CURRICULUM VITAE
Daniel Stephen Barth, Ph.D.

Personal Data

Birthdate: January 21, 1954
Birthplace: Baltimore, Maryland
Family: Married - wife, Lynne Albert; no children
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Education

1971-73	Antioch College, Yellow Springs, Ohio
1974-77	Boston University, B.A. 1977 (Summa cum Laude with Distinction) Major: Psychology
1979-84	University of California, Los Angeles, M.A. 1980, Ph.D. 1984 Specialization: Physiological and Experimental Psychology

Academic Positions

1979-80	UCLA University Fellowship
1980-83	UCLA-NIMH Physiological Psychology Training Grant Fellowship
1984-87	Assistant Research Psychologist, Dept. of Psychology, UCLA Assistant Research Neurologist, Dept. of Neurology, UCLA
1987-90	Assistant Professor of Neurology, Dept. of Neurology, UCLA
1990-94	Assistant Professor of Psychology, Dept. of Psychology, University of Colorado at Boulder
1994-98	Associate Professor of Psychology, Dept. of Psychology, University of Colorado at Boulder
1998-	Professor of Psychology, Dept. of Psychology, University of Colorado at Boulder
2004-	President's Teaching Scholar, University of Colorado at Boulder

Major Grants

Funded

1984-91	NIH-NINCDS Research Grant, Co-P.I. (**$1,264,207**), Percentile Score = **6.0** "MEG in Human Epilepsy"
1985-92	NIH-NINCDS Single Investigator Grant, P.I. (**$410,682**) Percentile Score = **5.3** (yrs 1-3), **1.9** (yrs. 4-6) "Neuromagnetic Fields of Epilepsy in Rodent Cortex"
1987-92	National Science Foundation Presidential Young Investigator Award, P.I. (**$312,500**) "Electrophysiology of Human Attention"
1988-91	Whitaker Foundation Medical Research Grant, P.I. (**$131,772**) "Noninvasive 3-D Imaging of Human Brain Function using Combined Neuromagnetic and Neuroelectric Measurement and Modeling"
1988	American President Companies, Ltd. Research Grant, P.I. (**$15,000**)

1992-95 National Science Foundation Single Investigator Grant, P.I. (**$249,311**)
Rated #3 in this round of applications to the Behavioral Neurosciences Division
"Functional Anatomy of Auditory Evoked Potentials in Rat Neocortex"

1993-97 NIH-NINCDS Single Investigator Grant, P.I. (**$391,699**)
Percentile Score = **5.0**
"MEG of Epilepsy in Animal Cortex"

1997-01 Whitehall Foundation Single Investigator Grant, P.I. (**$140,501**)
Proposal #S97-06
"Fast Electrical Oscillations in Somatosensory Cortex of Unanesthetized Rats"

1998-01 NIH-NINCDS Single Investigator Grant, P.I. (**$590,349**)
Percentile Score = **6.0**
"Fast Electrical Oscillations in Somatosensory Cortex"

1999-01 NIH-NINCDS Infrastructure Grant, P.I. (**$50,000**)

2002-08 NIH-NINCDS Single Investigator Grant, P.I. (**$1,316,232**)
Percentile Score = **7.7**
"Fast Electrical Oscillations in Somatosensory Cortex"

2004-05 CDC Marion Downs International Hearing Center Grant, P.I. (**$125,875**)
Research Project Core - "Mammalian Auditory Physiology"

2011-2014 DOD P.I. (**$960,000**)
"Microglia cells and the Innate Immune Response in Post-traumatic Epilepsy"

2011-2012 Autism Speaks Foundation (**$120,000**)
"Innate Immunity, and Epilepsy in Autism Spectrum Disorder"

2010-2011 Craig Hospital Gift Fund (**$60,000**)
"Spinal Hyperexcitability in Neuropathic Pain"

2010-2011 Seed Grant, Council on Research and Creative Work, C.U. (**$43,000**)
"The Innate Immune Response in Post-Traumatic Epilepsy".

2010-1014 DARPA/DOD, Co-P.I.
"Enabling Stress Resistance with Controllable Exercise" (**$750,000**)

2015-2019 NIH, Co-P.I.
"Development and evaluation of a pediatric MEG system based on miniature atomic magnetometers." (**$2,832,524**)

2015-2020 NIH, P.I.
"A Room Temperature Atomic Magnetrode System for Telemetry of Epileptic Seizures." (**$2,018,856**)

2016-2018 CURE, P.I.
"The Role of Neuro-inflammation in a Rat Model of Comorbid Epilepsy and Autism" (**$250,000**)

2016-2021 CDMRP/DOD, P.I.
"Major Reassessment of the Fluid Percussion and Controlled Cortical Impact Models of Posttraumatic Epilepsy" (**$2,194,746**)

<u>Recently Funded</u>

2022-2024 CDMRP/DOD, P.I.
"The role of pre-injury stress in development of post-traumatic epilepsy: A dual site study of the fluid percussion injury model." (**$1,284,488**)

2022-2023 CU Seed Grant, Lowry, Barth, Reuter P.I.s.
"Broad-spectrum Cannabidiol (CBD) as a prevention/treatment of neuroinflammation in a rat model of comorbid autism and epilepsy." **($49,885**)

2022-2025 Institute of Cannabis Research, Lowry, Barth, Reuter P.I.s.
"Preventative and treatment effects of broad-spectrum cannabidiol (CBD) in a rat model of comorbid autism and epilepsy: A mechanistic study" **($600,000**)

<u>Small Grants and Travel Awards</u>

1981-82 Two UCLA Research Conference Travel Grant Awards

1982 National Science Foundation Travel Award
1982 NATO Research Conference Travel Grant Award
1991 Biomedical Research Support Grant, National Institutes of Health (**$1,800**)
1991 Grant in Aid, Council on Research and Creative Work, U.C. (**$2500**)
1991 Supplementary support for Undergraduate Research, NSF (**$4,000**)
1992 Supplementary support for Undergraduate Research, NSF (**$4,000**)
1993 Grant in Aid, Council on Research and Creative Work, U.C. (**$2500**)
1997 Faculty Sabbatical Fellowship, Council on Research and Creative Work, C.U.
2005 Faculty Sabbatical Fellowship, Council on Research and Creative Work, C.U.
2005 Seed Grant, Council on Research and Creative Work, C.U. (**$7,000**)

Honors and Elections

1977 Elected to Phi Beta Kappa Honor Society
1977 College Prize for Excellence in Psychology
1984 Elected to Sigma Xi, The Scientific Research Society
1985 Joseph A. Gengerelli Distinguished Dissertation Award, UCLA (Psychology)
1986 New York Academy of Sciences James McKeen Cattell Award for Distinguished Dissertation in Psychology
1986 Center for Advanced Study in the Behavior Sciences Fellowship
1997 University Award for Excellence in Teaching, Boulder Faculty Assembly, C.U.
2003 Faculty Teaching Award, Department of Psychology, C.U.
2004 President's Teaching Scholar Award

Membership in Scientific and Professional Societies

1979 Society for Neuroscience
1981 American Association for the Advancement of Science
1985 American Epilepsy Society
1986 The New York Academy of Science
1996 The American Physiological Society

Professional Academic Services

Member, Editorial Board: Eye and Brain, Dove Press

Chair and member of peer review committees for the following grant agencies since 1984:
National Science Foundation
National Institutes of Health (chair)
U.S. Department of Energy Nuclear Medicine
Air Force Office of Scientific Research
Veterans Health Services and Research Administration
The Wellcome Trust
PHS Biological/Neurosciences Subcommittee
International Science Foundation
Department of Defense

