

Curriculum Vitae

HAL BLUMENFELD, MD, PhD

Departments of Neurology, Neurobiology, and Neurosurgery
Yale University School of Medicine, New Haven, CT 06520-8018
Tel (203) 785-3928 Fax (203) 737-2538
email: hal.blumenfeld@yale.edu <http://myprofile.cos.com/halblumenfeld>

TITLE AND ACADEMIC APPOINTMENT:

Associate Professor, Departments of Neurology, Neurobiology, and Neurosurgery
Director of Medical Studies, Clinical Neurosciences
Yale University School of Medicine

EDUCATION:

Harvard University - B.A. *cum laude*, Bioelectrical engineering, 1984.
Columbia University - M.A., Physiology and Cellular Biophysics, 1988.
Ph.D., Physiology and Cellular Biophysics, 1990.
M.D. 1992.

CLINICAL EXPERIENCE AND BOARD CERTIFICATIONS:

1992-93 Internal Medicine Intern, Columbia Presbyterian Medical Center, NY
1993-96 Neurology Resident, Massachusetts General Hospital, Boston, MA
1996-98 Epilepsy Fellow, Yale University School of Medicine, CT
1998 Board Certification by American Board of Psychiatry and Neurology
2001 Board Certification by American Board of Clinical Neurophysiology
1998- Attending on Yale Epilepsy Service

RESEARCH EXPERIENCE:

1982-83 Neurophysiology Research Assistant, Mount Sinai Medical Center, NY
Laboratory of Bernard Cohen, MD
1984-90 Doctoral Thesis - "Modulation of Intracellular Calcium in *Aplysia* Sensory
Neurons." Columbia University College of Physicians and Surgeons, NY,
Laboratory of Steven Siegelbaum, PhD and Eric Kandel, MD.
1998-00 Associate Research Scientist, Yale Departments of Neurobiology and Neurology
Laboratory of David McCormick, PhD
2000-06 Assistant Professor, Yale Departments of Neurology and Neurobiology
2003-06 Assistant Professor, Yale Department of Neurosurgery (joint appointment)
7/1/2006- Associate Professor, Yale Departments of Neurology, Neurobiology, Neurosurgery

ACADEMIC HONORS AND AWARDS:

1983-84 John Harvard Scholarship - Highest Academic Honors
1984-92 Medical Scientist Training Program Fellowship
1990 Dean's Day Award for Medical Student Research
1992 Lamport Award for Biomedical Research
1992 Alpha Omega Alpha - Medical School Honors Society
1996 Top Scholar Fellow, Ortho-McNeil
1998-01 Howard Hughes Medical Institute Fellowship. Awarded; replaced by other grants.
1998-01 Pfizer Fellowship
1998-03 NIH, Research Career Award (K08)
1999 American Epilepsy Society, Young Investigator Award
2000-02 Charles A. Dana Foundation, Clinical Hypotheses in Neuroscience Award
2000 NIH Curing Epilepsy-Focus on the Future, Junior Investigator Travel Fellowship

- 2000 American Epilepsy Society, Presidential Symposium Speaker
- 2000-01 Epilepsy Foundation of America, Junior Investigator Award
- 2002-04 Patterson Trust, Research Grant
- 2004-08 NIH R01 "Neuronal firing and neuroimaging in spike-wave seizures"
- 2005 Blattmachr Fund, Research Grant
- 2005 American Neurological Association, John N. Whitaker Visiting Professorship
- 2005 American Academy of Neurology, Dreifuss-Perry Epilepsy Research Award
- 2006-10 NIH R01 "Functional neuroimaging in childhood absence epilepsy"

INVITED SYMPOSIA OR GRAND ROUNDS:

