

Stephen Francis Traynelis

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Education

1984 West Virginia University, Morgantown, WV B.S. Chemistry
1988 University of North Carolina, Chapel Hill, NC Ph.D. Pharmacology

Research Training and Job Experience

1989-1991 University College London, London, UK. Postdoctoral Research
with Prof. Stuart Cull-Candy, Department of Pharmacology
1992-1994 Salk Institute, La Jolla, CA. Postdoctoral Research
with Prof. Stephen Heinemann, Director of the Molecular Neurobiology Laboratory
1994-2000 Assistant Professor, Department of Pharmacology, Emory University
2000-2006 Associate Professor, Department of Pharmacology, Emory University
2006- Professor, Department of Pharmacology, Emory University

Scholarships, Awards, and Honors

2007 Javits Award
2007 1st Annual Distinguished Alumni Award in Chemistry, West Virginia University
1997 President, Atlanta Chapter, Society for Neuroscience
1995 John Merck Scholar
1984 B.S. Chemistry, *Summa Cum Laude*
1980 John Moore Chemistry Scholarship, West Virginia University (4 years)
1980 West Virginia University Achievement Scholarship (4 years)
1984 National Honor Societies: Phi Beta Kappa, Phi Kappa Phi, Golden Key

Competitive Fellowships, Faculty Development Awards, Other Awards

2006 Michael J Fox Foundation (3 year)
2004 NARSAD Independent Investigator Award (2 year)
2002 Emory University Research Committee Grant (1 year)
2001 FRCP Advanced Technology Development Award (1 year)
2000 NARSAD Independent Investigator Award (2 year)
1999 Emory University Research Committee Grant (1 year)
1998 Burroughs-Wellcome Travel Award (1 year)
1997 Emory University Teaching Fund (1 year)
1995 American Epilepsy Society Research Starter Grant (1 year)
1995 John Merck Fund Faculty Development Award (4 years)
1995 Emory University Research Committee Grant (1 year)
1993 American Epilepsy Society Fellowship (Salk Institute, 1 year)
1992 National Research Service Award (Salk Institute, 1 year)
1990-4 Wellcome Trust, Brain Trust, and American Epilepsy Society Travel Awards
1989 National Research Service Award (University College London, 2 years)
1984-7 National Science Foundation Predoctoral Fellowship (3 years)

National Committees and Service: Manuscript Reviewer

Associate Editor, Molecular Pharmacology (2008-present)
Editorial Board, Critical Reviews in Neurobiology (2003-present)
Editorial Board, Molecular Pharmacology (1996-99, 2006-present)
Editorial Board, Open Pharmacology Journal (2007-present)
Editorial Board, Molecular Brain (2007-present)
Reviewer for: ACS Chemical Biology, American Journal of Physiology, Biochemistry, British Journal of Pharmacology, European Journal of Neuroscience, Experimental Eye Research, Journal of Biological Chemistry, Journal of Cell Science, Journal of Medicinal Chemistry, Journal of Neurobiology, Journal of Neurochemistry, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Physiology, Molecular Pharmacology, Neuron, NeuroReport, Neuroscience, Neuroscience Letters, Nature, Nature Neuroscience, Nature Medicine, NeuroSignals, PLoS Computational Biology, Science, Stroke

National Committees and Service: Grant Review Boards and ad hoc Grant Reviews:

Ad hoc NIH Small Grant Program (1996)
Ad hoc NIH Special Study Section - NRSA (1996)
Ad hoc Civilian Research and Defense Foundation (1996-1997)
Ad hoc Reviewer VA grants (2000)
Ad hoc NIH Special Study Section – RFA (2000)
Reviewer for Singapore Biomedical Research Council (2001-2005)
Ad hoc NIH MCDN4/NTRC Study Section (2002)
Ad hoc NIH MCDN3/BCST Study Section (2003)
Reviewer for Austrian FWF (2003)
Reviewer for Wellcome Trust (1999-2005)
Reviewer for UK MRC (2004)
Reviewer for United States-Israel Binational Science Foundation (2004)
Ad hoc reviewer NSF (2004)
Reviewer for AIC International collaborative grant (2004)
Ad hoc NIH/NCRR COBRE Review Section (2005)
Ad hoc NINDS Advisory Committee NSD-C (2005)
Ad hoc NIH MCDN3/BCST Study Section (2005-2007)
NIH MCDN4/NTRC Regular Member Study Section (2003-2006)
NIH MCDN4/NTRC Study Section, *Chair* (2005-2006)
Ad hoc NIH Intramural Review Program (2006)
NIH MDCN Special Emphasis Panels, Ad hoc Reviewer (2006-2007)
NIH NIAID Neuroprotectants / Biodefense Research (2007)
NIH T32 Special Emphasis Panels, Ad hoc Reviewer (2007)

National Committees and Service: Committee Service

Executive Committee Councilor, Atlanta Chapter, Society for Neuroscience (1995-1996)
President-elect, Atlanta Chapter, Society for Neuroscience (1996-1997)
President, Atlanta Chapter, Society for Neuroscience (1997-1998)
Scientific Advisory Board, NeurOp Inc. (2002-present)

Professional Organizations

American Association for the Advancement of Science
Biophysical Society
Society for Neuroscience
ASPET

Research Grants as Principal Investigator

2007 (Active)	NIH-NINDS R01 NS36654 (PI, comp renewal) “Control of Glutamate receptor Activation”	7/1/07 - 6/30/11
2006 (Active)	Michael J Fox Found Community Fast Track Grant for Parkinson’s Disease “Use of NR2D-selective NMDA receptor modulators in the treatment of Parkinson’s Disease”	2/06-1/09
2004 (Active)	NINDS R01 NS39419 (PI, comp renewal) “Control of NMDA receptor function by serine protease receptors”	6/1/04 – 3/31/08
2007 (Pending)	NINDS R21 (PI) “Identification of ligands that bind to the delta2 orphan receptor”	6/2008 – 5/2010
2006	NIH-NINDS R21	7/06 – 6/07
2004	NARSAD (PI)	
2004	NIH-NINDS Administrative supplement not-ns-04-001 (PI)	
2004	Emory Intramural Pilot grant CCPDER Parkinsons Pilot grant (PI)	
2003	NIH-NIMH MH062646 RO1 (PI)	
2002	University Research Committee (PI)	
2001	FRCP Award / Advanced Technology Develop. (PI)	
2000-2002	NARSAD (PI)	
2000-2004	NIH-NINDS R01 NS39419 (PI)	
1998-2001	NIH-NINDS R01 NS36654 (PI)	
1998	University Research Committee (PI)	
1996-1997	NIH-NIMH R03 MH54759 (PI)	
1995-1999	John Merck Award (PI)	
1995-1999	NIH-NINDS R29 NS33777 (PI)	
1995	Epilepsy Foundation of America Grant (PI)	
1995	University Research Committee (PI)	