Editorial reviewer for the following books and journals since 1984:
Science
Nature
Nature Neuroscience
Proceedings of the National Academy of Sciences
Journal of Neurophysiology

Journal of Physiology
Journal of Neuroscience
Brain Research
Experimental Brain Research
Cerebral Cortex
Physiology and Behavior
Journal of Neuroscience Methods
Neuroscience Letters
Electroencephalography & Clinical Neurophysiology
IEEE Transactions on Biomedical Engineering
Physics in Medicine and Biology
Physiological Measurement
Neuroimage
European Journal of Neuroscience
Epilepsia
Biophysical Journal
Biological Psychiatry
Biological Cybernetics
Developmental Psychobiology
The World Book Encyclopedia
Prentice Hall, Simon & Schuster Education Group

Teaching Experience

1989-90	Department of Neurology Neuroscience Seminars (at UCLA)
1990	Neurobiology of Disease (co-taught with Dr. Robert Collins at UCLA)
1991-	Behavioral Neuroscience (for advanced undergraduate psychology majors)
1993-	Mammalian Neurophysiology (graduate core course)
1994-	Biological Psychology (for beginning undergraduate psychology majors)
1997	University Award for Excellence in Teaching, Boulder Faculty Assembly, C.U.
2003	Department of Psychology Faculty Teaching Award
2004	President’s Teaching Scholar Award

Bibliography

Thesis

Barth, D.S. Neuromagnetic measurements of epileptiform activity in animal and man. Ph.D. Thesis, University of California, Los Angeles, 1984.

Research Publications

Note-> (authors denoted with "*", "**", and "***" reflect undergraduate, graduate, and post-doctoral students, respectively)

1. Barth, D.S., Sutherling, W., Engel, J. Jr. & Beatty, J. Neuromagnetic localization of epileptiform spike activity in the human brain. *Science*, 1982, 218: 891-894.

2. Richer, F., Barth, D.S. & Beatty, J. Neuromagnetic localization of two components of the transient visual evoked response to patterned stimulation. *Il Nuovo Cimento*, 1983, 2D (2): 420-428.

3. Beatty, J., Barth, D.S. & Sutherling, W. Magnetically localizing the sources of epileptic discharges within the human brain. *Naval Research Reviews*, 1984, 36: 20-28.

4. Barth, D.S., Sutherling, W., Engel, J. Jr. & Beatty, J. Neuromagnetic evidence of spatially distributed sources underlying epileptiform spikes in the human brain. *Science*, 1984, 223: 293-296.

5. Barth, D.S., Sutherling, W. & Beatty, J. Fast and slow magnetic phenomena in focal epileptic seizures. *Science*, 1984, 226: 855-857.

6. Barth, D.S., Sutherling, W., Engel, J. Jr. & Beatty, J. Neuromagnetic localization of single and multiple sources underlying epileptiform spikes in the human brain. In R.J. Porter et al. (Eds.), *Advances in Epileptology: XVth Epilepsy International Symposium*. New York: Raven Press, 1984, pp. 379-384.

7. Castiglioni, A.J. & Barth, D.S. A program for computing power spectra on a microcomputer. *J. Neurosci. Methods*, 1984, 10:17-21.

8. Barth, D.S., Sutherling, W. & Beatty, J. Animal neuromagnetometry and its specific application to the study of focal epileptic phenomena. In Weinberg, Stroink, and Katila (Eds.), *Biomagnetism: Applications and Theory*, New York: Pergamon Press, 1985, pp. 237-248.

9. Sutherling, W., Barth, D.S. & Beatty, J., Magnetic fields of epileptic foci: Equivalent localization and propagation. In Weinberg, Stroink, and Katila (Eds.), *Biomagnetism: Applications and Theory*, New York: Pergamon Press, 1985, pp. 249-260.

10. Beatty, J., Barth, D.S. & Sutherling, W., Neuromagnetic localization of intracranial current sources in the epilepsies: Introduction. In Weinberg, Stroink, and Katila (Eds.), *Biomagnetism: Applications and Theory*, New York: Pergamon Press, 1985, pp. 235-236.

11. Barth, D.S., Sutherling, W. & Beatty, J. Intracellular currents of interictal penicillin spikes: Evidence from neuromagnetic mapping. *Brain Research*, 1986, 368: 36-48.

12. Barth, D.S., Sutherling, W., *Broffman, J. & Beatty, J. Magnetic localization of a current source implanted in a sphere and a human cranium. *Electroenceph. Clin. Neurophys.*,

1986, 63: 260-273.

13. Beatty, J., Barth, D.S., Richer, F. & Johnson, R.A. Neuromagnetometry. In M.G.H. Coles, S.W. Porges, and E. Donchin (Eds.), *Psychophysiology: Systems, processes, and applications.* New York: Guilford Press, 1986, pp. 26-40.

14. Sutherling, W.W., Crandall, P.H., Engel, J.Jr., Darcey, T.M., Cahan, L.D. & Barth, D.S. The magnetic field of complex partial seizures agrees with intracranial localizations. *Ann. Neurol*., 1987, 21: 548-558.

15. Barth, D.S. & Sutherling, W.W. Current source-density and neuromagnetic analysis of the direct cortical response in rat cortex. *Brain Research*, 1988, 450: 280-294.

16. Sutherling, W.W., Crandall, P.H., Cahan, L.D. & Barth, D.S. The magnetic field of epileptic spikes agrees with intracranial localizations in complex partial epilepsy. *Neurology*, 1988, 38: 778-786.

17. Sutherling, W.W., Crandall, P.H., Darcey, T.M., Becker, D.P., Levesque, M.F. & Barth, D.S. The magnetic and electric fields agree with intracranial localizations of somatosensory cortex. *Neurology*, 1988, 38: 1705-1714.

18. Sutherling, W.W. & Barth, D.S. Neocortical propagation in temporal lobe spike foci on magnetoencephalography and electroencephalography. *Ann. Neurol.*, 1989, 25: 373-381.

19. Barth, D.S., **Di, S. & **Baumgartner, C. Laminar cortical interactions during epileptic spikes studied with principal component analysis and physiological modeling. *Brain Research*, 1989, 484: 13-35.

20. Sutherling, W. W., Crandall, P., Levesque, M., Darcey, T. and Barth, D. S. Physical interpretation of the frontal lobe seizure: The dipole approximation and sensorimotor cortex. In P. Chauvel, A. Delgado-Escueta, E. Halgren and J. Bancaud (Eds.), *Frontal Lobe Seizures and Epilepsies,* New York, Raven Press, 1989, pp. 665.

21. Barth, D.S., **Baumgartner, C. & Sutherling, W.W. Neuromagnetic field modeling of multiple brain regions producing interictal spikes in human epilepsy. *Electroenceph. Clin. Neurophys.*, 1989, 73: 389-402.

22. **Baumgartner, C., Sutherling, W.W., **Di, S. & Barth, D.S. Investigation of multiple simultaneously active brain sources in the electroencephalogram. *J. Neurosci. Meth.*, 1989, 30: 175-184.

23. Barth, D.S., **Baumgartner, C. & **Di, S. Laminar interactions in rat motor cortex during cyclical excitability changes of the penicillin focus. *Brain Research*, 1990, 508: 105-117.

24. Barth, D.S. and Sutherling, W.W. Neuromagnetic studies of evoked and spontaneous activity in animals. In S. Sato (Ed.), *Advances in Neurology. Vol. 54: Magnetoencephalography*, New York, Raven Press, 1990, pp. 119-131.