- 2000 Yale University, Neurology Grand Rounds. New Haven, CT. "Consciousness and Seizures: Why are Patients With Absence Absent?"
- 2000 American Epilepsy Society Presidential Symposium. Los Angeles, CA. "The Neuronal Network of Generalized Epilepsies."
- 2001 Yale University, Seminar Series in Bioimaging Sciences. New Haven, CT. "Network Inhibition Hypothesis for Loss of Consciousness During Seizures."
- 2001 Harvard University, Brigham and Women's Neurosurgery Grand Rounds. Boston, MA. "Are Generalized Seizures Truly Generalized?"
- 2001 Columbia University, Biology and Neurobiology Dept. Seminar. New York, NY. "Why Do Seizures Cause Loss of Consciousness?"
- 2002 Yale University, Club Neurobiology. New Haven, CT. "Why Do Seizures Cause Loss of Consciousness?"
- 2002 Yale University, Psychiatry Department Seminar. New Haven, CT. "Seizures, Memory, Mood and Consciousness."
- 2002 Yale University, Neurology Grand Rounds. New Haven, CT. "Idiopathic Generalized Epilepsies Revisited: Pathophysiology, Genetics, and Treatment."
- 2002 Society for Neurosciences Symposium. Miami, FL. "Heterogeneous Expression of Molecules and Thalamocortical Network Activity in Generalized Seizures."
- 2002 American Epilepsy Society Symposium. Seattle, WA. "Network Mechanism in Primary Generalized Epilepsy."
- 2002 Yale/VA Statistical Parametric Mapping Seminar. West Haven, CT. "Applications of SPM in Ictal-Interictal SPECT Analysis"
- 2002 Queens College, Neuropsychology Dept. Seminar. Queens, NY. "Are 'Generalized' Seizures Truly Generalized?"
- 2003 Association of Convulsive Therapy Symposium. San Francisco, CA. "Ictal imaging in ECT: Lead placement determines focal regions of activation."
- 2003 Spectrum Psychiatric Group, Hamden, CT "Use of Antiepileptic Drugs: A Practical Review"
- 8/13/03 Magnetic Resonance Research Center Seminar. Yale University, New Haven, CT "CBF and Metabolism during Rodent Seizures"
- 3/3/04 Hebrew University School of Medicine, Physiology Dept. Seminar, Jerusalem, Israel. "Thalamocortical interactions during spike-wave seizures investigated through rodent fMRI"
- 3/3/04 Hebrew University School of Medicine, Neurology Dept. Seminar, Jerusalem, Israel. "Sleeping on the job: How bad habits in the temporal lobe rub off on neighboring neocortex."
- 3/10/04 University of Syracuse School of Medicine, Neurology Dept. Grand Rounds, Syracuse, NY. "Sleeping on the job: How bad habits in the temporal lobe rub off on neighboring neocortex."
- 10/14/04 Child Neurology Society Symposium. Ottawa, Ontario. "The Physiology of Generalized Seizures."
- 3/18/05 International Symposium: Epilepsy and Sleep Update at Kempenhaeghe, Heeze,

