BIOGRAPHICAL SKETCH

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NAME **Anirvan Ghosh**	POSITION TITLE **Stephen Kuffler Professor of Biology**
eRA COMMONS USER NAME aghosh1	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
California Inst. of Technology, Pasadena CA	B. S	1981-1985	Physics
Stanford University, Stanford, CA	Ph. D	1985-1991	Neuroscience Advisor: C.J. Shatz
Harvard Medical School, Boston, MA	Postdoc	1991-1995	Mol. Neuroscience Advisor: M.E. Greenberg

A. Positions and Honors

Academic Positions

9/95-2/00:	Assistant Professor, Department of Neuroscience, Johns Hopkins University School of Medicine
3/00-6/03	Associate Professor, Department of Neuroscience, Johns Hopkins University School of Medicine
7/03-present	Stephen Kuffler Professor of Neurobiology University of California San Diego
7/08-present	Chair, Neurobiology Section, Division of Biological Sciences, UCSD

University/Professional Service

2002-2003	Chair, Johns Hopkins Medical School Council
1999-2002	Society for Neuroscience Annual Meeting Program Committee
2003-2004	Admissions Committee, UCSD/Salk Neurosciences Graduate Program
2001-2005	Member of NIH study section NDPR
2004-present	Director, UCSD/Salk Neurosciences Graduate Program
2004-present	Associate Editor, Journal of Neuroscience
2006, 2008	Co-chair, CSHL meeting on Axon Guidance, Synaptogenesis, and Neural Plasticity
2007, 2009	Co-chair, Gordon Conference on Dendrites

Honors

1984-1985:	Caltech Prize Scholarship; Graduated with honor in Physics
1990-1991:	Giannini Foundation Postdoctoral Research Fellowship
1991-1994:	Damon Runyon-Walter Winchell Cancer Research Fund Postdoctoral Fellowship
1994-1995:	Medical Foundation Postdoctoral Fellowship
1995-1997:	Damon Runyon Scholar Award
1996-1999:	EJLB Foundation Scholar Research Award
1996-1999:	Klingenstein Fellowship Award in Neuroscience
1996-1998:	Alfred P. Sloan Research Fellow
1997-2001:	Pew Scholar Award
1997:	Presidential Early Career Award for Scientists and Engineers
2000:	John Merck Scholar Award
2001:	Society for Neuroscience Young Investigator Award
2003:	Stephen Kuffler Professorship, University of California San Diego
2008:	UCSD Revelle College Outstanding Faculty Award

B. Publications

1. McConnell, S.K., **A. Ghosh** and C.J. Shatz (1989). Subplate neurons pioneer the first axon pathway from the cerebral cortex. **Science** 245: 978-982.
2. **Ghosh, A**., A. Antonini, S.K. McConnell and C.J. Shatz (1990). Requirement for subplate neurons in the formation of thalamocortical connections. **Nature** 347: 179-181
3. Shatz, C.J., **A. Ghosh**, S.K. McConnell, K.L. Allendoerfer, E. Friauf and A. Antonini (1991). Pioneer neurons and target selection in cerebral cortical development. in **Cold Spring Harbor Symp. Quant. Biol.** 55: 469-480.
4. Shatz, C.J., **A. Ghosh**, S.K. McConnell, K.L. Allendoerfer, E. Friauf and A. Antonini (1991). Subplate neurons and the development of neocortical connections. in **Development of the Visual System**, D.M. Lam and C.J. Shatz, eds (MIT Press).
5. **Ghosh, A**. and C.J. Shatz (1992). Pathfinding and target selection by developing geniculocortical axons. **J. Neurosci.** 12:39-55.
6. **Ghosh, A**. and C.J. Shatz (1992). Involvement of subplate neurons in the formation of ocular dominance columns. **Science** 255:1441-1443.
7. **Ghosh, A**. and C.J. Shatz (1993). A role for subplate neurons in the patterning of connections from thalamus to cortex. **Development** 117:1031-1047.
8. McConnell, S.K., **A. Ghosh** and C. J. Shatz (1994). Subplate pioneers and the formation of descending connections from cerebral cortex. **J. Neurosci.** 14:1892-1907
9. Dalva, M.B., **A. Ghosh** and C.J. Shatz (1994). Independent control of dendritic and axonal form in the developing lateral geniculate nucleus. **J. Neurosci.** 14:3588-3602
10. **Ghosh, A**. and C.J. Shatz (1994). Segregation of geniculocortical afferents during the critical period: a role for subplate neurons. **J. Neurosci.** 14:3862-3880
11. **Ghosh, A**., J. Carnahan and M.E. Greenberg (1994). Requirement for BDNF in activity-dependent survival of cortical neurons. **Science** 263:1618-1623.
12. **Ghosh, A**., D.D.Ginty, H. Bading and M.E. Greenberg (1994). Calcium regulation of gene expression in neuronal cells. **J. Neurobiol**. 25:294-303.
13. Farnsworth, C.L., N.W. Freshney, L.B. Rosen, **A. Ghosh**, M.E. Greenberg and L.A. Feig (1995). Calcium activation of Ras mediated by neuronal exchange factor Ras-GRF. **Nature** 376:524-527.
14. **Ghosh, A**. and M.E. Greenberg (1995). Distinct roles for bFGF and NT3 in the regulation of cortical neurogenesis. **Neuron** 15:89-103.
15. **Ghosh, A**. (1995). Subplate neurons and the patterning of thalamocortical connections. **Proceedings of the Ciba Foundation Symposium on Cortical Development**
16. **Ghosh, A**. and Greenberg, M.E. (1995). Calcium signaling in neurons: molecular mechanisms and cellular consequences. **Science** 268:239-247.
17. **Ghosh, A**. (1996). Cortical development: With an eye on neurotrophins. **Current Biology** 6:130-133.
18. Threadgill, R., Bobb, K. and **A. Ghosh** (1997). Regulation of dendritic growth and remodeling by Rho, Rac, and Cdc42. **Neuron** 19:625-634.
19. **Ghosh, A**. (1997). Axons follow Reelin routes. **Nature** 385:23-24.
20. Shieh, P. B. and **A. Ghosh** (1997). Neurotrophins: New roles for a seasoned cast. **Current Biology** 7:627-630.
21. Shieh, P.B., Hu, S.-C., Timmusk, T., and **A. Ghosh** (1998). Identification of a signaling pathway involved in calcium regulation of BDNF expression. **Neuron** 20:727-740.
22. Polleux, F., R.J. Giger, D.D. Ginty, A.L. Kolodkin, and **A. Ghosh** (1998). Patterning of cortical efferent projections by semaphorin-neuropilin interactions. **Science** 282:1904-1906.
23. **Ghosh, A**. and A.L. Kolodkin (1998). Specification of neuronal connectivity: ETS marks the spot. **Cell** 95:303-306.
24. Hu, S.-C., J. Chrivia and **A. Ghosh** (1999). Regulation of CBP-mediated transactivation by neuronal calcium signaling. **Neuron** 22:799-808.
25. Shieh, P. B. and **Ghosh, A**. (1999). Molecular mechanisms underlying activity-dependent regulation of BDNF expression. **J. Neurobiol.** 41:127-134.
26. Redmond, L.J., S.-R. Oh, C. Hicks, G. Weinmaster, and **A. Ghosh** (2000). Nuclear Notch1 signaling and the regulation of dendritic development. **Nature Neuroscience** 3:30-40.

27. Polleux, F., T. Morrow and **A. Ghosh** (2000). Semaphorin 3A is a chemoattractant for developing cortical dendrites. **Nature (research article; cover)** 404:567-573.
28. **Ghosh, A**. (2000). Dendritic Growth: Don't go says Flamingo. **Neuron** 28:3-4.
29. Dickson, B.J., H.Cline, F. Polleux and **A. Ghosh** (2001). New directions in axon guidance. **EMBO Reports** 2:182-186.
30. Redmond, L. and **A. Ghosh** (2001). The role of Notch and Rho GTPase signaling in the control of dendritic development. **Curr. Opin. Neurobiology** 11:111-117.
31. Morrow, T., M.-R. Song and **A. Ghosh** (2001). Sequential specification of neurons and glia by developmentally regulated extracellular factors. **Development** 128:3585-3594.
32. Whitford, K.L. and **A. Ghosh** (2001). Plexin signaling via Off-track and Rho family GTPases. **Neuron** 32:1-8.
33. Whitford, K.L., V. Marillat, E. Stein, C. S. Goodman, M. Tessier-Lavigne, A. Chedotal and **A. Ghosh** (2002). Regulation of cortical dendrite development by Slit-Robo interactions. **Neuron** 33:47-61.
34. **Ghosh, A**. (2002) Learning more about NMDA receptor regulation. **Science** 295:449-451.
35. Whitford, K.L., P. Dijkhuizen, F. Polleux, and **A. Ghosh** (2002). Molecular control of cortical dendrite development. **Ann. Rev. Neurosci.** 25:127-149.
36. Polleux, F., Whitford, K.L., Dijkhuizen, P.A., Vitalis, T., and **A. Ghosh** (2002) Control of cortical interneuron migration by neurotrophins and PI 3-kinase signaling. **Development** 129:3147-3160.
37. Redmond, L., Kashani, A., and **A. Ghosh** (2002). Calcium regulation of dendritic growth via Cam kinase IV and CREB-mediated transcription. **Neuron** 34:999-1010.
38. Polleux, F. and **A. Ghosh** (2002) The Slice Overlay Assay: A Versatile Tool to Study the Influence of Extracellular Signals on Neuronal Development. **Science's STKE** | 11 June 2002
39. Wong, R. O. L. and **A. Ghosh** (2002) Activity-dependent regulation of dendritic growth and patterning. **Nature Reviews Neurosci.** 3:803-812.
40. Aizawa, H., Hu, S-C, Bobb, K., Balakrishnan, K., Ince, G., Gurevich, I., Cowan, M., and **A. Ghosh** (2004). Dendrite development regulated by CREST, a calcium-regulated transcription activator. **Science (research article; cover)** 303:197-202.
41. Fenstermaker V, Chen Y, **Ghosh A**, R. Yuste (2004). Regulation of dendritic length and branching by semaphorin 3A. **J Neurobiol** 58(3):403-412.
42. Song, M.-R. and **A. Ghosh** (2004). FGF2-induced chromatin remodeling regulates CNTF-mediated gene expression and astrocyte differentiation. **Nature Neuroscience** 7(3):229-235
43. Dijkhuizen, P.A. and **A. Ghosh** (2005) BDNF regulates primary dendrite formation in cortical neurons via the PI3-Kinase and MAP Kinase signaling pathways **J. Neurobiol.** 62(2):278-288..
44. Chen, Y. and **A. Ghosh** (2005). Regulation of cortical dendrite development by Rap1 signaling. **Mol. Cell. Neurosci.** 28(2):215-228
45. Dijkhuizen, P.A. and **A. Ghosh** (2005). Regulation of dendritic growth by calcium and neurotrophin signaling. In “Development, dynamics, and pathology of neuronal networks: from molecules to functional circuits”. (J. van Pelt, ed., Elsevier)
46. Kim, P.M., Aizawa, H., Kim, P.S., Huang, A.S., Wickramasinghe, S.R., Kashani, A.H., Barrow, R.K., Huganir, R.H., **Ghosh, A.**, and S.D. Snyder (2005). Serine Racemase: Activation by glutamate neurotransission via GRIP and mediation of neuronal migration. **PNAS** 102:2105-2110.
47. Redmond, L. and **A. Ghosh** (2005) Regulation of dendritic development by calcium signaling. **Cell Calcium** 37:411-416.
48. Konur, S. and **A. Ghosh** (2005) Calcium signaling and the control of dendritic development. **Neuron** 48:401-405.
49. Chen, Y. and **A. Ghosh** (2005). Regulation of dendritic development by neuronal activity. **J. Neurobiol.** 64:4-10.
50. Ince-Dunn, G., Hall, B.H., Hu, S-C., Ripley, B., Huganir, R.L., Olson, J.M., and **A. Ghosh** (2006). Regulation of thalamocortical patterning and synaptic maturation by NeuroD2. **Neuron (cover)** 49:683-695.
51. Kashani, A.H., Qiu, Z., Jurata, L., Lee, S.-K., Pfaff, S, Goebbels, S., Nave, K.-A., and **A. Ghosh** (2006). Calcium activation of the LMO4 transcription complex and its role in the patterning of thalamocortical connections. **J. Neurosci.** 26:8398-8408.

52. Polleux, F., Ince-Dunn, G., and **A. Ghosh** (2007). Transcriptional regulation of axon guidance and synapse formation. **Nature Reviews Neuroscience** 8:331-340.
53. Davis, E.K. and **A. Ghosh** (2007). Should I stay or should I go: Wnt signals at the synapse. **Cell** 130:593-596.
54. Wu JI, Lessard J, Olave IA, Qiu Z, **Ghosh A**, Graef IA, Crabtree GR (2007). Regulation of dendritic development by neuron-specific chromatin remodeling complexes. **Neuron**. 56(1):94-108.
55. Hall, BJ, Ripley B, **A. Ghosh** (2007). NR2B signaling regulates the development of synaptic AMPA receptor current. **J Neurosci.** 27(49):13446-56
56. Ultanir SK, Kim JE, Hall BJ, Deerinck T, Ellisman M, **A. Ghosh** (2007). Regulation of spine morphology and spine density by NMDA receptor signaling in vivo. **Proc Natl Acad Sci U S A.** 104(49):19553-8.
57. Polleux, F., **A. Ghosh** (2008). Molecular determinants of dendrite and spine development. In **Dendrites**, 2nd Ed. Oxford University Press.
58. Cline, H., **Ghosh, A**., Jan, Y-N. (2008) Dendritic Development. In **Fundamental Neuroscience**, 3rd Ed. Elsevier
59. Hall, B.J. and **A. Ghosh** (2008) Regulation of AMPA receptor recruitment at developing synapses. **Trends in Neurosci.** 31(2):82-89.
60. Qiu, Z. and **A. Ghosh** (2008) A brief history of neuronal gene expression: regulatory mechanisms and cellular consequences. **Neuron** 60:451-455.
61. Davis, E.K., Zou, Y., and **A. Ghosh** (2008) Wnts acting through canonical and non-canonical pathways exert opposite effects on hippocampal synapse formation. **Neural Development** 3:32
62. Qiu, Z. and **A. Ghosh** (2008) A calcium-dependent switch in a CREST-BRG1 complex regulates activity-dependent gene expression. **Neuron** 60:775-787.
63. Yuan, S.H., Qiu, Z. and **A. Ghosh** (2008). TOX3 regulates calcium-dependent transcription in neurons. **Proc Natl Acad Sci USA** 24;106(8):2909-14.
64. Ripley, B., Tiglio, K., Otto, S., Williams, M., and A. Ghosh (2008) Regulation of presynaptic stability by AMPA receptor reverse signaling. (under review)