25. **Baumgartner, C., Sutherling, W. W., **Di, S. and Barth, D. S. Multiple source modeling of the human epileptic spike complex in the magnetoencephalogram. *Advances in Biomagnetism*, New York, Plenum Press, 1990, pp. 299-302.

26. **Di, S., **Baumgartner, C. & Barth, D.S. Laminar analysis of extracellular field potentials in rat vibrissa/barrel cortex. *J. Neurophysiol.*, 1990, 63: 832-846.

27. **Baumgartner, C., Barth, D.S. and Sutherling, W. W. Spatiotemporal modeling of somatosensory evoked magnetic fields. *Advances in Biomagnetism,* New York, Plenum Press, 1990, pp. 161-164.

28. Barth, D.S. & **Di, S. Three dimensional analysis of auditory evoked potentials in rat neocortex. *J. Neurophysiol.*, 1990, 64:1527-1536.

29. Sutherling, W. W., Baumgartner, C., Darcey, T. M. and Barth, D. S. Comparison of dynamic spatiotemporal field structures of dorsolateral fronto-central seizures and hand sensorimotor cortex. *Advances in Biomagnetism,* New York, Plenum Press, 1990, pp. 291-294.

30. Barth, D.S. & **Di, S. Electrophysiological basis of epileptiform magnetic fields in neocortex. *Brain Research*, 1990, 530: 35-39.

31. **Di, S., **Baumgartner, C., Sutherling, W. W. and Barth, D. S. In vivo neuromagnetic study of normal and pathological intracellular current in rat cortex. In S.J. Williamson et al. (eds.) *Advances in Biomagnetism*, New York, Plenum Press, 1990, pp. 339-342.

32. Sutherling WW, Barth DS. Magnetoencephalography in clinical epilepsy studies. The UCLA experience. *Adv. Neurol* ., 1990;54:231-245.

33. Barth D.S., Sutherling W.W. Neuromagnetic studies of evoked and spontaneous activity in animals. *Adv. Neurol* ., 1990;54:119-131.

34. **Baumgartner, C., Barth, D.S., Levesque, M.F. & Sutherling, W.W. Functional anatomy of human hand sensorimotor cortex from spatiotemporal analysis of electrocorticography. *Electroenceph. Clin. Neurophys.*, 1991, 78: 56-65.

35. Barth, D.S. & **Di, S. Laminar excitability cycles in neocortex.*J. Neurophysiol.*, 1991, *65:* 891-898.

36. **Di, S. & Barth, D.S. Topographic analysis of field potentials in rat vibrissa/barrel cortex. *Brain Research*, 1991, 546:106-113.

37. **Baumgartner, C., Doppelbauer, A., Deecke, L., Barth, D.S., Zeitlhofer, J., Lindinger, G. & Sutherling, W.W. Neuromagnetic investigation of somatotopy of human hand somatosensory cortex. *Exp. Brain Res.*, 1991, 87: 641-648.

38. **Baumgartner, C., Sutherling, W.W. & Barth, D.S. Spatiotemporal modeling of cerebral evoked magnetic fields to median nerve stimulation. *Electroenceph. Clin. Neurophys.*, 1991, 79: 27-35.

39. Barth, D.S. & **Di, S. The electrophysiological basis of epileptiform magnetic fields in neocortex: Spontaneous ictal phenomena. *Brain Research*, 1991, 557: 95-102.

40. Sutherling, W.W., Levesque, M.F., Crandall, P.H. & Barth, D.S. A complete physical description of the dynamic electric currents of human partial epilepsy and essential cortex using MEG, EEG, chronic ECoG grid recordings, and direct cortical stimulations. *Epilepsy Surgery*, Raven Press Ltd., New York, 1991, pp. 429-450.

41. Sutherling, W.W., Levesque, M.F., Crandall, P.H. & Barth, D.S. Localization of partial epilepsy using magnetic and electric measurements. *Epilepsia*, 1991, 32 Suppl 5:S29-S40.

42. Barth, D.S. & **Di, S. The functional anatomy of middle latency auditory evoked potentials in rat neocortex. *Brain Research*, 1991, 565: 109-115.

43. Barth, D.S. Empirical comparison of the MEG and EEG: Animal models of the direct cortical response and epileptiform activity in neocortex. *Brain Topography*, 1991, 4: 85-93.

44. Sutherling, W.W., Crandall, P., Levesque, M., Darcey, T. & Barth, D.S. Physical description of frontal lobe seizures - The dipole approximation and sensorimotor cortex. *Frontal Lobe Seizures and Epilepsies*, 1992, 57: 339-347.

45. **Baumgartner, C., Barth, D.S., Levesque, M.F. & Sutherling, W.W. Human hand and lip sensorimotor cortex as studied on electrocorticography. *Electroenceph. Clin. Neurophys.*, 1992, 84: 115-126.

46. ***Di, S. & Barth, D.S. The functional anatomy of middle latency auditory evoked potentials: Thalamocortical connections. *J. Neurophysiol.*, 1992, 68:425-431.

47. Barth, D.S. & ***Di. S. Topographical analysis of epileptiform potentials in rat somatosensory cortex: The interictal to ictal transition. *Brain Research*, 1992, 591: 33-43.

48. Barth, D.S. The neurophysiological basis of epileptiform magnetic fields and localization of neocortical sources. *J. Clin. Neurophysiol.*, 1993, 10: 99-107.

49. Barth, D.S. Magnetoencephalography. In E. Wyllie (ed.) *The Treatment of Epilepsy: Principles and Practice. Part Two: Basic Principles of Electroencephalography*, Lea & Febiger, 1993, pp. 285-297.

50. Barth, D.S., *Kithas, J. & ***Di, S. The anatomical organization of evoked potentials in rat parietal cortex: Somatosensory and auditory responses. *J. Neurophysiol.*, 1993, 69: 1837-1849.

51. ***Di, S. & Barth, D.S. Binaural vs. monaural auditory evoked potentials in rat neocortex. *Brain Research*, 1993, 630: 303-314.

52. ***Di, S., **Brett, B. & Barth, D.S. Polysensory evoked potentials in rat parietotemporal cortex: Auditory and somatosensory responses. *Brain Research*, 1994, 642: 267-280.

53. Barth, D.S. *Kithas, J. & ***Di, S. The anatomical organization of evoked potentials in rat parietal cortex: Electrically evoked commissural responses. *J Neurophysiol.*, 1994, 72:139-149.

54. **Brett, B., ***Di, S., Watkins, L. & Barth, D.S. An HRP study of parallel thalamocortical projections responsible for the generation of mid-latency auditory evoked potentials. *Brain Research*, 1994, 647: 65-75.

55. Nakasato, N., Levesque, M.F., Barth, D.S., Baumgartner, C., Rogers, R.L. & Sutherling, W.W. Comparisons of MEG, EEG, and ECoG source localization in neocortical partial epilepsy in humans. *Electroenceph. clin. Neurophysiol.*, 1994, 91:171-178.

56. Barth, D.S., *Goldberg, N., **Brett, B. & ***Di, S. The spatiotemporal organization of auditory, visual, and polysensory evoked potentials in rat cortex. *Brain Research*, 1995, 678:177-180.

57. Gharib, S., Sutherling, W.W., Nakasato, N., Barth, D.S., Baumgartner, C., Alexopoulos, N, Taylor, S. & Rogers, R.L. MEG and ECoG localization accuracy test. *Electroenceph. clin. Neurophysiol*., 1995, 94:109-114.