- Netherlands "From molecules to networks: cortical/subcortical interactions in the pathophysiology of idiopathic generalized epilepsy."
- 4/6/05 West Virginia School of Medicine, Neuroscience Seminar, Morgantown, WV. "Ups and downs of neuronal activity and neuroimaging during seizures."
- 4/20/05 UMDNJ, Robert Wood Johnson Medical School, New Brunswick, NJ. "Epilepsy and consciousness: What makes complex partial seizures complex?"
- 5/25/05 NYU Medical Center, New York, Neurology Dept. Grand Rounds "Networks, Neurons, and Molecules in Seizure Generation."
- 6/10/05 Dartmouth-Hitchcock Medical Center, Neurology Dept. Grand Rounds "Great ExSPECTations: Consciousness, Epilepsy, and Functional Neuroimaging"
- 6/21/05 Society for Nuclear Medicine Symposium, Toronto, Canada "A Window to the Soul: SPECT Imaging of Ictal and Postical Unconsciousness"
- 9/1/05 Yale fMRI Seminar, New Haven, CT "Functional Neuroimaging in Childhood Absence Epilepsy"
- 9/13/05 University of Alabama Dept of Neurology Grand Rounds, Birmingham, AL "Epilepsy and Consciousness: Why Are Patients with Absence Seizures Absent?"
- 9/14/05 University of Alabama, Neurology/Neurosurgery Epilepsy Conference, Birmingham, AL "Why Do Focal Temporal Lobe Seizures Cause Loss of Consciousness?"
- 10/20/05 National Academy of Neuropsychology, 3 hour invited workshop, Tampa, FL "Neuroanatomy through Clinical Cases"
- 11/14/05 Society for Neuroscience Session Chair, Washington, DC "Epilepsy: Animal Models and Human Studies II"
- 11/28/05 Connecticut Neuropsychological Society, Dr. James Tweedy Memorial Lecture, New Haven, CT "Epilepsy and Consciousness"
- 12/3/05 American Epilepsy Society Symposium Chair, Washington, DC "Impaired Consciousness in Epilepsy: Mechanisms and Consequences"
- 12/3/05 American Epilepsy Society Symposium, Washington, DC "Neuroimaging and Loss of Consciousness in Epilepsy"
- 2/17/05 Epileptic Disorders Workshop, Rome, Italy. Discussant on "Generalized seizures : From clinical phenomenology to underlying systems and networks"
- 2/17/05 Epileptic Disorders Workshop, Rome, Italy. Session Chair, "Absence seizures and cortico-thalamic systems"
- 3/7/06 Tel Aviv University and Weill/Cornell Neurology Symposium, Tel Aviv, Israel "Why do seizures cause loss of consciousness?"
- 3/9/06 Massachusetts General Hospital, Neurology Dept. Grand Rounds, Boston, MA "Epilepsy and Consciousness"
- 4/5/06 Albert Einstein School of Medicine, Neuroscience Seminar, New York, NY "Why are Patients with Absence Seizures Absent?"
- 5/3/06 Brown University, Neurology Dept. Grand Rounds, Providence, RI "Epilepsy as a Window to Understanding Consciousness"
- 9/15/06 Yale University, Department of Psychiatry Grand Rounds, New Haven, CT "Epilepsy and Consciousness"
- 10/30/06 Columbia University, Epilepsy Research Seminar, New York "Why do seizures cause loss of consciousness?"
- 3/9/07 Thomas Jefferson University, Neurology Grand Rounds, Philadelphia, PA
- 3/21/07 Yale University, Department of Neurology Grand Rounds, New Haven, CT
- 4/23/07 UC Irvine, Distinguished Speaker, UCI MD/PhD Lecture Series, Irvine, CA "Neurobiology of Consciousness: Networks, Epilepsy, and Brain Function"

TEACHING AND ADMINISTRATION :

- 1984 Teaching Fellow, "Electronic Devices and Circuits," Harvard University, MA
- 1987-92 Neuroanatomy Instructor, Columbia University, NY

- 1991-92 Founder and Organizer, Student-run Columbia Neurosciences Society (C.N.S.), NY
1993-94 Neuroanatomy Instructor, Harvard University, MA
1994-96 Neurobiology Course Director, Harvard University, MA
“Exploring the Mind through Biological Models and Human Disease”
1996-00 Neuroanatomy Instructor, Yale University School of Medicine, CT
1999- Clinical Neuroanatomy Course Director, “Neuroanatomy Case Conferences,”
Yale University School of Medicine, CT
2002- Faculty Director, Yale Student Interest Group in Neurology, AAN
2002- Director of Medical Studies in Clinical Neurosciences, Yale University School of
Medicine, CT
2002-04 Member of Yale Pre-Clinical Student Assessment Working Group
2003- Neurology Residency Application Advisor, Yale University School of Medicine, CT

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

Society for Neuroscience
American Academy of Neurology
American Epilepsy Society
American Clinical Neurophysiology Society

EDITORIAL BOARDS AND GRANT COMMITTEES

Associate editor: *Neuroscience Letters* 1/1/2004 – 12/31/2007
Yale Bioimaging Scholar Awards Committee 10/2005 –

Ad Hoc Reviewer:

PNAS, Journal of Neuroscience, Cerebral Cortex, Brain, Neuroimage, Annals of Neurology, Neurology, Journal of Physiology, Epilepsia, British Journal of Pharmacology, Neuroscience Letters, Journal of Neuroscience Methods, Epilepsy Research, Experimental Neurology, Brain Research, Physiology and Behavior, American Journal of Psychiatry, Archives of General Psychiatry, NeuroReport, United States-Israel Binational Science Foundation, Thrasher Research Fund

PUBLICATIONS:

1. NEUROSCIENCE BOOKS:

Blumenfeld, H., *Neuroanatomy Through Clinical Cases*. (2002). Sinauer Associates, Inc., Publishers. 1-951.

