. and Knudsen, E.I. A topographic instructive signal guides the adjustment of the auditory space map in the optic tectum. J. Neurosci. 21: 8586-8593, 2001.

Hyde, P.S. and Knudsen, E.I. The optic tectum controls visually guided adaptive plasticity in the owl's auditory space map. Nature 415: 73-76, 2002.

Linkenhoker, B.A. and Knudsen, E.I. Incremental training increases the plasticity of the auditory space map in adult barn owls. Nature 419: 293-296, 2002.

Gutfreund, Y., Zheng, W. and Knudsen, E.I. Gated visual input to the central auditory system. Science 297: 1556-1559, 2002.

Miller, G.L. and Knudsen, E.I. Adaptive plasticity in the auditory thalamus of juvenile barn owls. J. Neurosci. 23:1059-1065, 2003.

DeBello, W.M. and Knudsen, E.I. Multiple levels of adaptive plasticity in the auditory localization pathway. J. Neurosci. 24: 6853-6861, 2004.

Linkenhoker, B.A., von der Ohe, C.G. and Knudsen, E.I. Anatomical traces of juvenile learning in the auditory system of adult barn owls. Nature Neurosci. 8: 93-98, 2005.

Bergan, J.F., Ro, P., Ro, D. and Knudsen, E.I. Hunting increases adaptive auditory map plasticity in adult barn owls. J. Neurosci. 25: 9816-9820, 2005.

Schorr, E.A., Fox, N.A., van Wassenhove, V. and Knudsen, E.I. Auditory-visual fusion in speech perception in children with cochlear implants. PNAS. 102: 18748-18750, 2005.

Winkowski, D.E. and Knudsen, E.I. Top-down gain control of the auditory space map by gaze control circuitry in the barn owl. Nature 439:336-339, 2006. PMCID: PMC2659464

Gutfreund, Y. and Knudsen, E.I. Adaptation in the auditory space map of the barn owl. J. Neurophysiol. 96: 813-825, 2006. PMID: 16707713

Witten, I.B., Bergan, J.B. and Knudsen, E.I. Dynamic shifts in the owl's auditory space map predict moving sound location. Nature Neurosci. 9:1439-1445, 2006. PMID: 17013379

Maczko, K.A., Knudsen, P.F. and Knudsen, E.I. Auditory and visual space maps in the cholinergic nucleus isthmi pars parvocellularis of the barn owl. J. Neurosci. 26:12799-12806, 2006. PMID: 17151283

Goddard, A.C., Knudsen, E.I., and Huguenard, J. Intrinsic excitability of cholinergic neurons in the rat parabigeminal nucleus. J. Neurophysiol. 98: 3486-3493, 2007. PMID: 17898138

Winkowski, D.E. and Knudsen, E.I. Top-down control of multimodal sensitivity in the barn owl optic tectum. J. Neurosci. 27:13279-13291, 2007. PMCID: PMC2628588

Witten, I.B., Knudsen, E.I. and Sompolinsky, H. A Hebbian learning rule mediates asymmetric plasticity in aligning sensory representations. J. Neurophysiol. 100: 1067-1079, 2008. PMCID: PMC2525701

Winkowski, D.E. and Knudsen, E.I. Distinct mechanisms for top-down control of neural gain and sensitivity in the owl optic tectum. Neuron, 60:698-708, 2008. PMCID: PMC2646164

Bergan, J.F. and Knudsen, E.I. Visual modulation of auditory responses in the owl inferior colliculus. J. Neurophysiol. 101: 2924-2933, 2009. PMCID: PMC2694124

Mysore, S.P., Asadollahi, A. and Knudsen, E.I. Global inhibition and stimulus competition in the owl optic tectum. J. Neurosci. 30: 1727-1738, 2010. PMCID: PMC2828882

Witten, I.B., Knudsen, P.F. and Knudsen E.I. A dominance hierarchy of auditory spatial cues in barn owls. PLoS One 5: e10396, 2010. PMCID: PMC2861002

Asadollahi, A., Mysore, S.P. and Knudsen, E.I. Stimulus-driven competition in a cholinergic midbrain nucleus. Nature Neurosci. 13: 889-895, 2010. PMCID: PMC2893238

Mysore, S.P., Asadollahi, A. and Knudsen, E.I. Signaling of the strongest stimulus in the owl optic tectum. J. Neurosci. 31: 5186-5196, 2011. NIHMSID: NIHMS286467

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