58. *Franowicz, M.N. & Barth, D.S. A comparison of evoked potentials and high frequency (gamma-band) oscillating potentials in rat auditory cortex. *J. Neurophysiol.*, 1995, 74:96-112.

59. *MacDonald, K.D. & Barth, D.S. High frequency (gamma-band) oscillating potentials in rat somatosensory and auditory cortex. *Brain Research*, 1995, 694:1-12.

60. **Brett, B. & Barth, D.S. The effects of subcortical lesions on evoked potentials and spontaneous high frequency (gamma-band) oscillating potentials in rat auditory cortex. *Brain Research*, 1996, 721:155-166.

61. *MacDonald, K.D., **Brett, B. & Barth, D.S. Inter- and intra-hemispheric spatiotemporal organization of spontaneous electrocortical oscillations. *J. Neurophysiol.*, 1996, 76:423-437.

62. Barth, D.S. & *MacDonald, K.D. Thalamic modulation of high-frequency oscillating potentials in auditory cortex. *Nature*, 1996, 383:78-81.

63. **Jones, M.S. & Barth, D.S. Sensory-evoked high frequency (gamma-band) oscillating potentials in somatosensory cortex of the unanesthetized rat. *Brain Research*, 1997, 768:167-176.

64. **Brett, B. & Barth, D.S. Subcortical modulation of high frequency (gamma-band) oscillating potentials in auditory cortex. *J. Neurophysiol.*, 1997, 78:573-581.

65. *MacDonald, K.D., Fifkova, E., **Jones, M.S. & Barth, D.S. Focal stimulation of the thalamic reticular nucleus induces focal gamma waves in cortex. *J. Neurophysiol.*, 1998, 79:474-477.

66. *Sukov, W. & Barth, D.S. Three dimensional analysis of spontaneous and thalamically evoked gamma oscillations in auditory cortex. *J. Neurophysiol.*, 1998, 79: 2875-2884.

67. **Jones, M.S. & Barth, D.S. The spatiotemporal organization of fast (>200 Hz) electrical oscillations in rat vibrissa/barrel cortex. *J. Neurophysiol.*, 1999, 82:1599-1609.

68. **Jones, M.S., **MacDonald, K.D., Choi, B.J. Dudek, F.E. & Barth, D.S. Intracellular correlates of fast (>200 Hz) electrical oscillations in rat somatosensory cortex. *J. Neurophysiol.*, 2000, 84:1505-1518.

69. *Sukov, W. & Barth, D.S. Cellular mechanisms of thalamically evoked gamma oscillations in auditory cortex. *J. Neurophysiol.*, 2001, 85:1235-1245.

70. Kim, W-Y., Fritzsch, B., Serls, A., *Bakel, L.A., Huang, E.J., Reichardt, L.F., Barth, D.S. and Lee, J.E. NeuroD-null mice are deaf due to a severe loss of the inner ear sensory neurons during development. *Development*, 2001, 128:417-426.

71. **Jones, M.S. and Barth, D.S. Effects of bicuculline methiodide on fast (>200 Hz) electrical oscillations in rat somatosensory cortex, *J. Neurophysiol.*, 2002, 88:1016-1025.

72. ***Brett-Green, B., Fifkova, E., Larue, D., Winer, J. and Barth, D.S. A multimodal zone in rat parieto-temporal cortex: intra- and extracellular physiology and thalamocortical connections. *J. Comp. Neurol.,* 2003, 460:223-237.

73. ***Staba, R.J., ***Brett-Green, B., *Paulsen, M. and Barth, D.S. Effects of ventrobasal lesion and cortical cooling on fast oscillations (>200Hz) in rat somatosensory cortex. *J. Neurophysiol.*, 2003, 89:2380-2388.

74. Barth, D.S. Sub-millisecond synchronization of fast electrical oscillations in neocortex. *J. Neurosci.,* 2003, 23:2502-2510.

75. ***Brett-Green, B., *Paulsen, M., ***Staba, R.J., Fifková, E. and Barth, D.S. Two Distinct Regions of Secondary Somatosensory Cortex in the Rat: Topographical Organization and Multisensory Responses. *J. Neurophysiol*, 2004, 91:1327-1336.

76. ***Staba, R.J., *Bergmann, P. and Barth, D.S. Dissociation of slow waves and fast oscillations above 200 Hz during GABA application in somatosensory cortex. *J. Physiol.*, 2004, 561.1:205-214.

77. ***Brett-Green, B. and Barth, D.S. Multisensory evoked potentials in rat cortex. In G. Calvert, C. Spence and B. Stein (eds.), *Handbook of Multisensory Integration*, Boston, MIT Press, 2004, pp. 357-370.

78. ***Staba, R.J., *Ard, T., *Benison, A. and Barth, D.S. Intracortical pathways mediate nonlinear fast oscillation (>200 Hz) interactions within rat barrel cortex. *J. Neurophysiol.*, 2005, 93:2934-2939.

79. *Menzel, R.R. and Barth, D.S. Multisensory and secondary somatosensory cortex in the rat. *Cerebral Cortex,* 2005, 15:1676-1689.

80. *Benison, A.M, *Ard, T.D., *Crosby, A.M. and Barth, D.S. Temporal patterns of field potentials in vibrissa/barrel cortex reveal stimulus orientation and shape. *J. Neurophysiol.*, 2006, 95:2242-2251.

81. **Rodgers, K.M., **Benison, A.M. and Barth, D.S. Two dimensional coincidence detection in the vibrissa/barrel field. *J. Neurophysiol.,* 2006, 96:1981-1990.

82. **Benison, A.M., Rector, D.M. and Barth, D.S. Hemispheric mapping of secondary somatosensory cortex in the rat. *J. Neurophysiol.,* 2007, 97:200-7.

83. **Rodgers, K.M., **Benison, A.M., *Klein, A. and Barth, D.S. Auditory, somatosensory, and multisensory insular cortex of the rat. *Cerebral Cortex*, 2008, 18(12): 2941-2951.

84. Christianson, J.P., **Benison, A.M., Jennings, J., *Sandsmark, E.K., Amat, J., Kaufman, R.D., **Baratta, M.V., Paul., E.D., Campeau, S., Watkins, L.R., Barth D.S., & Maier, S.F. The sensory insular cortex mediates the stress-buffering effects of safety signals but not behavioral control. *J. Neurosci., 2008, 28(50):13703-13711*.

85. **Rodgers, K.M., ***Hutchinson, M.R., **Northcutt, A., Maier, S.F., Watkins, L.R. and Barth, D.S. The cortical innate immune response increases local neuronal excitability leading to seizures. *Brain, 2009, 132:2478-86.*

86. **Benison, A.M., *Chumachenko, S., Harrison, J.A., Maier, S.F., Falci, S.P., Watkins, L.R. and Barth, D.S. Caudal granular insular cortex is sufficient and necessary for the long-

term maintenance of allodynic behavior in the rat due to mononeuropathy. *J. Neurosci., 2011, 31:6317-28.*

87. ***Christianson, J.P., Jennings, J.H., Ragole, T., Flyer, J.G.N., **Benison. A.M., Barth, D.S., Watkins, L.R., and Maier, S.F. Safety signals mitigate the consequences of uncontrollable stress via a circuit involving the sensory insular cortex and bed nucleus of the stria terminalis. *Biol. Psychiatry, 2011, 70: 458-464.*

88. ***Rodgers, K.M., *Bercum, F.M., *McCallum, D.L., Rudy, J.W., Frey, L.C., Johnson, K.W., Watkins, L.R. and Barth, D.S. Acute neuroimmune modulation attenuates the development of anxiety-like freezing behavior in an animal model of traumatic brain injury. *J. Neurotrauma, 2012, 29:1886-1897.*

89. ***Rodgers, K.M., *Deming, Y.K., **Bercum, F.M., *Chumachenko, S.Y., ***Wieseler, J.L., Johnson, K.W., Watkins, L.R. and Barth, D.S. Reversal of established traumatic brain injury-induced, anxiety-like behavior in rats after delayed, post-injury neuroimmune suppression. *J. Neurotrauma. 2014 Mar 1;31(5):487–97.*

90. ***Grace P.M., Ramos, K.M., ***Rodgers K.M., Wang X., Hutchinson M.R., Lewis M.T., Morgan K.N., Kroll J.L., Taylor F.R., Strand K.A., Zhang Y., Berkelhammer D., Huey M.G., Greene L.I., Cochran T.A., Yin H., Barth D.S., Johnson K.W., Rice K., Maier S.F., Watkins L.R. Activation of adult rat CNS endothelial cells by opioid-induced toll-like receptor 4 (TLR4) signaling induces proinflammatory, biochemical, morphological, and behavioral sequelae. *Neuroscience, 2014, 7:280-299.*

90. ***Alem, O., ***Benison, A.M., Barth, D.S., Kitching, J. and Knappe, S. Magnetoencephalography of epilepsy with a microfabricated atomic magnetrode. *J. Neurosci. 2014, 34(43):14324-14327.*

91. ***Rodgers, K.M., Dudek, F.E. and Barth, D.S. Progressive, seizure-like, spike-wave discharges are common in both injured and uninjured Sprague-Dawley rats: Implications for the fluid percussion injury model of post-traumatic epilepsy. *J. Neurosci. 2015, 35(24):9194-9204.*

92. **Bercum, F.M, ***Rodgers, K.M., ***Benison, A.M., **Smith, Z.Z., *Taylor, J.A., *Kornreich, E., ***Grabenstatter, H.L., Dudek, F.E. and Barth, D.S. Maternal stress combined with terbutaline leads to comorbid autistic-like behavior and epilepsy in a rat model**.** *J. Neurosci. 2015, 35(48): 15894-15902.*

93. *Taylor, J.A., ***Rodgers, K.M., **Bercum, F.M, Booth, C.J., Dudek, F.E. and Barth, D.S. Voluntary Control of Epileptiform Spike–Wave Discharges in Awake Rats**.** *J. Neurosci. 2017, 37(24): 5861-5869.*

94. **Smith, Z.Z., ***Benison, A.M., **Bercum, F.M., Dudek, F.E. and Barth, D.S. Progression of convulsive and nonconvulsive seizures during epileptogenesis after pilocarpine-induced status epilepticus**.** *J. Neurophysiol. 2018, 119(5): 1818-1835.*

95. *Taylor, J.A., Reuter, J.D, *Kubiak, R.A., Mufford, T.T., Booth, C.J., Dudek, F.E. and Barth, D.S. Spontaneous Recurrent Absence Seizure-like Events in Wild-Caught Rats. *J. Neurosci. 2019, 39(24): 4829-4841.*

96. **Smith, Z.Z., *Kubiak, R.A., **Arnold, M.R., **Loupy, K.M., *Taylor, J.A., ***Crist, T.G., *Bernier, A.E., **D'Angelo, H.M., **Heinze, J.D. Lowry, C.A. and Barth, D.S. Effects of immunization with heat-killed *Mycobacterium vacca*e on autism spectrum

disorder-like behavior and epileptogenesis in a rat model of comorbid autism and epilepsy. *Brain, Behavior, and Immunity. 2020, 763-780.*

97. *Tatum, S., **Smith, Z.Z., *Taylor, J.A., Poulson, D.J., Dudek, F.E. and Barth, D.S. Sensitivity of Uni- vs Bilateral Spike-Wave Discharges to Ethosuximide and Carbamazepine in the Fluid Percussion Injury Rat Model of Traumatic Brain Injury. *J Neurophysiol. 2021, 125: 2166-2177.*

98. **Taylor, J.A., **Smith, Z.Z. and Barth, D.S. Spike-wave discharges in Sprague–Dawley rats reflect precise intra- and interhemispheric synchronization of somatosensory cortex. *J Neurophysiol. 2022, 1152: 1152-1167.*

Published Articles

1. Barth, D.S. Cerebrospinal fluid. In *The World Book Encyclopedia,* Chicago: World Book Inc., 1988, 3: 363.

2. Barth, D.S. Electroencephalograph. In *The World Book Encyclopedia,* Chicago: World Book Inc., 1988, 6: 198.

3. Barth, D.S. Neuralgia. In *The World Book Encyclopedia,* Chicago: World Book Inc., 1988, 14: 152.

4. Barth, D.S. Neuritis. In *The World Book Encyclopedia,* Chicago: World Book Inc., 1988, 14: 152.

5. Barth, D.S. Palsy. In *The World Book Encyclopedia,* Chicago: World Book Inc., 1988, 15: 112.

6. Barth, D.S. Reflex action. In *The World Book Encyclopedia,* Chicago: World Book Inc., 1988, 16: 197.

Published Abstracts

1. Barth, D.S. & Beatty, J. Spectral signatures of cognitive activity: Mapping of EEG changes correlated with task difficulty and pupillometric response. *Society for Neuroscience Abstracts*, 1981, 7.

2. Barth, D.S., Richer, F. & Beatty, J. Spatial distribution of components within the visually evoked magnetic field. *Psychophysiology*, 1982, 19.

3. Barth, D.S., Sutherling, W., Beatty, J. & Engel, J. Jr. Neuromagnetic localization of interictal discharge in partial complex epilepsy. *Society for Neuroscience Abstracts*, 1982, 8.

4. Richer, F., Barth, D.S. & Beatty, J. Neuromagnetic localization of two transient components of the visual evoked response. *Society for Neuroscience Abstracts*, 1982, 8.

5. Sutherling, W., Barth, D.S., Engel, J. Jr. & Beatty, J. Precise localization in focal epilepsy by neuromagnetic techniques (magnetoencephalography). *Neurology*, 1983, 33.

6. Barth, D.S., Sutherling, W., Engel, J. Jr. & Beatty, J. Cortical spread patterns of the interictal spike complex in humans are revealed by magnetoencephalography (MEG). *Society for*

Neuroscience Abstracts, 1983, 9(1).

7. Barth, D.S. Neuromagnetic assessment of animal models for focal epilepsy. *Annals of Biomed. Eng.*, 1986, 14: 84.

8. Barth, D.S., Sutherling, W. & Beatty, J. Magnetic fields of a dipolar current source in a sphere and a human cranium. *Physics in Medicine & Biology*, 1987, 32: 145.

9. Sutherling, W. & Barth, D.S. Multichannel magnetic recording of single epileptic spikes shows spatially restricted dipolar patterns. *Epilepsia*, 1986, 27: 643.

10. Sutherling, W. & Barth, D.S. Selective EEG electrode triggering of averaged magnetic data reduces the constraints of the inverse problem of neuromagnetic localization: A principle of relativity in the nervous system due to finite conduction delays. *Physics in Medicine & Biology*, 1987, 32: 143.

11. Sutherling, W., Baumgartner, C., LeVesque, M., Crandall, P. & Barth, D.S. Detection of MEG spikes in complex partial epilepsy: Necessary Conditions on Simultaneous cortical recordings. *Epilepsia*, 1988, 29: 656.