2. MULTI-MEDIA EDUCATIONAL RESOURCES:

Blumenfeld, H., 2000. *neuroexam.com*. An interactive online guide to the neurologic examination, with streaming video demonstrations <http://www.neuroexam.com>

Blumenfeld, H. 2001. *The NeuroExam Video*. Sinauer Associates, Inc., Publishers.
A videotaped demonstration of the neurologic exam.

Blumenfeld, H. 2005. *Ictal-interictal SPECT Analyzed by SPM (ISAS)*. Online guide to SPECT image analysis for epilepsy, with software and normal database. <http://spect.yale.edu/>

Blumenfeld H. 2006. Neurology SPECT & PET – Epilepsy Section. Society of Nuclear

Medicine Continuing Medical Education. <http://www.snm.org/llsap/>

3. PEER-REVIEWED ORIGINAL RESEARCH:

Guffanti, A.A., Blumenfeld, H. and Krulwich, T.A. (1981). ATP synthesis in an uncoupler-resistant mutant of *Bacillus megaterium*. *J. Biol. Chem.* 256, 8416-8421.

Castellucci, V.F., Frost, W., Goelet, P., Montarolo, P.D., Schacher, S., Morgan, J., Blumenfeld, H. and Kandel, E.R. (1987). Cell and molecular analysis of long-term sensitization in *Aplysia*.. In *Regulation et Plasticite Synaptiques*. *J. Physiol. (Paris)* 81, 349-357.

Castellucci, V.F., Blumenfeld, H., Goelet, P. and Kandel, E.R. (1989). Inhibitor of protein synthesis blocks long-term behavioral sensitization in the isolated gill-withdrawal reflex of *Aplysia*. *J. Neurobiol.* 20, 1-9.

Blumenfeld, H., Spira, M.E., Kandel, E.R. and Siegelbaum, S.A. (1990). Facilitatory and inhibitory transmitters modulate calcium influx during action potentials in *Aplysia* sensory neurons. *Neuron* 5, 487-499.

Blumenfeld, H., Zablow, L., Sabatini, B. (1992). Evaluation of cellular mechanisms for modulation of calcium transients using a mathematical model of fura-2 Ca²⁺ imaging in *Aplysia* sensory neurons. *Biophysical J.* 63, 1146-1164.

Eliot, L.S., Kandel, E.R., Siegelbaum, S.A. and Blumenfeld, H. (1993). Imaging terminals of *Aplysia* sensory neurons demonstrates role of enhanced Ca²⁺ influx in presynaptic facilitation. *Nature* 361, 634-637.

Blumenfeld, H., Cha, J.H. and Cudkowicz, M.E. (1996). Trimethoprim and sulfonamide-associated meningoencephalitis with MRI correlates. *Neurology*, 46: 556-558.

Kalkanis, S.N., Blumenfeld, H., Sherman, J.C., Krebs, D.E., Irizarry, M.C., Parker, S.W. and Cosgrove, G.R. (1996). Delayed complications 36 years after hemispherectomy: a case report. *Epilepsia*, 37(8): 758-762.

Shapiro, B.E., Soto, O., Shafqat, S. and Blumenfeld, H. (1997). Adult botulism. *Muscle and Nerve*, 20: 100-102.

Blumenfeld, H., and McCormick, D.A. (2000). Corticothalamic inputs control the pattern of activity generated in thalamocortical networks. *J. Neurosci.* 20(13): 5153-5162.

Chang, D., Zubal, I.G., Gottschalk, C., Necochea, A., Stokking, R., Studholme, C., Corsi, M., Slawski, J., Spencer, S.S., and Blumenfeld, H. (2002). Comparison of Statistical Parametric Mapping and SPECT Difference Imaging in Patients with Temporal Lobe Epilepsy. *Epilepsia.* 43(1): 68-74.