Research Grants as a co-PI, subcontract, or sponsor

2006-2008 (Active)	NIH-NINDS NRSA NS054515-01 (Fellow Anna Goldsmidt) “Role of protease-activated receptor-2 in reactive glia”	8/1/06 – 7/31/08
2006-2007	Benzon Foundation Fellowship Dr. Kasper Bo Hansen	
2003-2008	NIH-NINDS NRSA NS36654-07S1 Predoctoral Fellowship: Cecily Hamill	
2005-2006	Benzon Foundation Fellowship: Dr. Anders Kristensen	
2005-2006	Epilepsy Society Fellowship: Dr. Shashank Dravid	
2004-2005	NIH-NINDS SBIR R43 NS049666 (Subcontract from NeurOp, Inc)	
2002-2005	NIH Postdoctoral fellowship NRSA: Dr. Justin Lee	
2001-2002	Benzon Society Fellowship: Dr. Tue Banke	
2001-2003	NIH Predoctoral Fellowship: NRSA Candice Junge	
2001-2002	NIH-NIMH RO1 (PI – Dr. J.Conn)	
1999-2001	NIH Predoctoral Fellowship NRSA Melissa Gingrich	
1998-2001	NIH-NINDS R01 (PI - Dr. J Conn)	
1997-1999	NIH-NIMH R01 (PI - Dr. T Murray, subcontract)	
1996	Novo Nordisk Support	

Peer-reviewed papers (impact factor in parentheses as of Sept, 2007)

- (101) **1.** Harden TK, Petch LA, **Traynelis SF**, Waldo GL (1985). Agonist-induced alteration in the membrane form of muscarinic cholinergic receptors. *J Biol Chem* 260: 13060-13066.
- (65) **2.** Dingledine R, Boland LM, Chamberlin NL, Kawasaki K, Kleckner NW, **Traynelis SF**, Verdoorn TA (1988). Amino acid receptors and uptake systems in the mammalian central nervous system. *CRC Critical Reviews in Neurobiology* 4: 1-96.
- (263) **3.** **Traynelis SF**, Dingledine R (1988). Potassium-induced spontaneous electrographic seizures in the rat hippocampal slice. *J Neurophysiol* 59: 259-277.
- (93) **4.** **Traynelis SF**, Dingledine R (1989). Role of extracellular space in hyperosmotic suppression of potassium-induced electrographic seizures. *J Neurophysiol* 61: 927-938.
- (17) **5.** **Traynelis SF**, Dingledine R (1989). Modification of potassium-induced interictal bursts and electrographic seizures by divalent cations. *Neurosci Lett* 98: 194-199.
- (11) **6.** **Traynelis SF**, Dingledine R, McNamara JO, Butler L, Rigsbee L (1989). Effect of kindling on potassium-induced electrographic seizures in vitro. *Neurosci Lett* 105: 326-332.
- (60) **7.** Kawasaki K, **Traynelis SF**, Dingledine R (1990). Different responses of CA1 and CA3 regions to hypoxia in the rat hippocampal slice. *J Neurophysiol* 63: 385-394.
- (322) **8.** **Traynelis SF**, Cull-Candy SG (1990). Proton inhibition of N-methyl-D-aspartate receptors in cerebellar neurons. *Nature* 345: 347-350.
- (178) **9.** McBain CJ, **Traynelis SF**, Dingledine R (1990). Regional variation of extracellular space in hippocampus. *Science* 249: 674-677.
- (137) **10.** **Traynelis SF**, Cull-Candy SG (1991). Pharmacological properties and H⁺ sensitivity of excitatory amino acid receptor channels in rat cerebellar granule neurones. *J Physiol* 433: 727-763.
- (251) **11.** Silver RA, **Traynelis SF**, Cull-Candy SG (1992). Rapid time-course miniature and evoked excitatory currents at cerebellar synapses in situ. *Nature* 355: 163-166.
- (331) **12.** Miller B, Sarantis M, **Traynelis SF**, Attwell D (1992). Arachidonic acid potentiates NMDA channel currents. *Nature* 355: 722-725.
- (51) **13.** Wyllie DJA, **Traynelis SF**, Cull-Candy SG (1993). Evidence for more than one type of non-NMDA receptor in outside-out patches from rat cerebellar granule cells. *J Physiol* 463: 193-226.
- (130) **14.** **Traynelis SF**, Silver RA, Cull-Candy SG (1993). Estimated conductance of glutamate receptor-channels activated during EPSCs at the cerebellar mossy fiber-granule cell synapse. *Neuron* 11: 279-289.
- (128) **15.** Pulchalski RB, Brose N, Louis J-C, **Traynelis SF**, Egebjerg J, Lin F, Kukekov V, Wenthold R, Rogers SW, Moran T, Morrison JH, Heinemann SF (1994). Assembly of native glutamate receptors into structurally and functionally distinct heteromeric channels. *Neuron* 13: 131-147.
- (155) **16.** Sullivan JM, **Traynelis SF**, Chen H-SV, Escobar W, Heinemann SF, Lipton SA (1994). Identification of two cysteine residues on the NMDAR1 subunit that are required for redox modulation. *Neuron* 13: 929-936.
- (181) **17.** **Traynelis SF**, Hartley M, Heinemann SF (1995). Control of proton sensitivity of the NMDA receptor by RNA splicing and polyamines. *Science* 268: 873-876.
- (74) **18.** **Traynelis SF**, Wahl P (1997). Control of rat GluR6 glutamate receptor open probability by protein kinase A and calcineurin. *J Physiology* 503: 513-531
- (18) **19.** Chung DS, Joshi DS, Murphy TJ, **Traynelis SF**, Conn, PJ (1997). 4-methylthiohomibotenic acid activates a novel metabotropic glutamate receptor coupled to phosphoinositide hydrolysis. *J Pharmacol Exper Therapeutics* 283: 742-749.
- (55) **20.** **Traynelis SF**, Jaramillo F (1998). Making the most out of noise in the central nervous system. *Tr Neurosci* 21: 137-145.