12. Sutherling, W., Risinger, M., Darcey, T., LeVesque, M., Crandall, P. & Barth, D.S. Cortical confirmation of MEG and EEG prediction of frontal lobe seizure localization. *Epilepsia*, 1988, 29: 663.

13. Baumgartner, C., Di, S., Sutherling, W. & Barth, D.S. Spatiotemporal neuromagnetic analysis of the human epileptic spike complex. *Epilepsia*, 1988, 29: 672.

14. Barth, D.S., Di, S. & Baumgartner, C. Laminar interactions during evoked penicillin spikes in rat cortex. *Epilepsia*, 1988, 29: 700.

15. Sutherling, W., Risinger, M., LeVesque, M., Crandall, P., Darcey, T. & Barth, D.S. Cortical seizure onsets show tangential dipolar patterns in frontal lobe epilepsy. *Epilepsia*, 1988, 29: 702.

16. Di, S., Baumgartner, C. & Barth, D.S. Neurogenesis of magnetoencephalogram in epilepsy. *Epilepsia*, 1988, 29: 711.

17. Barth, D.S., Di, S. & Baumgartner, C. Principle component analysis of laminar currents produced by penicillin spikes in rat cortex. *Society for Neuroscience Abstracts*, 1988, 14: 6.

18. Baumgartner, C., Di, S., Sutherling, W. & Barth, D.S. Mathematical Modelling of the human epileptic spike complex in magnetoencephalogram. *Society for Neuroscience Abstracts*, 1988, 14: 252.

19. Di, S., Baumgartner, C. & Barth, D.S. Neurobiological bases of epilepsy in magnetoencephalogram. *Society for Neuroscience Abstracts*, 1988, 14: 252.

20. Di, S., Baumgartner, C. & Barth, D.S. Laminar interactions in rat vibrissa/barrel cortex.*Society for Neuroscience Abstracts*, 1989, 15: 312.

21. Barth, D.S., Baumgartner, C. & Di, S. Laminar interactions in rat motor cortex during cyclically occurring seizure bursts. *Society for Neuroscience Abstracts*, 1989, 15: 339.

22. Barth, D.S., Baumgartner, C. & Sutherling, W.W. Neuromagnetic analysis of multiple

interictal foci in human neocortex. *Epilepsia*, 1989, 30(5): 664.

23. Baumgartner, C., Barth, D.S., Levesque, M., Crandall, P. & Sutherling, W.W. Detection sensitivity of spontaneous magnetoencephalography spike recordings in frontal lobe epilepsy. *Epilepsia*, 1989, 30(5): 665.

24. Sutherling, W.W., Baumgartner, C., Levesque, M., Crandall, P. & Barth, D.S. Noninvasive estimates of the size of the human temporal lobe interictal spike focus by magnetoencephalography and EEG. *Epilepsia*, 1989, 30(5): 665.

25. Di, S., Baumgartner, C. & Barth, D.S. Interlaminar study of ictal and interictal activities of the penicillin focus in rat neocortex. *Epilepsia*, 1989, 30(5): 707.

26. Barth, D.S. & Di, S. Neurogenesis of epileptiform magnetic fields in rat neocortex. *Epilepsia*, 1990, 31(5): 622.

27. Baumgartner, C., Barth, D.S., Levesque, M. & Sutherling, W.W. Functional anatomy of frontal lobe seizures as investigated on ECoG and MEG. *Epilepsia*, 1990, 31(5): 679.

28. Nakasato, N., Barth, D.S. & Sutherling, W.W. Quantification of the spike zone in temporal lobe complex partial epilepsy using multichannel magnetoencephalography. *Epilepsia*, 1990, 31(5): 689.

29. Nakasato, N., Muresan, L., Barth, D.S. & Sutherling, W.W. MEG and EEG spike mapping and dipole localization in temporal lobe complex partial epilepsy. *Epilepsia*, 1990, 31(5): 689.

30. Nakasato, N., Barth, D.S., Baumgartner, C. & Sutherling, W.W. Spike distribution in EEG and Magnetoencephalography to quantify the epileptic zone. *Epilepsia*, 1991, *3*2(3): 22.

31. Barth, D.S. & Di, S.. Topographical potential analysis of the interictal to ictal transition in the penicillin focus. *Epilepsia*, 1991, 32(3): 46.

32. Kithas, J.A., Di, S. & Barth, D.S. The functional anatomy of middle latency auditory evoked potentials. *Society for Neuroscience Abstracts*, 1991, 17: 450.

33. Di, S. & Barth, D.S. The electrophysiological basis of epileptiform magnetic fields in neocortex: Spontaneous ictal phenomena. *Society for Neuroscience Abstracts*, 1991, 17: 1606.

34. Di, S., Kithas, J. & Barth, D.S. The anatomical organization of somatosensory evoked potentials in rat cortex. Barrels V: Proceedings of a Satellite Symposium of the 1992 Society for Neuroscience Meeting, *Somatosensory and Motor Research*, 1992.

35. Kithas, J.A., Di, S. & Barth, D.S. Epicortical potentials evoked in granular and perigranular somatosensory cortex of the rat by contralateral electrical stimulation. *Society for Neuroscience Abstracts*, 1992, 18: 748.

36. Di, S. & Barth D.S. The functional anatomy of middle latency auditory evoked potenials: thalamocortical connections. *Society for Neuroscience Abstracts*, 1992, 18: 1195.

37. Di, S. & Barth D.S. Binaural versus monaural auditory evoked potentials in rat neocortex. *Society for Neuroscience Abstracts*, 1993, 19: 1431.

38. Brett, B., Di, S., Rudy, J. & Barth D.S. Anatomical organization of auditory evoked potentials in the rat: An HRP study. *Society for Neuroscience Abstracts*, 1993, 19: 1437.

39. Barth, D.S., Brett, B. & Di, S. Polysensory evoked potentials in rat parietotemporal cortex: Combined auditory and somatosensory responses. *Society for Neuroscience Abstracts*, 1993, 19: 1785.

40. Barth, D.S. Animal Neuromagnetometry. Technical Workshop: Magnetoencephalography, *17th Annual Meeting of the European Neuroscience Association Proceedings*, 1994, 5-11.

41. Barth, D.S. & Franowicz, M.N. A comparison of evoked potentials and high frequency (gamma-band) oscillating potentials in rat auditory cortex. *Society for Neuroscience Abstracts*, 1995, 21: 1178.

42. Brett, B. & Barth, D.S. A comparison of laminar evoked potentials, Steady =-state (40 Hz) evoked potentials, and high frequency (gamma-band) oscillating potentials in rat auditory cortex. *Society for Neuroscience Abstracts*, 1995, 21: 1179.

43. Barth, D.S. & MacDonald, K.D. Thalamic modulation of high frequency (gamma-band) oscillating potentials in rat auditory cortex. *Society for Neuroscience Abstracts*, 1996, 22: 906.

44. Brett, B. & Barth, D.S. The effect of subcortical lesions on evoked potentials and spontaneous high frequency (gamma-band) oscillating potentials in rat auditory cortex. *Society for Neuroscience Abstracts*, 1996, 22: 1066.

45. Jones, M.S. & Barth, D.S. Sensory-evoked high frequency (gamma-band) oscillating potentials in somatosensory cortex of the unanesthetized rat. *Society for Neuroscience Abstracts*, 1997, 23: 1010.