Zaatreh MM, Spencer DD, Thompson JL, Blumenfeld H. Novotny EJ, Mattson RH, Spencer SS. (2002). Frontal lobe tumoral epilepsy: Clinical, neurophysiological features and predictors of surgical outcome. *Epilepsia.* 43(7): 727-733.

Smith AJ, Blumenfeld H. Behar KL, Rothman DL, Shulman RG, Hyder F. (2002). Cerebral energetics and spiking frequency: The neurophysiological basis of fMRI. *Proc Natl Acad Sci, USA.* 99(16):10765-10770.

- Hyder F, Kida I, Smith AJ, Blumenfeld H, Shulman RG, Rothman DL. (2002). Quantitative fMRI of rat brain by multi-modal MRI and MRS measurements. *International Symposium on Brain Activation and CBF Control (Minoru Tomita Ed.)*. *International Congress Series*, 1235: 57-71.
- Motamedi M, Nguyen DK, Zaatreh M, Singh SP, Westerveld M, Thompson JL, Mattson R, Blumenfeld H, Novotny E, Spencer SS. (2003). Levetiracetam efficacy in refractory partial-onset seizures especially after failed epilepsy surgery. *Epilepsia*. 44(2): 211-214.
- Weisman D, Hisama FM, Waxman SG, Blumenfeld H. (2003). Going deep to cut the link: Cortical disconnection syndrome caused by a thalamic lesion. *Neurology*. 60 (11): 1865-66.
- Blumenfeld H, Westerveld, M., Ostroff, R.B., Vanderhill, S.D., Freeman, J., Necochea, A., Uranga, P., Tanhehco, T., Smith, A., Seibyl, J.P., Stokking, R., Studholme, C., Spencer, S.S., Zupal, I.G. (2003). Selective frontal, parietal and temporal networks in generalized seizures. *Neuroimage*, 19: 1556-1566.
- Blumenfeld H, McNally, K.A., Ostroff, R., Zupal, I.G. (2003). Targeted prefrontal cortical activation with bifrontal ECT. *Psychiatry Res: Neuroimaging*. 123 (3): 165-170.
- Klein JP, Khera DS, Nersesyan H, Kimichi EY, Waxman SG, Blumenfeld H. (2004). Dysregulation of sodium channel expression in cortical neurons in a rodent model of absence epilepsy. *Brain Research*, 1000: 102-109.
- Blumenfeld H, McNally KA, Vanderhill SD, Paige AL, Chung R, Davis K, Norden AD, Stokking R, Studholme C, Novotny EJ, Zupal IG, Spencer SS. (2004). Positive and negative network correlations in temporal lobe epilepsy. *Cerebral Cortex*, 14(8): 892-902.
- Nersesyan H, Hyder F, Rothman D, Blumenfeld H. (2004). Dynamic fMRI and EEG recordings during spike-wave seizures and generalized tonic-clonic seizures in WAG/Rij rats. *J Cereb Blood Flow Metab*, 24(6): 589-599.
- Nersesyan H, Herman P, Erdogan E, Hyder F, Blumenfeld H. (2004). Relative changes in cerebral blood flow and neuronal activity in local microdomains during generalized seizures. *J Cereb Blood Flow Metab*, 24(9): 1057-1068.
- Blumenfeld H, Rivera M, McNally KA, Davis K, Spencer DD, Spencer SS. (2004). Ictal neocortical slowing in temporal lobe epilepsy. *Neurology* 63: 1015-1021.
- McNally KA, Paige AL, Varghese G, Zhang H, Novotny EJ, Spencer SS, Zupal IG, Blumenfeld H. (2005). Localizing Value of Ictal-Interictal SPECT Analyzed by SPM (ISAS). *Epilepsia*, 46(9): 1450 –1464.
- Kida I, Smith AJ, Blumenfeld H, Behar KL, Hyder F (2006). Lamotrigine suppresses neurophysiological responses to somatosensory stimulation in the rodent. *Neuroimage*, 29: 216-224.
- Fong TG, Bogardus ST, Daftary A, Auerbach E, Blumenfeld H, Modur S, Leo-Summers L, Seibyl J, Inouye SK. (2006). Cerebral Perfusion Changes in Older Delirious Patients Using 99mTc HMPAO SPECT. *Journal of Gerontology Medical Sciences*, in press.