- (16) **21.** Wahl P, Anker C, **Traynelis SF**, Egebjerg J, Rasmussen JS, Krogsgaard-Larsen P, Madsen U (1998). Antagonist properties of phosphono isoxazole amino acid (ATPO) at GluR1-4 AMPA receptor. *Mol Pharmacol* 53: 590-596.
- (83) **22.** **Traynelis SF**, Burgess MF, Zheng F, Lyuboslavsky P, Powers J (1998). Control of voltage independent zinc inhibition of NMDA receptors by the NR1 subunit. *J Neurosci* 18: 6163-6175.
- (97) **23.** Zheng F, Gingrich MB, **Traynelis SF**, Conn PJ (1998). Tyrosine kinase modulates Zn²⁺ sensitivity of NMDA receptors. *Nature Neuroscience* 1: 185-191.
- (73) **24.** Mott DD, Doherty JJ, Zhang S, Washburn MS, Fendley MJ, Lyuboslavsky P, **Traynelis SF**, Dingledine R (1998). Enhancement of proton inhibition: a novel mechanism of inhibition of NMDA receptors by phenylethanolamines. *Nature Neuroscience* 1: 659-667
- (16) **25.** **Traynelis SF** (1998). Software based correction of single compartment series resistance errors. *J Neurosci Meth* 86: 25-34.
- (1336) **26.** Dingledine R, Borges K, Bowie D, **Traynelis SF** (1999). The glutamate receptor ion channels. *Pharmacological Reviews* 51: 7-61.
- (184) **27.** Banke TG, Bowie D, Lee H-K, Haganir RL, Schousboe A, **Traynelis SF** (2000) Control of GluR1 AMPA receptor function by cAMP-dependent protein kinase. *J Neurosci* 20: 89-102
- (57) **28.** Gingrich MB, Junge C, Lyuboslavsky P, **Traynelis SF** (2000). Potentiation of NMDA receptor function by the serine protease thrombin. *J Neurosci* 20: 4582-4595.
- (96) **29.** Gingrich MB, **Traynelis SF** (2000). Serine proteases and brain damage – is there a link? *TINS* 23:399-407.
- (49) **30.** Low C-M, Zheng F, Lyuboslavsky P, **Traynelis SF** (2000). Molecular determinants of coordinated proton and zinc inhibition of NMDA NR1/NR2A receptors. *PNAS* 97: 11062-11067.
- (27) **31.** Banke TG, Greenwood J, Christensen JK, Liljefors T, **Traynelis SF**, Schousboe A, Pickering DS (2001). Identification of amino acid residues in GluR1 responsible for ligand binding and desensitization. *J Neurosci* 21: 3052-3062.
- (16) **32.** Mott DD, Erreger K, Banke TG, **Traynelis SF** (2001). Open probability of homomeric murine 5-HT_{3A} serotonin receptors depends on subunit occupancy. *J Physiol* 535.2: 427-443.
- (115) **33.** Mannaioni G, Marino MJ, **Traynelis SF**, Conn PJ (2001). mGluR1 and mGluR5 differentially regulate CA1 pyramidal neuronal function. *J Neurosci* 21: 5925-5934.
- (40) **34.** Zheng F, Erreger K, Low C-M, Banke T, Lee CJ, Conn PJ, and **Traynelis SF** (2001) Allosteric interaction between the amino terminal domain and the ligand binding domain of NR2A *Nature Neuroscience*. 4: 894-901.
- (31) **35.** Poisik OV, Mannaioni G, **Traynelis SF**, Smith Y, Conn, PJ (2003). Distinct Functional Roles of the Metabotropic Glutamate Receptors 1 and 5 in the Rat Globus Pallidus. *J Neurosci* 23: 122-130.
- (43) **36.** Banke TG, **Traynelis SF** (2003). Activation of NR1/NR2B NMDA receptors. *Nature Neuroscience* 6:144-152
- (14) **37.** Bowie D, Garcia EP, Marshall J, **Traynelis SF**, Lange, GD (2003) Allosteric regulation and spatial distribution of kainate receptors bound to ancillary proteins in HEK 293 cells. *J Physiol* 547: 373-385.
- (22) **38.** Low CM, Lyuboslavsky P, French A, Le P, Wyatte K, Thiel WH, Marchan EM, Igarashi K, Kashiwagi K, Gernert K, Williams K, **Traynelis SF**, Zheng, F (2003) Molecular determinants of proton sensitive NMDA receptor gating. *Molecular Pharmacology* 63: 1212-1222.
- (90) **39.** Jin R, Banke T, Mayer ML, **Traynelis SF**, Gouaux E (2003) Structural basis for partial agonist action at ionotropic glutamate receptors, *Nature Neuroscience* 6: 803-810.
- (36) **40.** Junge CE, Sugawara T, Mannaioni G, Alagarsamy S, Conn PJ, Brat D, Chan P, **Traynelis SF** (2003) The contribution of protease activated receptor-1 to neuronal damage caused by transient focal ischemia. *PNAS* 100: 13019-13024.

