

Hiroyuki Kamiguchi, M.D., Ph.D.



Position

Senior Team Leader
RIKEN Brain Science Institute
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Education

1996 Ph.D., Department of Neurosurgery, Keio University School of Medicine, Tokyo, Japan
1989 M.D., Keio University School of Medicine, