

Curriculum Vitae

PERSONAL INFORMATION

Name: Tomomi Shimogori

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Education: B.A. Hoshi Collage of Pharmacy, Tokyo, Japan **1993**

Ph.D., Pharmaceutical Sciences, Graduate School,
Chiba University, Chiba, Japan **1998**

ACADEMIC APPOINTMENTS

1998 to 2004 Dept. Neurobiology, Pharmacology and Physiology, University of Chicago, USA Laboratory of Dr. Elizabeth A. Grove

2004 to 2010 RIKEN BSI Unit Leader of Shimogori Research Unit

2010 to present RIKEN BSI Team Leader of Lab for Molecular Mechanisms of Thalamus Development

PUBLICATIONS

Peer Reviewed Journal Articles

1. He Y, **Shimogori T**, Kashiwagi K, Shirahata A, Igarashi K. (1995) Inhibition of cell growth by combination of alpha-difluoromethylornithine and an inhibitor of spermine synthase. *J Biochem (Tokyo)*. **117**, 824-9.
2. Igarashi K, Koga K, He Y, **Shimogori T**, Ekimoto H, Kashiwagi K, Shirahata A. (1995) Inhibition of the growth of various human and mouse tumor cells by 1,15-bis(ethylamino)-4,8,12-triazapentadecane. *Cancer Res*. **55**, 2615-9.
3. **Shimogori T**, Suzuki T, Kashiwagi K, Kakinuma Y, Igarashi K. (1996) Enhancement of helicase activity and increase of eIF-4E phosphorylation in ornithine decarboxylase-overproducing cells. *Biochem Biophys Res Commun*. **222**, 748-52.

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4. **Shimogori T**, Kashiwagi K, Igarashi K. (1996) Spermidine regulation of protein synthesis at the level of initiation complex formation of Met-tRNAⁱ, mRNA and ribosomes. *Biochem Biophys Res Commun.* **223**, 544-8.
5. Sakata K, **Fukuchi-Shimogori T**, Kashiwagi K, Igarashi K. (1997) Protein Identification of regulatory region of antizyme necessary for the negative regulation of polyamine transport. *Biochem Biophys Res Commun.* **238**, 415-9.
6. **Fukuchi-Shimogori T**, Ishii I, Kashiwagi K, Mashiba H, Ekimoto H, Igarashi K. (1997) Malignant transformation by overproduction of translation initiation factor eIF4G. *Cancer Res.* **57**, 5041-4.
7. Shibata M, Shinga J, Yasuhiko Y, Kai M, Miura K, **Shimogori T**, Kashiwagi K, Igarashi K, Shiokawa K. (1998) Overexpression of S-adenosylmethionine decarboxylase (SAMDC) in early *Xenopus* embryos induces cell dissociation and inhibits transition from the blastula to gastrula stage. *Int J Dev Biol.* **42**, 675-86.
8. Meksuriyen D, **Fukuchi-Shimogori T**, Tomitori H, Kashiwagi K, Toida T, Imanari T, Kawai G, Igarashi K. (1998) Formation of a complex containing ATP, Mg²⁺, and spermine. Structural evidence and biological significance. *J Biol Chem.* **273**, 30939-44.
9. Antognoni F, Del Duca S, Kuraishi A, Kawabe E, **Fukuchi-Shimogori T**, Kashiwagi K, Igarashi K. (1999) Transcriptional inhibition of the operon for the spermidine uptake system by the substrate-binding protein PotD. *J Biol Chem.* **274**, 1942-8.
10. Iwata S, Sato Y, Asada M, Takagi M, Tsujimoto A, Inaba T, Yamada T, Sakamoto S, Yata J, **Shimogori T**, Igarashi K, Mizutani S. (1999) Anti-tumor activity of antizyme which targets the ornithine decarboxylase (ODC) required for cell growth and transformation. *Oncogene.* **18**, 165-72.
11. Hayashi S, Nishimura K, **Fukuchi-Shimogori T**, Kashiwagi K, Igarashi K. (2000) Increase in cap- and IRES-dependent protein synthesis by overproduction of translation initiation factor eIF4G. *Biochem Biophys Res Commun.* **277**, 117-23.

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12. **Fukuchi-Shimogori T**, Grove EA. (2001) Neocortex patterning by the secreted signaling molecule FGF8. *Science*. **294**:1071-4.
13. Nishimura K, Ohki Y, **Fukuchi-Shimogori T**, Sakata K, Saiga K, Beppu T, Shirahata A, Kashiwagi K, Igarashi K. (2002) Inhibition of cell growth through inactivation of eukaryotic translation initiation factor 5A (eIF5A) by deoxyspergualin. *Biochem J*. **363**, 761-8.
14. Grove EA and **Fukuchi-Shimogori T**. (2003) Development of the vertebrate forebrain. *Ann. Rev. Neurosci*. **26**, 355-80.
15. **Fukuchi-Shimogori T**, Grove EA. (2003) Emx2 Patterns the Neocortex by Regulating FGF Positional Signaling. *Nat Neurosci*. **8**, 825-31.
16. **Shimogori T.**, VanSant J, Paik ES, and Grove EA. (2004) Members of the Wnt, Fz, and Frp gene families expressed in postnatal mouse cerebral cortex. *J Comp Neurol*. **473**, 496-510.
17. **Shimogori T.**, Banuchi V., Ng HY., Strauss JB. and Grove EA. (2004) Embryonic signaling centers expressing BMP, Wnt and FGF proteins interact to pattern the cerebral cortex. *Development*. **13**,5639-47.
18. **Shimogori T** and Grove EA. (2005) FGF8 Regulates Neocortical Guidance of Area-specific Thalamic Innervation. *J Neurosci*. **13**, 6550-60.
19. Sasaki T, Nishihara H, Hirakawa M, Fujimura K, Tanaka M, Kokubo N, Kimura-Yoshida C, Matsuo I, Sumiyama K, Saitou N, **Shimogori T**, Okada N. (2008) Possible involvement of SINEs in mammalian-specific brain formation. *Proc Natl Acad Sci U S A*. **105**, 4220-5.
20. **Shimogori T** and Ogawa M. (2008) Gene application with in utero electroporation in mouse embryonic brain. *Dev Growth Differ*. **50**:499-506 (review).

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21. Imayoshi I, **Shimogori T**, Ohtsuka T and Kageyama R. (2008) Hes genes and neurogenin regulate non-neural versus neural fate specification in the dorsal telencephalic midline. *Development*. 135; 2531-41.
22. Kataoka A and **Shimogori T**. (2008) FGF8 controls regional identity in the developing thalamus. *Development*. 135; 2873-81
23. Kinameri E, Inoue T, Aruga J, Imayoshi I, Kageyama R, **Shimogori T*** and Moore AW*. (2008) Prdm proto-oncogene transcription factor family expression and interaction with the Notch-Hes pathway in mouse neurogenesis. *PLoS ONE*. 3:e3859. *corresponding authors
24. Suzuki-Hirano A and **Shimogori T**. (2009) The role of Fgf8 in telencephalic and diencephalic patterning. *Semin. Cell. Devbiol.* 20; 719-725 (review).
25. Fabre P, **Shimogori T**, Charron F. (2010) Segregation of ipsilateral retinal ganglion cell axons at the optic chiasm requires the Shh receptor Boc. *J Neurosci.* 30; 266-75.
26. Aggarwal M, Mori S, **Shimogori T**, Blackshaw S, Zhang J. (2010) Three dimensional rapid diffusion tensor microimaging for anatomical characterization and gene expression mapping the mouse brain. *Journal Magnetic Resonance in Medicine.* 64; 249-261.
27. **Shimogori T***, Lee DA, Miranda-Angulo A, Yang Y, Jiang L, Yoshida AC, Kataoka A, Mashiko H, Avetisyan M, Qi L, Qian J, and Blackshaw S*. (2010) A genomic atlas of mouse hypothalamic development. *Nat Neurosci.* 13:767-75. *corresponding authors.
28. Okada N, Sasaki T, **Shimogori T**, Nishihara H. (2010) Emergence of mammals by emergency: exaptation. *Genes Cells.* 15:801-12.