- (19) **41.** Sorensen SD, Nicole O, Peavy RD, Montoya LM, **Traynelis SF**, Hepler JR (2003) Common signaling pathways link activation of murine PAR1, LPA, and S1P receptors to proliferation of astrocytes. *Mol Pharmacol* 64: 1199-1209.
- (2) **42.** Olson E, Lyuboslavsky P, **Traynelis SF**, McKeon R. (2004) PAR-1 deficiency protects against neuronal damage and neurological deficits following unilateral cerebral hypoxia/ischemia. *J Cereb Blood Flow Metab* 24: 964-971.
- (13) **43.** Junge CE, Lee CJ, Hubbard KB, Zhang Z, Olson JJ, Brat D, Hepler JR, **Traynelis SF** (2004). Protease activated receptor-1 in human brain: localization and functional expression in astrocytes. *Experimental Neurology*, 188: 94-103.
- (33) **44.** Erreger K, Chen P, Wyllie DJA, **Traynelis SF** (2004). Glutamate receptor gating *Critical Reviews in Neurobiology*, 16: 187-224.
- (15) **45.** Banke TG, Dravid SM, **Traynelis SF** (2005) Proton modulation of NMDA receptor gating. *J Neurosci* 25: 42-51.
- (36) **46.** Erreger K, Dravid SM, Banke TG, Wyllie DJA, **Traynelis SF** (2005) Subunit-specific gating controls rat NR1/NR2A and NR1/NR2B NMDA channel kinetics and synaptic signaling profiles. *J Physiol* 552: 335-344.
- (2) **47.** LePage KT, Ishmael JE, Leid M, Cumuze K, Low CM, **Traynelis SF**, Murray TF (2005) Differential binding properties of [³H]dextrorphan and [³H]MK-801 in heterologously expressed NMDA receptors. *Neuropharmacology* 49: 1-16.
- (14) **48.** Chen PE, Geballe MT, Stansfeld P, Johnston AR, Yuan H, Jacob AL, Snyder JP, **Traynelis SF**, Wyllie DJA (2005). Structural features of the glutamate binding site in recombinant NR1/NR2A *N*-methyl-D-aspartate receptors determined by site-directed mutagenesis and molecular modeling. *Molecular Pharmacology* 67: 1470-84.
- (2) **49.** Hamill CE, Goldshmidt A, Nicole O, Brat, D. **Traynelis SF** (2005) Glial reactivity following damage: implications for scar formation and neuronal recovery *Clinical Neurosurgery* 52: 29-44.
- (12) **50.** Nicole O, Goldshmidt A, Hamill, CE, Sorensen SD, Sastre A, Lyuboslavsky P, Hepler JR, McKeon R, **Traynelis SF** (2005) Activation of protease-activated receptor-1 triggers astrogliosis after brain injury. *J Neurosci* 25: 4319-4329.
- (19) **51.** Fam SR, Paquet M, Castleberry, AM, Oller H, Lee CJ, **Traynelis SF**, Smith Y, Yun CC, Hall RA (2005) P2y1 receptor signalling is controlled by interaction with the PDZ scaffold NHERF-2. *PNAS* 102: 8042-7.
- (2) **52.** Wong E, Ng F-M, Yu C-Y, Lim P, Lim L-H, **Traynelis SF**, Low C-M. (2005). Expression and characterization of soluble amino-terminal domain of NR2B subunit of *N*-methyl-D-aspartate receptor. *Protein Science* 14: 2275-2283.
- (9) **53.** Yuan H, Erreger K, Dravid SM, and **Traynelis SF** (2005) Conserved structural and functional control of NMDA receptor gating by transmembrane domain M3. *J Biol Chem* 280: 29708-16.
- (5) **54.** Holm MM, Lunna M-L, **Traynelis SF**, Kastrup JS, Egebjerg J (2005) Structural determinants of agonist-specific kinetics at the ionotropic glutamate receptor 2. *PNAS* 102: 12053-58
- (6) **55.** Holm MM, Naur P, Vestergaard B, Geballe, MT, Gajhede M, Kastrup JS, **Traynelis SF**, Egebjerg J (2005) A binding site tyrosine shapes desensitization kinetics and agonist potency at the AMPA receptor GluR2: A mutagenic, kinetic, and crystallographic study *J Biol Chem* 280: 35469-35476
- (7) **56.** Erreger K, Geballe MT, Dravid S, Snyder S, Wyllie DJA, **Traynelis SF** (2005) Mechanism of partial agonism at NR1/NR2A NMDA receptors for a conformationally restricted glutamate analogue. *J Neurosci* 25: 7858-66.
- (7) **57.** Erreger K, **Traynelis SF** (2005) Allosteric interaction between the zinc and glutamate binding domains on NR2A causes desensitization of NMDA receptors. *J. Physiol.* 569: 381-393.