46. Brett, B. & Barth, D.S. Subcortical modulation od high frequency (gamma-band) oscillating potentials in auditory cortex. *Society for Neuroscience Abstracts*, 1997, 23: 1306.

47. Barth, D.S. & Sukov, W. Three dimensional analysis of spontaneous and thalamically evoked gamma oscillations in auditory cortex. *Society for Neuroscience Abstracts*, 1998, 24: 1164.

48. Jones, M.S. & Barth, D.S. Fast (>200 Hz) electrical oscillations in rat somatosensory cortex. *Society for Neuroscience Abstracts*, 1999, 25: 1167.

49. Brett-Green, B., Walsh, K. & Barth, D.S. Polysensory cortex in the rat: field potential mapping and intracellular recording. *Society for Neuroscience Abstracts*, 2000, 26: 1976.

50. Jones, M.S. & Barth, D.S. Effects of bicuculline methiodide on fast (>200 Hz) electrical oscillations in rat somatosensory cortex. *Society for Neuroscience Abstracts*, 2001, 27.

51. Brett-Green, B., Fifkova, E. & Barth, D.S. Electrophysiological mapping and anatomical localization of secondary somatosensory cortex in the rat: comparison to multimodal zones. *Society for Neuroscience Abstracts*, 2001, 27.

52. Brett-Green, B., Paulsen, M., Fifkova, E. & Barth, D.S. A comparison of the somatotopic organization in the secondary somatosensory and multisensory cortex of the rat. *Society for Neuroscience Abstracts*, 2002, 28.

53. Barth, D.S. Sub-millisecond Interactions of Fast Oscillations (>200 Hz) in Somatosensory

Cortex: Multiple Unit Analysis. *Society for Neuroscience Abstracts*, 2002, 28.

54. Staba RJ, Bergmann P, & Barth DS. 2003. Laminar analysis of fast (>200Hz) and slow field potentials in rodent barrel cortex. Program No. 59.18. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience

55. Barth, D.S. A new clock speed for neural computation: Submillisecond synchronization of fast electrical oscillations in neocortex. *Proc. 14th Int. Conference on Biomagnetism*, 2004.

56. Staba RJ, Ard TA, Benison MA, Barth DS. 2004. Nonlinear summation of whisker evoked fast oscillations are mediated by intracortical networks within rodent barrel cortex. Program No. 640.14. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

57. Barth DS & Menzel RR. 2004. Distinct uni- and multisensory regions of secondary somatosensory cortex in the rat. Program No. 177.8. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

58. Barth DS & Benison A. 2005. Pattern recognition in whisker/barrel cortex. Program No. 395.11. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

59. Rodgers, K.M., Benison, A.M. and Barth, D.S. 2006. Two dimensional coincidence detection in the vibrissa/barrel field. Program No. 145.3. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

60. Ramírez-Vélez M., Staba R. Barth D.S., Meyer F.G. "Nonlinear Classification of EEG data for seizure detection", Proc. IEEE International Symposium on Biomedical Imaging: Macro to Nano, pp. 956-959, 2006.

61. Benison A.M., Klein, A. & Barth, D.S. 2007. Redefining efferent and afferent connections of second somatosensory cortex in the rat. Program No. 402.10. *Abstract Viewer/Itinerary Planner.* San Diego, CA: Society for Neuroscience.

62. Benison, A.M., Rodgers, K.M., Sandsmark, E.K. and Barth, D.S. 2008. Parallel and preferential connections of the dorsal columnar spinal tract with primary somotosensory cortex and the spinothalamic tract with insular cortex in the rat. Program No. 69.2. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

63. Rodgers, K.M., Benison, A.M., Klien, A. and Barth, D.S. 2008. Auditory, somatosensory, and multisensory insular cortex in the rat. Program No. 162.15. *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

64. Jennings, J.H., Christianson, J.P., Benison, A.M., Barth, D.S., Watkins, L.R. and Maier, S.F. 2009, Saftey signals mitigate the consequences of uncontrollable stress via a circuit involving the sensory insular cortex. Program No. 62.8, *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

65. Rodgers, K.M., Hutchinson, M.R., Northcutt, A., Maier, S.F., Watkins, L.R. and Barth, D.S. 2009. The cortical innate immune response increases local neuronal excitability leading to seizures. Program No. 538.5, *Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience.

66. Lewis, S.S., Benison, A.M., Campeau, S., Barth, D.S., Maier, S.F. and Watkins, L.R. 2009. Constriction of the facial nerve leads to increased ensitivity to somatosensory and auditory stimuli: Characterization of an inflammatory and glial component. Program No. 561.4,

Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience.

67. Benison, A.M., Harrison, J.A., Watkins, L.R and Barth, D.S. 2009. Insular modulation of neuropathic pain. Program No. 855.8, *Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience.

68. Wieseler, J.L., Stone, K.N., Rodgers, K., McFadden, A., Maier, S.F., Barth, D.S., Watkins, L.R. 2012. Modeling post-traumatic headache: lateral fluid percussion injury and facial allodynia. Program No. ?, New Orleans, LA: Society for Neuroscience.

69. Rodgers, K.M., Bercum, F., Johnson, K., Watkins, L., Barth, D.S. 2012. Glial modulation with Ibudilast (MN166) attenuates neuroinflammation and autistic-like behaviors in the Terbutaline model of autism spectrum disorder (ASD) in rats. Program No. 443, New Orleans, LA: Society for Neuroscience.

70. Francois G. Meyer, Alexander M. Benison, Zachariah Smith**,** Daniel S. Barth**.** *Decoding Epileptogenesis in a Reduced State Space.* 2016 IEEE International Conference on Machine Learning and Applications. 978-1-5090-6167-9/16.

71. Benison, AM, Rodgers, KM, Bercum, FM, Smith, ZZ and Barth, DS. Hippocampal auditory evoked potentials in conjunction with continuous long-term video-EEG monitoring reveals novel biomarkers for epileptogenesis in the lithium-pilocarpine model of epilepsy in rats. SFN, 2013.

72. Rodgers, KM, Dudek, FE and Barth, DS. Pattern recognition quantification of spike-and-wave discharge in normal and brain injured Sprague-Dawley rats. SFN, 2014.

73. Benison, AM, Alem, O, Knappe, S, Kitching, J and Barth, DS. A micro-fabricated atomic magnetometer for magnetoencephalography of epilepsy. SFN, 2014.

74. Barth, DS, Dudek, FE and Rodgers, K. Pattern recognition and quantification of spike-and-wave discharge in normal and brain-injured sprague-dawley rats. AES, 2014.

75. Dudek, FE, Rodgers, K, Pouliot, W, Kadam, S, Bertram, E and Barth, DS. Comparison of spike-wave discharges and other oscillatory activity in normal animals with spontaneous recurrent seizures across several animal models of acquired epilepsy. AES, 2014.

76. Bercum, FM, Rodgers, KM, Benison, AM, Smith, ZZ, Taylor, J, Kornreich, E and Barth, DS. Prenatal environmental factors alone can induce autism and epilepsy in a rat model. SFN, 2015.

77. Smith, ZZ, Benison, AM, Rodgers, KM, Bercum, FM, Dudek, FE and Barth, DS. Archetypal early and late excitability changes during epileptogenesis revealed by sensory evoked and spontaneous field potentials in hippocampus. SFN, 2015.

78. Smith, ZZ, Dudek, FE and Barth DS. Telemetric analysis of the dentate gyrus using the lithium/pilocarpine model of acquired epilepsy provides evidence for the progressive nature of epileptogenesis. SFN, 2016.