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29. Toyoda R, Assimacopoulos S, Wilcoxon J, Taylor A, Feldman P, Suzuki-Hirano A, **Shimogori T**, Grove EA. (2010) FGF8 acts as a classic diffusible morphogen to pattern the neocortex. *Development*. 137:3439-48.
30. Blackshaw S, Scholpp S, Placzek M, Ingraham H, Simerly R, **Shimogori T**. (2010) Molecular pathways controlling development of thalamus and hypothalamus: from neural specification to circuit formation. *J Neurosci*. 30:14925-30. Review.
31. Suzuki-Hirano A, Ogawa M, Kataoka A, Yoshida AC, Itoh D, Ueno M, Blackshaw S, **Shimogori T**. (2011) Dynamic spatiotemporal gene expression in embryonic mouse thalamus. *J Comp Neurol*. 519; 528-43.
32. Yuge K, Kataoka A, Yoshida AC, Itoh D, Aggarwal M, Mori S, Blackshaw S, **Shimogori T**. (2011) Region-specific expression in early postnatal mouse thalamus. *J Comp Neurol*. 519; 544-61.
33. Matsui A, Yoshida AC, Kubota M, Ogawa M and **Shimogori T**. (2011) Mouse *in utero* electroporation: Controlled spatio-temporal gene transefection. *J Vis Exp*. 54 pii: 3024.
34. Hama H, Kurokawa H, Kawano H, Ando R, Shimogori T, Noda H, Fukami K, Sakaue-Sawano A, Miyawaki A. (2011) Scale: a chemical approach for fluorescence imaging and reconstruction of transparent mouse brain. *Nature Neurosci*. 14:1481-8.
35. Chiara F, Badaloni A, Croci L, Yeh ML, Cariboni A, Hoerder-Suabedissen A, Consalez GG, Eickholt B, **Shimogori T**, Parnavelas JG, Rakić S. (2012) Early B-cell factors 2 and 3 (EBF2/3) regulate early migration of Cajal-Retzius cells from the cortical hem. *Dev Biol*. 365:277-89.
36. Mashiko H, Yoshida AC, Kikuchi SS, Niimi K, Takahashi E, Aruga J, Okano H, **Shimogori T**. (2012) Comparative anatomy of marmoset and mouse cortex from genomic expression. *J Neurosci*. 32:5039-53.

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37. Nakagawa Y, **Shimogori T**. (2012) Diversity of thalamic progenitor cells and postmitotic neurons. *Eur J Neurosci*. 35:1554-62.
38. Nakanishi A, Kobayashi N, Suzuki-Hirano A, Nishihara H, Sasaki T, Hirakawa M, Sumiyama K, **Shimogori T**, Okada N. (2012) A SINE-derived element constitutes a unique modular enhancer for mammalian diencephalic *Fgf8*. *PLoS One*. 7:e43785
39. Huilgol D, Udin S, **Shimogori T**, Saha B, Roy A, Aizawa S, Hevner RF, Meyer G, Ohshima T, Pleasure SJ, Zhao Y, Tole S. (2013) Dual origins of the mammalian accessory olfactory bulb revealed by an evolutionarily conserved migratory stream. *Nat Neurosci*. doi: 10.1038/nn.3297.
40. Kumagai A, Ando R, Miyatake H, Greimel P, Kobayashi T, Hirabayashi Y, **Shimogori T**, Miyawaki A. (2013) A bilirubin-inducible fluorescent protein from eel muscle. *Cell*. 153:1602-11.
41. Matsui A, Tran M, Yoshida AC, Kikuchi SS, U M, Ogawa M, **Shimogori T**. (2013) BTBD3 controls dendrite orientation toward active axons in mammalian neocortex. *Science*. 342 (6162):1114-8. doi: 10.1126/science.1244505.
42. Forni PE, Bharti K, Flannery EM, **Shimogori T**, and Wray S. (2013) The Indirect Role of Fibroblast Growth Factor-8 in Defining Neurogenic Niches of the Olfactory/GnRH Systems. *J Neurosci*. 33:19620-19634
43. Yamanaka T, Tosaki A, Kurosawa M, Matsumoto G, Koike M, Uchiyama Y, Maity SN, **Shimogori T**, Hattori N, Nukina N. (2014) NF-Y inactivation causes atypical neurodegeneration characterized by ubiquitin and p62 accumulation and endoplasmic reticulum disorganization. *Nat Commun*. 5:3354. doi: 10.1038/ncomms4354.
44. Golding B, Pouchelon G, Bellone C, Murthy S, Di Nardo AA, Govindan S, Ogawa M, **Shimogori T**, Lüscher C, Dayer A, Jabaudon D. (2014) Retinal input directs the recruitment of inhibitory interneurons into thalamic visual circuits. *Neuron*. 81(5):1057-69. doi: 10.1016/j.neuron.2014.01.032.