- (1) **58.** Kristensen AS, Geballe MT, Snyder JP, **Traynelis SF** (2006) Glutamate receptors: variation in structure – function coupling. *Tr Pharmacol Sci* 27: 65-69.
- (1) **59.** Paquet M, Asay MJ, Fam SR, Inuzuka H, Castleberry AM, Oller H, Smith Y, Yun CC, Traynelis SF, Hall R (2006) The PDZ scaffold NHERF-2 interacts with mGluR5 and regulates receptor activity. *J Biol Chem* 281: 29949-61.
- 60.** Lee CJ, Mannaioni G, Yuan H, Woo DH, Gingrich MB, **Traynelis SF** (2007) Astrocytic control of synaptic NMDA receptors. *J Physiol* 581: 1057-81.
- 61.** Traynelis SF, Trejo J (2007) Protease receptor signaling: new roles and regulatory mechanisms. *Current Opinion Haematology* 14: 230-5.
- 62.** Dravid S, Yuan H, Erreger K, Lyuboslavsky P, Le, P, Almonte A, Barber J, Nicholson K, French A, Balster R, Murray TF, and **Traynelis, SF** (2007) Proton sensitivity of NMDA receptor channel blockers. *J Physiol* 581: 107-28.
- 63.** Hansen KB, Yuan H, **Traynelis SF** (2007) Structural aspects of AMPA receptor function. *Curr Opin in Neurobiology*, 17: 281-8.
- 64.** Almonte AG, Hamill CE, Chhatwal JP, Wingo TS, Barber JA, Lyuboslavsky PN, Ressler KJ, Holtzman SG, White DA, **Traynelis SF** (2007) Protease activated receptor-1 -/- mice lacking protease activated receptor-1 show deficits in emotional learning. *Neurobiology of Learning and Memory* 88: 295-304.
- 65.** Hamill CE, Caudle MW, Richardson JR, Yuan H, Pennell KD, Greene JG, Miller GW, **Traynelis SF** (2007). Exacerbation of dopaminergic terminal damage in a mouse model of Parkinson's disease by the G-protein coupled receptor PAR1. *Molecular Pharmacology* 72: 653-64.
- 66.** Naur P, Hansen KB, Kristensen AS, Dravid SM, Pickering DS, Olsen L, Vestergaard B, Egebjerg J, Gajhede M, **Traynelis SF**, Kastrop JS (2007) Ionotropic glutamate receptor-like delta2 binds D-serine and glycine. *PNAS* 104: 14116-21.
- 67.** Erreger K, Geballe MT, Kristensen A, Chen PE, Hansen KB, Lee CJ, Yuan H, Le P, Lyuboslavsky PN, Micale N, Jørgensen L, Clausen R, Wyllie DJA, Snyder JP, **Traynelis SF** (2007) Subunit-specific agonist activity at NR2A, NR2B, NR2C, and NR2D containing N-methyl-D-aspartate glutamate receptors. *Mol Pharmacol*, 72: 907-20.
- 69.** Chen PE, Geballe MT, Katz E, Erreger K, Livesey MR, O'Toole KK, Le P, Lee CJ, Snyder JP, **Traynelis SF**, Wyllie DJA (2007) Allosteric modulation of glycine potency in recombinant N-methyl-D-aspartate receptor subtypes by the glutamate-binding domain of NR2 subunits. *J Physiol* 586: 227-45.
- 70.** Erreger K, **Traynelis SF** (2008) Zinc and protons similarly modulate single-channel kinetics of NR1/NR2A NMDA receptors *J Physiol* 586: 763-78.
- 68.** Tahirovic, YA, Geballe M, Gruszecka-Kowalik E, Liotta D, Washburn M, Myers S, Lyuboslavsky P, Le P, French A, Irier H, Choi W-B, Easterling K, Yuan H, Wilson L, McNamara JO, Dingledine R, **Traynelis SF**, Snyder JP (2008). Enantiomeric propanolamines as NR2B-selective NMDA receptor antagonists. *J Med Chem, Manuscript provisionally accepted.*
- 71.** Goldshmidt A, Orr AL, Gross RE, **Traynelis SF** (2008) Stuck in reverse: activated microglia repel from brain injury. *Manuscript under revision.*
- 72.** Park, Woo, Park, Palmini, Mannaioni M, **Traynelis SF**, Lee CJ(2008) Non-vesicular glutamate release from astrocytes via Ca²⁺ activated anion channels encoded by *Bestrophin 1*. *Manuscript under revision.*
- 73.** Mannaioni G, Goldshmidt A, Hamill CE, Yuan H, Mullasseril P, Hubbard KB, Junge CE, Lee CJ, Yepes M, Hepler JR, **Traynelis SF** (2008) Plasmin potentiates synaptic NMDA receptor function in rat hippocampal neurons through activation of PAR1. *JBC, Manuscript in press.*
- 74.** Clausen RP, Christensen C, Hansen KB, Greenwood J, Jørgensen L, Micale N, Madsen JC, Nielsen B, Egebjerg J, Bräuner-Osborne H, Traynelis SF, Kristensen JL. (2008) N-Hydroxypyrazol glycine derivatives as selective N-methyl-D-aspartic acid receptor ligands. *J Med Chem, manuscript in press.*

75. Dravid SM, **Traynelis, SF** (2008) Activation of recombinant NR1/NR2C NMDA receptors. *J Physiol, Manuscript in preparation.*
76. Yuan H, Vance K, Low C-M, Junge CE, Geballe MT, Snyder JP, Hepler JR, Traynelis SF (2008) The serine protease plasmin cleaves the amino terminal domain of the NR2A subunit to relieve zinc inhibition of the N-methyl-D-aspartate receptor. *Manuscript in preparation.*
77. Dravid SM, Mannaioni G, Lee CJ, **Traynelis, SF** (2008) Astrocytic G-protein coupled receptor control of glutamate time course in hippocampal CA1 synapse. *Manuscript in preparation.*
78. Sivaprakasam M, David O, Hansen KB, Nielsen B, **Traynelis SF**, Clausen RP, Couty F, Bunch L (2008) Stereocontrolled synthesis and pharmacological evaluation of axetidine 2,3-dicarboxylic acids at NMDA receptors. *Manuscript in preparation.*
79. Kristensen A, Banke TG, Schousboe A, **Traynelis SF** (2008). CamKII controls coupling efficiency between agonist binding and GluR1 subunit activation. *Manuscript in preparation.*
80. Hamill CE, Mannaioni G, Lyuboslavsky P, Sastre AA, **Traynelis SF** (2008) Protease-activated receptor 1-dependent neuronal damage involves NMDA receptor function. *Manuscript under revision.*
81. Lim LH, Wong ESP, Junge C, Ng FM, **Traynelis SF**, Low C-M. (2008). Biochemical evidence for NMDA receptor NR2 subunit-specific cleavage by serine proteases. *Manuscript in preparation.*
82. Ng F-M, Geballe MT, Snyder JP, **Traynelis SF**, Low C-M (2008) Interactions between ligands and the recombinant NR2B amino-terminal domain of the NMDA receptor. *J Biol Chem, Manuscript in preparation.*
83. Mosley CA, Murray EE, Burroughs S, Santangelo R, Geballe M, Tahirovic, YA, Kurtkaya N, Myers SM, Mullasseril P, Yuan H, Lyuboslavsky P, Le P, Wilson LJ, Snyder JP, **Traynelis SF**, Liotta DC (2008). Synthesis, structural activity-relationships, and biological evaluation of novel allosteric binding site antagonists in NR1A/NR2B N-methyl-D-aspartate receptors. *Manuscript in preparation.*

Book Chapters and Invited Commentaries

84. Cull-Candy SG, Wyllie DJA, **Traynelis SF** (1991). Excitatory amino acid gated channel types in mammalian neurons and glia, in "*Excitatory Amino Acids and Synaptic Transmission*", eds. H.Wheal and A.Thomson. Academic Press, London, pp.69-90.
85. McBain CJ, **Traynelis SF**, Dingledine R (1992). High potassium induced synchronous bursts and electrographic seizures, in "*Models and Concepts in Epilepsy*", ed. P.A. Schwartzkroin, Cambridge Univ Press, Cambridge, pp 437-461.
86. **Traynelis SF** (1998). pH modulation of ligand gated ion channels, in "*pH and Brain Function*", eds. K Kaila and B. R. Ransom, Wiley-Liss, Inc. New York, pp. 395-446.
87. **Traynelis SF**, Lipton SA (2001). Is tissue plasminogen activator a threat to neurons? *Nature Medicine* 6:13-14
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Patents

- “pH-dependent NMDA receptor antagonists” (2002) Traynelis SF, Mott DD, Doherty J, Altas Y, Snyder JP, Liotta D, Dingledine R 10/469,824 (allowed)
- “Treatment of Neurodegenerative diseases and conditions using PAR1 antagonists.” (2002) Traynelis SF, McKeon,R, Gingrich MB, Junge CE (pending)
- “Improved selection of pH dependent NMDA receptor antagonists for in vivo therapy” (2004) Traynelis SF, Dingledine R, Liotta D (pending)
- “NMDA receptor antagonists for neuroprotection” (2007). Altas Y, Dennis Liotta, Myers S, Dingledine R, Snyder J, Traynelis SF, Wilson L (provisional application filed)

Software Development:

Modified Diffusional analysis software (1988), supplied to 2 laboratories
 Synaptic Analysis Software data Acquisition software "M / O / SE / SPEV" (1991-1995), supplied to 5 labs
 Synaptic/single channel modeling -Analysis Software "NPM" (1996-present), supplied to 56 labs
 Ion Permeation Modeling Software (1996-present). Available by FTP on web (>50 downloads)
 ChanneLab Ion Channel Kinetic Modeling Software (1996-present). Available from Synaptosoft, Inc.
 ChanneLab Ion Channel Teaching Workbook (2004). Available from Synaptosoft, Inc.
 Oocyte recording and analysis software.

Seminars and Lectures

1. University College London, London, UK. Host: Drs. Cull-Candy/Colquhoun 1988.
2. NIH, Bethesda, MD. Host: Dr. Mark Mayer 1990.
3. Duke University, Durham, NC. Host: Epilepsy Program Project 1990.
4. Max Planck Institut, Heidelberg, Germ. Host: Dr. Bert Sakmann, 1990.
5. University College London, London, UK. Host: Department of Pharmacology 1991.
6. Duke University, Durham, NC. Host: Epilepsy Program Project 1991.
7. Salk Institute, La Jolla, CA.. Host: Molecular Neurobiology Laboratory 1992.
8. University of California, San Francisco. Host: Dr. Roger Nicoll, 1992.
9. Duke University, Durham, NC. Host: Department of Neurobiology 1993.
10. University of North Carolina, Chapel Hill, NC. Host: Department of Pharmacology 1993.
11. Emory University, Atlanta, GA. Host: Department of Pharmacology 1993.
12. Iowa University, Iowa City, IA. Host: Department of Pharmacology 1994.
13. Emory University, Atlanta, GA. Host: Neuroscience Program 1994.
14. Novo Nordisk, Copenhagen, DK. Host: Department of Molecular Neurobiology 1994.
15. SFB Kolloquium, Goettingen, DE. Host: Dr. Michael Hollmann 1995.
16. Ciba-Geigy, Basel, SW. Host: Dr. Bernhard Bettler 1995.
17. SIBIA, Inc. La Jolla, CA. Host: Dr. Gonul Velicelebi. 1995.
18. Rush University, Chicago IL. Host Dr. Tom DeCoursey. 1995.
19. NIH. Bethesda, MD. Host: Dr. Chris McBain. 1996.
20. NIAAA-NIH. Bethesda, MD. Host: Dr. Li Zhang. 1996.
21. New York University, NY. Host: Margaret Rice. 1996.
22. University of Minnesota Neuroscience Program. Host: Summer Research Program. Aug, 1997.
23. University of Pittsburgh, Pittsburgh, PA. Host: Department fo Neurobiology. Oct. 1997.
24. Cornell University, Ithaca NY. Host: Department of Pharmacology. Nov 1997.
25. Yale University, New Haven, CT. Host: Department of Pharmacology. April. 1998.
26. Aarhus University, Dept Molecular Neurobiology. August, 1999.
27. Agora For Biosystems, Sigtuna Sweden. Aug, 1999
28. L'Ecole Normale Superieure, Paris France Host: Dr. Jacques Neyton. May, 2000
29. CNRS Caen, France: Host Dr. Denis Vivien. June, 2000
30. CNRS Montpellier, France. Host: Dr. Jean-Phillipe Pin. June 2000.
31. SUNY Buffalo, NY, Dept Biophysics. Host: Dr. Anthony Auerbach. Dec 2000.
32. University of Florida, Department of Pharmacology. Host Dr. Roger Papke. Oct. 2001
33. Society for Neuroscience Satellite Symposium. Study of ion channel kinetics using Channelab. Nov, 2001.
34. NIAAA-NIH. Bethesda, MD. Host: Dr. Li Zhang. 2002.
35. University of Michigan, Neurosurgery. Host: Richard Keep. Mar, 2002.
36. SUNY Stonybrook. Host Stella Tsirka. April, 2002.
37. Univ Edinburgh, Scotland. Host: David Wyllie May 2, 2002
38. Neuropharmacology IDG Symposium, Edinburgh Scotland May 3, 2002.
39. Einstein University, New York. Host Dr. Suzanne Zukin. Oct 9, 2002.
40. Society for Neuroscience Satellite Symposium. Study of ion channel kinetics using Channelab. Nov, 2002.
41. Vanderbilt University, Dept Pharmacology. Host Heidi Hamm/Alex Brown. April 8, 2003.
42. Neuroscience Institute, Singapore, Invited Speaker Mar, 2003 (declined)
43. International Conference GBM Study Group Neurochemistry, Invited speaker, Sept 19-20, 2003 (declined).

44. University of Iowa, Dept Pharmacology. Host Johannes Hell, Sept 9, 2003.
45. Georgia Institute of Technology, School of Biology, Host: Nael McCarty, Sept 19, 2003
46. Society for Neuroscience Satellite Symposium. Fitting of macroscopic currents. Nov 7, 2003.
47. Dept Neurosurgery, Grand Rounds, Emory University School of Medicine, Jonathon Hall, Feb 2004
48. University of North Carolina. Host: JoAnn Trejo, Dept Pharmacology, June 1, 2004
49. Georgia Life Science Summit. Host Gary Brennaman, Georgia State University, July 29, 2004
50. Univ Minnesota, Dept Neuroscience, Lilian Yuan, Sept 24, 2004
51. Vanderbilt University, Dept Neurobiology, Sept 29, 2004
52. Annual Congress of Neurosurgical Surgeons Meeting, San Francisco, Platform speaker, Oct 2004
53. University Connecticut, Dept Physiology and Neurobiology. Nov 10, 2004
54. Emory University, Stroke Center, Nov 23, 2004
55. Winter Conference Brain Research, Symposium speaker and organizer, Jan 27, 2005
56. Emory University, Dept Physiology, Feb 17, 2005
57. University of Virginia, Dept Pharmacology, April 14, 2005
58. Emory University, Dept Regenerative Medicine, April 20, 2005
59. MBL Neurobiology Course, Woods Hole, June 15
60. Emory University, Frontiers in Neuroscience, Sept 22, 2005
61. SUNY Buffalo, Dept Physiology and Biophysics. Host: Zhen Yan , Oct 20, 2005
62. SUNY Stonybrook, Dept Neuroscience. Host Lonnie Wolmuth Oct 27, 2005
63. British Pharmacological Society, London, UK, Invited speaker For UCL Centennial Symposium, Dec 20, 2005
64. Invited Platform Speaker for 3rd Singapore International Neuroscience Conference 2006 (declined)
65. Winter Conference Brain Research, Symposium organizer and speaker, Jan 21, 2006
66. Georgetown University, Dept Pharmacology, Feb 8, 2006
67. University of Copenhagen, Dept Pharmacology, Mar 23, 2006
68. West Virginia University, Dept Chemistry, April 12, 2006
69. pH, CO₂ and Brain Function, nORDfORSK ?wired/ Finnish Graduate School, Helsinki, Sept 1, 2006 (declined)
70. University of Pittsburgh, Dept Neuroscience, July 18, 2006
71. Drexel University, Dept Pharmacology, Sept 18, 2006
72. Colorado State University, Dept Neuroscience, Sept 20, 2006
73. University of Colorado Denver Health Sciences, Dept Neuroscience, Sept 21, 2006
74. South Carolina Center for Genetics, Greenwood SC, Dec 13, 2006.
75. Winter Conference Brain Research, Symposium organizer, Jan 28, 2007
76. Northwestern University, Chicago University, Dept Physiology, Mar 23, 2007
77. Astra-Zeneca, Wilmington DE, April 23, 2007
78. Invited Speaker at Structure and Function of the Synapse, University of Iowa, June 4 2007.
79. Invited Speaker at the Olberman Institute, Structure and Function of the Synapse, June 5, 2007.
80. Parkinson's Disease Therapeutics Conference. Invited Speaker, New York, Oct 18, 2007.
81. Yale University, Department of Pharmacology. Host: James Howe. Nov 15, 2007.
82. Merck Research Laboratory, West Point. Host Ian Reynolds / Jonathon Kearn Dec 5, 2007
83. Winter Conference Brain Research, Symposium Speaker/Organizer, Jan, 2008.
84. Ruhr University Bochum, Symposium entitled "Ionotropic glutamate receptors" Feb 4, 2008 (declined).
85. University Alabama-Birmingham, Dept Neuroscience, Feb 22, 2008.
86. US-Japan Glial conference, Philadelphia PA Mar 17, 2008.
87. Pfizer, Groton CT Host: Dr. Frank Menniti, May 16, 2008.
88. Physiological Society, NMDA receptor symposium, Cambridge England July 14, 2008
89. ACS meeting, ligand gated ion channels, Philadelphia Aug 21, 2008.

Teaching and University Service

- 1994-1999 Local Area Network Coordinator for Department of Pharmacology
- 1994 Supervisor MTT Student Sponsored Seminar Series
- Hosted Laboratory Rotation Student (Melissa Butler)
 - Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
 - Lecturer in IBS 750 "Molecular Neurobiology"

- 1995 Lecturer in IBS 717 "Neuropharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Co-director IBS 570R "Neurobiology Seminar Series"
Director IBS 791R "Pharmacology Colloquium"; Organized Fall Seminar Series
Hosted Laboratory Rotation Students (Thomas Macek, Shane Masters)
- 1996 Lecturer in IBS 701 "Cell Surface Receptors"
Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Director IBS 791R "Pharmacology Colloquium"
Co-director IBS 570R "Pharmacology/Physiology Seminar Series"
Hosted Laboratory Rotation Student (Richard Peavy)
Membership Committee, Neuroscience Program
PPS Qualifying Exam Committee
Guest Reviewer for PPS Oral Exam (Thomas Macek)
Dissertation Committees (Jim Baer, Dorothy Chung, Melissa Gingrich)
- 1997 Lecturer in IBS 701 "Cell Surface Receptors"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Lecturer in IBS 704 "Ion Channels"
Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Membership Committee, Neuroscience Program
Admissions Committee, Neuroscience Program
PPS Qualifying Exam Committee
Guest Reviewer for Neuroscience Oral Exam (Fernanda Laezza)
Dissertation Committees (Jim Baer, Dorothy Chung, Melissa Gingrich)
- 1998 Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Lecturer in IBS 534 Computational Neuroscience
Lecturer IBS 520 Advance Topics in Biochemistry
Lecturer in IBS 717, Neuropharmacology
Membership Committee, Neuroscience Program
Admissions Committee, Neuroscience Program
Executive Committee, Neuroscience Program
Hosted Laboratory Rotation Student (Candice Junge)
Dissertation Committees (Dave Wolfe, Ellen Olson, Melissa Gingrich)
- 1999 Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Lecturer in IBS 534 Computational Neuroscience
Membership Committee, Neuroscience Program
Executive Committee, Neuroscience Program
Guest Reviewer for Neuroscience Oral Exam (Fernanda Laezza)
Dissertation Committees (Dave Wolfe, Ellen Olson, Melissa Gingrich, Fernanda Laezza)