Enev M, McNally KA, Varghese G, Zubal IG, Ostroff R, Blumenfeld H. (2006). Imaging onset and propagation of ECT-induced seizures. *Epilepsia*, in press.

Blumenfeld H. Rivera M, Vasquez JG, Shah A, Ismail D, Enev M, Zaveri HP. (2006). Neocortical and thalamic spread of amygdala kindled seizures. *Epilepsia*, in press.

Blumenfeld H. Lampert A, Klein JP, Rivera M, Brenan A, Mission J, Chen M, Dib-Haj S, Hains BC, Waxman SG. (2006). Sodium channel upregulation in kindling model of epilepsy. *In preparation*.

Varghese G, Enev M, McNally KA, Levin A, Hirsch L, Tikofsky R, Paige AL, Zubal IG, Spencer SS, Blumenfeld H. (2006). Cortical and subcortical networks in human secondarily generalized tonic-clonic seizures. *In preparation*.

Schridde U, Khubchandani M, Hyder F, Blumenfeld H. (2006). BOLD decreases with neuronal activity increases. *In preparation*.

Zaveri H, Rivera M, Vasquez JG, Pinkus S, Blumenfeld H (2006). Changes in EEG approximate entropy during kindled seizures. *In preparation*.

4. REVIEW ARTICLES AND BOOK CHAPTERS:

Blumenfeld, H. (2002). The thalamus and seizures. *Archives of Neurology*, 59: 135-137.

Norden A, Blumenfeld H. (2002). The Role of Subcortical Structures in Human Epilepsy. *Epilepsy and Behavior*. 3: 219-231.

Blumenfeld, H. (2003). From Molecules to Networks: Cortical/Subcortical Interactions in the Pathophysiology of Idiopathic Generalized Epilepsy. *Epilepsia*. 44(Suppl. 2): 7-15.

Blumenfeld, H., Taylor J. (2003). Why do seizures cause loss of consciousness? *The Neuroscientist*, 9(5) 301-310.

McNally KA, Blumenfeld H. (2004). Focal network involvement in generalized seizures: New insights from ECT. *Epilepsy and Behavior*, 5: 3-12.

Hyder F, Blumenfeld H. (2004). Relationship between CMRO₂ and neuronal activity. In: *Brain Energetics and Neuronal Activity: Applications to fMRI and Medicine*. RG Shulman, DL Rothman (Eds). John Wiley & Sons, Inc. New York, 173-194.

Hope T, Blumenfeld H. (2005). Cellular physiology of status epilepticus. In: *Current Clinical Neurology: Status Epilepticus: A Clinical Perspective*. Ed: Frank W. Drislane. Humana Press Inc., Totowa, NJ. Ch 8: 159-180.

Blumenfeld H (2005). Consciousness and epilepsy: Why are patients with absence seizures absent? *Prog Brain Res* 150: 271-286.

Blumenfeld H (2005). Cellular and network mechanisms of spike-wave seizures. *Epilepsia*, 46(Suppl. 9):21-33.

Blumenfeld H, Novoty EJ. (2006). Pathophysiology of Myoclonus. In: *UCB Kit The UCB Educational Kit on Epilepsies Vol 2 : IGE with Myoclonic Jerks*. Ed: C P Panayiotopoulos.

Blumenfeld H, Coulter DA. (2006). Thalamocortical anatomy and physiology. In: *Epilepsy: A Comprehensive Textbook, 2nd Edition*. Eds: J. Engel, Jr. and T. A. Pedley. Lippincott-Raven Publishers, Philadelphia, PA. Ch 31: In press.

Ransom C, Blumenfeld H. (2006). Acquired epilepsy. In: *Molecular Neurology*. Ed: SG Waxman. Elsevier. In preparation.