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45. Yamanaka T, Wong HK, Tosaki A, Bauer PO, Wada K, Kurosawa M, **Shimogori T**, Hattori N, Nukina N. (2014) Large-scale RNA interference screening in m PLoS One. 2014 Apr 4;9(4):e93891. doi: 10.1371/journal.pone.0093891.
46. Caballero IM, Manuel MN, Molinek M, Quintana-Urzainqui I, Mi D, **Shimogori T**, Price DJ. (2014) Cell-autonomous repression of shh by transcription factor pax6 regulates diencephalic patterning by controlling the central diencephalic organizer. Cell Rep. 2014 Sep 11;8(5):1405-18. doi: 10.1016/j.celrep.2014.07.051.
47. Kurosawa M, Matsumoto G, Kino Y, Okuno M, Kurosawa-Yamada M, Washizu C, Taniguchi H, Nakaso K, Yanagawa T, Warabi E, **Shimogori T**, Sakurai T, Hattori N, Nukina N. (2015) Depletion of p62 reduces nuclear inclusions and paradoxically ameliorates disease phenotypes in Huntington's model mice. Hum Mol Genet. 24(4):1092-105. doi: 10.1093/hmg/ddu522.
48. Miyazaki H, Oyama F, Inoue R, Aosaki T, Abe T, Kiyonari H, Kino Y, Kurosawa M, Shimizu J, Ogiwara I, Yamakawa K, Koshimizu Y, Fujiyama F, Kaneko T, Shimizu H, Nagatomo K, Yamada K, **Shimogori T**, Hattori N, Miura M, Nukina N. (2015)  Singular localization of sodium channel β 4 subunit in unmyelinated fibres and its role in the striatum. Nat Commun. 5:5525. doi: 10.1038/ncomms6525. 
49. Liu J, Merkle FT, Gandhi AV, Gagnon JA, Woods IG, Chiu CN, **Shimogori T**, Schier AF, Prober DA. (2015) Evolutionarily conserved regulation of hypocretin neuron specification by Lhx9. Development. 2015 Feb 27. pii: dev.117424.

Book Chapters

1. **Shimogori T** and Grove EA. (2006) Subcortical and Neocortical Guidance of Area-specific Thalamic innervation: Development and Plasticity in sensory thalamus and cortex, Eds: Erzurumlu, R., Guido, W., Molnar, Z., Springer, Heidelberg. P68

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2. **Shimogori T.** (2006) Micro In Utero Electroporation for Efficient Gene Targeting in Mouse Embryos, In: Gene Transfer, Eds: Friedmann T. and Rossi J., Cold Spring Harbor, Laboratory Press, p427
3. **Shimogori T** and Ogawa M. (2008) Practical application of micro electroporation into developing mouse brain. Springer. P153-167.

INVITED PRESENTATIONS

1. Japanese Society of Developmental Biology, Sendai, Japan (2004)
2. Society of Evolution Studies, Kyoto, Japan (2007)
3. The Japanese Society of Child Neurology, Osaka, Japan (2007)
4. Institut de Recherches Cliniques de Montréal, Montréal, Québec, Canada (2008)
5. Johns Hopkins Medical Institute Research Seminar, Baltimore, USA (2008)
6. Biochemistry and molecular biology, Kobe, Japan (2008)
7. University Miguel Hernandez, Alicante, Spain (2009)
8. Invited speaker, Barrel XXII satellite meeting (2009. Oct)
9. Neuroscience at the University of Chicago, Chicago, USA (2009)
10. Institute of neuroscience (ION), Shinghai, China (2009. Nov)
11. Pekin University, Beijing, China (2009. Nov)
12. The 8th Binneal Chinese Neuroscience meting, Guangzhou, China (2009. Nov)
13. Institut de Recherches Cliniques de Montréal, Montréal, Québec, Canada (2010. May)
14. Department of physiology, anatomy and genetics, Oxford (2010. June)
15. Department of biological science, Sheffield, UK (2010. June)
16. Research department of cell and developmental biology, University of College London, UK (2010. June)
17. FAONS Congress-2010, Lucknow, India (2010, Nov)
18. SFN mini symposium (molecular pathways controlling development of thalamus and hypothalamus: from neural specification to circuit formation), DC, USA (2010 Nov)
19. Neurobiology Section, Biological Sciences Division, University of California, San Diego (2010 Nov)
20. Development and Plasticity of Thalamocortical Systems, Arolla, Switzerland (2011. Feb)
21. Johns Hopkins Medical Institute Research Seminar, Baltimore, USA (2011. Nov)
22. Neural development; Stem cell perspective, Japan (2012 Jan)
23. Research department of cell and developmental biology, University of College London, UK (2013 Jan)
24. Cortex club speaker, Oxford, UK (2013 Jan)
25. Salk institute for biological studies, USA (2013 Jan)

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26. IBRO Lecture course, Hong Kong (2013 June)
27. ANS2013 (Australian Neuroscience meeting), Melbourne (2013 Jan)
28. Gordon Research Conference (Dendrites: molecules, structure and function), Les Diablerets, Switzerland (2013 May)
29. Geneva neuroscience center, University of Geneva, Switzerland (2013 May)
30. Yale University School of Medicine, New Haven USA. (2013 Nov)
31. Japanese Conference for Laboratory Animal Science and Technology, Sapporo, Japan (2014 May)
32. Gordon Research Conference (Molecular and Cellular Neurobiology), The Hong Kong University of Science and Technology, Hong Kong (2014 July)
33. INCF 2014, Leiden, Netherland (2014 Aug)
34. Erasmus University Rotterdam, Rotterdam, Netherland (2014 Aug)

TEACHING EXPERIENCE

1. Tokyo University graduate school (2005)
2. The 8th IBRO school on Neuroscience at the Tata Institute of Fundamental Research, Mumbai, India (2006)
3. BSI tutorial lecture (Neural Development) (2006)
4. BSI tutorial lecture (Neural Development) (2007)
5. Tokyo Metropolitan University (2008)
6. The IBRO-AORC Associate School, Nanjing, China (2009)
7. Tokyo Medical and Dental University (2009)
8. Tokyo Metropolitan University (2010)
9. Tokyo University (2011)
10. The IBRO school in Neuroscience at the Hong Kong University, Hong Kong (2012)

Representative Abstracts and Oral Presentations

1. Seth Blackshaw, Aya C Yoshida, Ayane Kataoka, Dan Lee, Ana Miranda-Angulo, Lizhi Jiang, Marina Avetisyan, Lixin Qi, and Tomomi Shimogori. Genomic analysis of mouse hypothalamic development (1). 40th Annual Meeting of the Society for Neuroscience, Chicago (2009.Oct).
2. Tomomi Shimogori, Aya Yoshida, Ayane Kataoka, Dan Lee, Ana Miranda-Angulo, Lizhi Jiang, Marina Avetisyan, Lixin Qi, and Seth Blackshaw. Genomic analysis of

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- mouse hypothalamic development (2). 40th Annual Meeting of the Society for Neuroscience, Chicago (2009.Oct).
3. Kazuya Yuge, Aya C Yoshida, Satomi Kikuchi, Tomomi Shimogori. Gene expression in the barrel cortex triggered by thalamocortical innervation. 40th Annual Meeting of the Society for Neuroscience, Chicago (2009.Oct).
 4. Asuka Suzuki-Hirano and Tomomi Shimogori. Comparative analysis of chick and mouse developing epithalamus. International Conference, "Construction and reconstruction of the brain". Awaji, Japan (2009. Oct).
 5. Asuka Suzuki-Hirano and Tomomi Shimogori. Comparative analysis of chick and mouse developing epithalamus. Japanese Society of Developmental Biologists. Niigata, Japan (2009. May).
 6. Kazuya Yuge, Aya C Yoshida, Ayane Kataoka, Seth Blackshaw and Tomomi Shimogori. Gene expression study in early postnatal mouse thalamus. 31st Annual meeting of the Molecular Biology Society of Japan. Kobe, Japan (2008. Dec).
 7. Tomomi Shimogori. Fgf8 controls regional identity in the developing thalamus. The 31st Annual Meeting of the Japan Neuroscience Society, Tokyo, Japan (2008. Jul).
 8. Tomomi Shimogori and Ayane Kataoka. Fgf8 controls regional identity in the developing thalamus. Gordon Conference, Neural Development, Nerport, RI, USA. (2008. Aug).
 9. Tomomi Shimogori and Ayane Kataoka. Fgf8 controls regional identity in the developing thalamus. 17th Biennial Conference of the International Society for Developmental Neuroscience, Asilomar, CA, USA. (2008. Jun).
 10. Tomomi Shimogori and Ayane Kataoka. Fgf8 controls regional identity in the developing thalamus. IBRO satellite meeting, Cairns, Australia (2007. Jul).
 11. Tomomi Shimogori and Ayane Kataoka. Fgf8 controls regional identity in the developing thalamus. IBRO 2007 World Congress, Melbourne, Australia (2007. Jul).
 12. Tomomi Shimogori and Ayane Kataoka. Developmental mechanism of mammalian diencephalon. 16th Biennial Conference of the International Society for Developmental Neuroscience, Banff, Alberta, Canada. (2006. Aug).
 13. Tomomi Shimogori. Japanese-American Frontiers of Science. Kanagawa, Japan. (2005. Dec).