- 2000 Lecturer in IBS 532 "Allied Health Pharmacology"
 Lecturer in IBS 716 "Medical Pharmacology"
 Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
 Lecturer in IBS 750 "Molecular Neurobiology"
 Lecturer in IBS 717, Neuropharmacology
 Lecturer IBS 520 Advance Topics in Biochemistry
 Membership Committee, Neuroscience Program
 Executive Committee, Neuroscience Program
 Oral Qualifying Exam Committee, Neuroscience Program
 Conflict of Interest Committee, Emory School of Medicine
 Dissertation Committees (Dave Wolfe, Ellen Olson, Candice Junge, Kevin Erreger, Fernanda Laezza)
- 2001 Lecturer in IBS 532 "Allied Health Pharmacology"
 Lecturer in IBS 716 "Medical Pharmacology"
 Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
 Lecturer in IBS 750 "Molecular Neurobiology"
 Lecturer in IBS 534 "Computational Neuroscience"
 Lecturer in BMED 8120 "Physiologic Systems I"
 Lecturer in IBS520 Advance Topics in Biochemistry (2 units)
 Membership Committee, Neuroscience Program
 Executive Committee, Neuroscience Program
 Oral Exam Committee, neuroscience Program
 Conflict of Interest Committee, Emory School of Medicine
 Dissertation Committees (Dave Wolfe, Ellen Olson, Candice Junge, Kevin Erreger, Stan Nakanishi, F.Laezza)
- 2002 Lecturer in IBS 532 "Allied Health Pharmacology"
 Lecturer in IBS 716 "Medical Pharmacology"
 Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
 Lecturer in IBS 750 "Molecular Neurobiology"
 Lecturer in IBS 534 "Computational Neuroscience"
 Director and Lecturer, IBS701 "Cell Surface Receptors"
 Co-Director and Lecturer, IBS502 "Molecular, Cellular, and Developmental Neuroscience"
 Membership Committee, Neuroscience Program, Chairman
 Executive Committee, Neuroscience Program
 Oral Exam Committee, Chairman, Neuroscience Program
 Conflict of Interest Committee, Emory School of Medicine
 Hosted Laboratory Rotation Student (Bilge Kaylon)
 Hosted Laboratory Rotation Student (Juan Rong)
 Hosted Laboratory Rotation Student (Cecily Hamill)
 Dissertation Committees (Ellen Olson, Candice Junge, Kevin Erreger, Stan Nakanishi, Matt Fuller)
- 2003 Lecturer in IBS 532 "Allied Health Pharmacology"
 Lecturer in IBS 716 "Medical Pharmacology"
 Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
 Lecturer in IBS 750 "Molecular Neurobiology"
 Co-Director and Lecturer, IBS511 "Introduction to Molecular Biology and Biochemistry"
 Executive Committee, Neuroscience Program
 Conflict of Interest Committee, Emory School of Medicine
 Hosted Laboratory Rotation Student (Amy Kostrewza)
 Hosted Laboratory Rotation Student (Won Chung)
 Hosted Laboratory Rotation Student (Anna Goldschmidt)
 Dissertation Committees (Ellen Olson, Candice Junge, Kevin Erreger, Stan Nakanishi, Vinayek Shanbhag, Lisa Kreiner, Matt Fuller)
- 2004 Lecturer in IBS 532 "Allied Health Pharmacology"

Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Director and Lecturer, IBS701 "Cell Surface Receptors"
Co-Director and Lecturer, IBS511 "Introduction to Molecular Biology and Biochemistry"
Executive Committee, Neuroscience Program
Conflict of Interest Committee, Emory School of Medicine
Hosted Laboratory Rotation Student (Elyse Katz)
Grant writing workshop for postdoctoral fellows (Sept)
Dissertation Committees (Kevin Erreger, Stan Nakanishi, Vinayek, Shanbhag, Lisa Kreiner, Matt Fuller, Cecily Hamill, Anna Goldschmidt, Jenn Wilhelm)

2005 Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Oral Exam, Outside Examiner, Neuroscience Program
Advisory Committee to the Microchemical Facility
Dissertation Committees (Stan Nakanishi, Vinayek Shanbhag, Lisa Kreiner, Matt Fuller, Cecily Hamill, Anna Goldschmidt, Jenn Wilhelm)

2006 Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 750 "Molecular Neurobiology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Outside Examiner for Richard Clark, PhD thesis, University of Pittsburgh
Outside Examiner for Kasper Bø Hansen, University of Copenhagen.
Hosted Rotation student (Kate O'Toole)
Dissertation Committees (Vinayek Shanbhag, Lisa Kreiner, Matt Fuller, Cecily Hamill, Anna Goldschmidt, Jenn Wilhelm)

2007 Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Director and Lecturer, IBS701 "Cell Surface Receptors"
Lecturer Stroke Conference for Clinical Neurology fellows and residents
Hosted Rotation students (Katie Vance, Natalie LeVasseur, Eric Armstrong)
Dissertation Committees (Vinayek Shanbhag, Lisa Kreiner, Matt Fuller, Cecily Hamill, Kelly McCoy, Li Tin Chien, Anna Goldschmidt, Jenn Wilhelm)

2008 Lecturer in IBS 532 "Allied Health Pharmacology"
Lecturer in IBS 716 "Medical Pharmacology"
Lecturer in IBS 531 "Principles and Approaches to Pharmacology"
Hosted Rotation students (Kevin Ogden, Chris Mackinson)
Dissertation Committees (Vinayek Shanbhag, Lisa Kreiner, Kelly McCoy, Katie Vance, Natalie LeVasseur, Li Tin Chien, Anna Goldschmidt, Jenn Wilhelm)

1994-2008 Contributor/Grader for Written Qualifying PhD exam (MSP and/or Neuroscience)

Research Goals

My laboratory studies the basic principles underlying the structure, function and regulation of ligand gated ion channels involved in excitatory synaptic transmission. Our goal is to use this information to understand normal brain

functions that involve synaptic transmission such as learning and memory. In addition, information about regulation of the ion channels involved in excitatory synaptic transmission can provide insight into the neuropathology of epilepsy and stroke. We are attempting to translate this information into novel therapeutic strategies. This involves the identification of novel compounds with novel mechanisms of action that can serve as a first step to design new therapeutic agents. To support this translational effort, we have developed productive and long standing collaborations with the Dept Chemistry as well as clinical departments in the Emory School of Medicine

My laboratory also exams the role of blood proteases in brain function and injury. We are currently studying the roles of PAR1 in astrocytic-neuronal cross talk as well as in mediated neuronal injury and gliosis following brain insult. In addition, we are studying the role of PAR2 in microglial activation. These experiments are ultimately directed towards identifying new therapeutic strategies to treat brain injury, as well as build our foundational knowledge about the role of serine proteases in brain function.