79. Smith, DS, Dexter, DL, Barth, DS and Grabbenstatter, HL. Indicators of SUDEP risk in a rat model of chronic acquired epilepsy. AES, 2016.

80. Barth, DS, Rodgers, K and Dudek, FE. Spike-wave-discharges (SWDs) do not reflect absence epilepsy in healthy awake behaving rats: Awareness and voluntary control of epileptiform

SWDs. AES, 2016.

81. Grabenstatter, HL, Cruz Del Angel, Y, Brooks-Kayal, A. and Barth, DS. Effect of FK506 on the temporal progression of pilocarpine-induced epileptogenesis. AES, 2016.

82. Grabbenstatter, H and Barth, D.S. Characterization of Heart Rate Variability and ECG Rhythm Alterations in the Pilocarpine Rat Model of Acquired Temporal Lobe Epilepsy. 2018 AES.

83. Barth, DS, Taylor, JA, Reuter, JD and Dudek, FE. Spontaneous Recurrent Absence Seizure-like Oscillations in Wild-Caught Rats. 2018, AES.

84. Smith, ZZ, Kubiak, RA, Crist, T. Lowry, CA and Barth, DS. Immunization with mycobacterium vaccae prevents asd-like behavioral outcomes but not epileptogenesis in the stress-terbutaline model of epilepsy. SFN, 2018.

85. Tatum, SM, Smith, ZZ, Bernier, A, Poulsen, D, Barth, DS. Validity of post traumatic epilepsy outcome following lateral fluid percussion injury. SFN, 2018.

86. Barth, DS, Tatum, S, Smith, ZZ, Poulsen, DJ and Dudek, FE. Pharmacosensitivity of Focal versus Generalized Spike-Wave Discharges in the Fluid Percussion Injury Rat Model of Post-traumatic Epilepsy. AES, 2019.

Invited Lectures

1. Barth, D.S. Neuromagnetic localization of interictal spikes. U.C.L.A., Neurosurgical Grand Rounds, Los Angeles, 1983.

2. Barth, D.S., Sutherling, W., Engel, J. Jr. & Beatty, J. Magnetoencephalography (MEG) reveals multiple sources underlying the interictal spike in partial complex epilepsy. Presented at the 15th Epilepsy International Symposium, Washington, D.C., September 26, 1983.

3. Barth, D.S. Neuromagnetic investigation of intracellular currents produced by normal and pathological brain activity. Tufts University, Medford, MA, 1986.

4. Barth, D.S. Extracranial magnetic field mapping provides new insights into the functional organization of intracellular currents in the human brain. New York University, New York, NY, 1986.

5. Barth, D.S. Magnetic measurements of epilepsy in animal and man. The New York Academy of Science, New York, NY, 1986.

6. Barth, D.S. Magnetic localization of a current source in the human cranium. Presented at the Conference on Magnetoencephalography and Cognitive Processing for Polygraphy. Washington, D.C., 1986.

7. Barth, D.S. Neuromagnetic localization of epileptiform activity in animal and man. Life Sciences Seminar. Los Alamos National Laboratories, Los Alamos, N.M., 1987.

8. Barth, D.S. Three dimensional analysis of evoked potentials in rat neocortex: Some basic neurocircuits of sensory information processing. Department of Psychology Colloquium Series, University of Colorado at Boulder, Boulder, CO 1989.

9. Barth, D.S. Functional anatomy of sensory evoked potentials in rat parietal cortex. Grand Rounds, Department of Neurology and Neurosurgery, Henry Ford Hospital, Detroit, MI 1993.

10. Barth, D.S. MEG in epilepsy: Historical perspective. National Biomagnetism Conference, Detroit, Michigan, April, 1994.

11. Barth, D.S. Animal Neuromagnetometry. Technical Workshop: Magnetoencephalography, 17th Annual Meeting of the European Neuroscience Association, Vienna, Austria, September 4-8, 1994.

12. Barth, D.S. A comparison of evoked potentials and high frequency (gamma band) oscillating potentials in rat somatosensory cortex. BARRELS Satellite Symposium of the Annual Meeting of the Society for Neuroscience, Miami, November, 1994.

13. Barth, D.S. Fast oscillations in somatosensory cortex. Department of Molecular and Cellular Biology, University of California at Berkeley, Berkeley, CA, 1999.

14. Barth, D.S. A role for inhibition in the modulation of fast (40 Hz) oscillations in auditory cortex. International Symposium by the Finnish Graduate School of Neurobiology on Inhibition in the Brain, Helsinki, Finland, 1999.

15. Barth, D.S. Fast electrical oscillations in sensory cortex. Molecular, Cellular and Integrative Neurosciences, Department of Anatomy and Neurobiology, Colorado State University, Fort Collins, CO, 2001.

16. Barth, D.S. Very fast oscillations in sensory cortex. Symposium on Cooperative Dynamics of Neocortex, sponsored by the Center for Computational Biology, Montana State University, Bozeman, Montana, 2001.

17. Barth, D.S. Three dimensional analysis of extra- and intracellular current in the barrel field. Whisker Workshop sponsored jointly by the Massachusetts General Hospital Department of Neuroimaging and Harvard Department of Neurobiology, 2001.

18. Barth, D.S. Fast electrical oscillations recorded in rat cortex. 14th Conference of the International Society for Brain Electromagnetic Topography, Santa Fe, New Mexico, 2003.

19. Barth, D.S. A new clock speed for neural computation: Submillisecond synchronization of fast electrical oscillations in neocortex. Neural and Behavioral Science Seminar Series, SUNY Downstate Medical Center, Brooklyn, New York, 2004.

20. Barth, D.S. A new clock speed for neural computation: Submillisecond synchronization of fast electrical oscillations in neocortex. 14th International Conference on Biomagnetism, Boston, 2004.

21. Barth, D.S. A new clock speed for neural computation: Submillisecond synchronization of fast electrical oscillations in neocortex. Louisiana State University Health Sciences Center, Dept. Neurosurgery Grand Rounds, Shreveport, 2004.

22. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. Wake Forest University Medical School, Dept. Neurobiology and Anatomy, Winston-Salem, 2004.

23. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. Washington State University, Dept. VCAPP, Pullman, 2004.

24. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. University of Colorado Health Sciences Center, Dept. Physiology and Biophysics, Aurora, 2005.

25. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. McGill University, Montreal, Quebec, 2005.

26. Barth, D.S. Fast oscillations and two dimensional coincidence detection in somatosensory cortex. Mind and Brain V: Physics and the Brain, Dubrovnik, Croatia, 2006.

27. Barth, D.S. Fast and slow spatiotemporal interactions evoked by multi-whisker contact: Is barrel cortex a two dimensional coincidence detector? Barrels XIX, Morehouse School of Medicine, Atlanta, GA, 2006.

28. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. MIND Institute, Albuquerque, NM 2006.

29. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. Los Alamos National Laboratories, Los Alamos, NM 2006.

30. Barth, D.S. Fast electrical oscillations in somatosensory cortex: feature binding, modulation, and a new clock speed for neural computation. Dept. Psychology, University of New Mexico, Albuquerque, NM 2006.

31. Barth, D.S. Innate immunity, hyperexcitability, and epilepsy in autism spectrum disorder. Autism One, Chicago, IL 2010.

32. Barth. D.S. Five long years of Spike-Wave discharge in rat EEG. Investigators workshop. American Epilepsy Society, New Orleans, 2018.

33. Barth, D.S. What is a Seizure? International League Against Epilepsy Workshop on the Neurobiology of Epilepsy., Thailand, 2019.