5. ABSTRACTS:

Matsuo, V., Buettner-Ennever, J., Cohen, B., Fradin, J. and Blumenfeld, H. (1983). Effects of pretectal lesions on components of the horizontal optokinetic response. *Soc. Neurosci. Abs.* 9, 749.

Spira, M.E., Blumenfeld, H., Schachar, S. and Siegelbaum, S.A. (1987). Measurement of free intracellular calcium in *Aplysia* sensory neurons using fura-2. *Soc. Neurosci. Abs.* 13, 1238.

Blumenfeld, H., Bug, B., Buttner, N., Sweatt, J.D. and Siegelbaum, S.A. (1988). Does FMRFamide-stimulated release of arachidonic acid depend on Na/H exchange or internal calcium? *Soc. Neurosci. Abs.* 14, 1206.

Blumenfeld, H., Kandel, E.R. and Siegelbaum, S.A. (1989). IP₃ injections release intracellular calcium in *Aplysia* sensory neurons. *Soc. Neurosci. Abs.* 15, 483.

Blumenfeld, H., Eliot, L.S., Edmonds, B.W., Kandel, E.R. and Siegelbaum, S.A. (1991). 5-HT increases Ca²⁺ influx during action potentials in *Aplysia* sensory neurons by spike broadening and by direct calcium channel modulation. *Soc. Neurosci. Abs.* 17, 1485.

Eliot, L.S., Blumenfeld, H., Kandel, E.R. and Siegelbaum, S.A. (1991). Imaging [Ca]_i transients at *Aplysia* sensorimotor synapses: contributions of direct and indirect modulation to presynaptic facilitation. *Soc. Neurosci. Abs.* 17, 1485.

Blumenfeld, H. and Irizarry, M.C. (1994). Normal pressure hydrocephalus as a late complication of hemispherectomy. Boston Society of Neurology and Psychiatry, Stanley Cobb Resident Assembly, 1994.

Cudkowicz, M.C., Cha, J.H. and Blumenfeld, H. (1994). Bactrim encephalopathy: A diagnosis of exclusion. Boston Society of Neurology and Psychiatry, Stanley Cobb Resident Assembly, 1994.

McCormick, D.A., Blumenfeld, H., Luthi, A., and Kim, U. (1999). Cellular mechanisms of synchronized thalamocortical rhythms. *Focus on Epilepsy V. Generalized Epilepsy: From Genes to Clinic*. Quebec City, 1999.

Blumenfeld, H., and McCormick, D.A. (1999). Abnormal cortical burst firing may cause spike-and-wave seizures through thalamic GABA_B receptors. *Soc. Neurosci. Abs.*, 25.

Blumenfeld, H., and McCormick, D.A. (1999). Switch from sleep spindles to spike-and-wave seizures: Role of cortical burst firing in activating thalamic GABA_B receptors. *Epilepsia*.

- Blumenfeld H., Norden A., Studholme C., Zubal G., Spencer S. (2000). Bilateral Thalamic and Brainstem Involvement in Seizures Revealed by SPECT Ictal-Interictal Difference Imaging. *Amer. Acad. of Neurol. 52nd Annual Meeting Abs. Neurology*, 54(7), Suppl. 3: S02.002.
- Blumenfeld H. and McCormick DA (2000). Thalamic neurons fire in bursts during spindle waves and spike-wave seizures recorded *in vivo* from WAG/Rij rats. *Soc. Neurosci. Abs.*, 26: 737 (274.17).
- Bradley C, Paige L, Chang D, Studholme C, Stokking R, Norden A, Zubal IG, Spencer SS, and Blumenfeld H. (2000). Thalamic and pontomesencephalic reticular formation involvement in seizures studied by SPECT ictal-interictal difference imaging. *Soc. Neurosci. Abs.*, 26: 1010 (376.1).
- Chang D, Stokking R, Studholme C, Smith A, Smith J, Corsi M, Morano G, Ostroff R, Seibyl J, Zubal IG, Spencer SS, and Blumenfeld H. (2000). Regional cerebral blood flow measured with SPECT difference imaging during electroconvulsive therapy (ECT)-induced seizures. *Soc. Neurosci. Abs.*, 26: 1009 (375.15).
- Blumenfeld H. and McCormick DA. (2000). Burst Firing in Thalamic Neurons Recorded *In Vivo* from WAG/Rij Rats During Spindle Waves and Spike-Wave Seizures. *Epilepsia*. 41(Suppl. 7): 28.
- Paige L, Bradley C, Chang D, Studholme C, Stokking R, Norden A, Zubal IG, Spencer SS, and Blumenfeld H. (2000). SPECT Ictal-Interictal Difference Imaging Reveals Thalamic and Brainstem Reticular Formation Involvement in Seizures. *Epilepsia*. 41 (Suppl. 7): 68.
- Bradley C, Paige L, Chang D, Stokking R, Studholme C, Tanhehco T, Corsi M, Ostroff R, Seibyl J, Zubal IG, Spencer SS, and Blumenfeld H. (2000). Electroconvulsive Therapy (ECT)-Induced Seizures as a Model System for Human Epilepsy Studied by SPECT Difference Imaging. *Epilepsia*. 41 (Suppl. 7): 65.
- Blumenfeld H., Gale K, Bertram EH, and Spencer SS. (2000) Epilepsy as a disorder of large-scale neural networks. *Epilepsia*. 41 (Suppl. 7): 75.
- Zubal IG, Chang DJ, Gottschalk C, Necochea A, Stokking R, Studholme C, Corsi M, Slawski J, Spencer SS, Blumenfeld H. (2001) Difference Calculation Versus SPM in Analyzing Ictal-Interictal Epilepsy SPECT Scans. *J Nucl Med, SNM Abs.*
- Corsi M, Zubal IG, Freeman J, Uranga P, Tanhehco T, Morano G, Seibyl JS, Blumenfeld H. (2001). Evaluation of Cerebral Blood Flow (CBF) Changes during Electroconvulsive Therapy (ECT) - Induced Seizures Using 99mTechnetium-HMPAO Brain SPECT. *Society of Nuclear Medicine, Abs.*
- Hyder F, Smith A, Blumenfeld H., Behar KL, Rothman DL, Shulman RG. (2001). Probing neuronal populations by fMRI and electrophysiology in rat brain. *Soc. Neurosci. Abs.*, 27.
- Chang DJ, Zubal IG, Gottschalk C, Freeman J, Necochea A, Stokking R, Studholme C, Corsi M, Spencer SS, Blumenfeld H. (2001). Statistical Parametric Mapping: A New Approach to Analysis of Ictal SPECT Scans in Temporal Lobe Epilepsy Compared to Conventional Difference Imaging. *Soc. Neurosci. Abs.*, 27.

Zaatreh MM, Spencer DD, Thompson JT, Blumenfeld H, Novotny EJ, Spencer SS. (2001). Frontal lobe tumoral epilepsy: Characteristics and predictors of surgical outcome. *Epilepsia*.

Blumenfeld H, and McCormick DA. (2001). The role of thalamocortical burst firing in the transition from normal activity to epileptic seizures. *ANA Research Symposium*.

Nersesyan H, Hyder F, Rothman D, McCormick D, Blumenfeld H. (2002). Comparison of BOLD fMRI and Electrophysiology Recordings during Spike-Wave Seizures in WAG/Rij Rats. *Soc. Neurosci. Abs.* Online, 796.1.

Blumenfeld H, Vanderhill S, Ahoya L, Chung R, Adamiak K, Paige L, Corsi M, Novotny EJ, Zupal IG, Spencer SS. (2002). Cortical and Subcortical Networks in Human Temporal Lobe Seizures. *Soc. Neurosci. Abs.*, 796.2. Online at <http://web.sfn.org/>

Vanderhill S, Westerveld M, Ostroff R, Spencer SS, Zupal IG, Blumenfeld H. (2002). Are "Generalized" seizures truly generalized? Selective networks activated in human tonic clonic seizures. *Soc. Neurosci. Abs.*, 796.3. Online at <http://web.sfn.org/>

Vasquez JG, Blumenfeld H. (2002). Neocortical involvement during limbic seizures in kindled rats. *Soc. Neurosci. Abs.*, 796.4. Online at <http://web.sfn.org/>

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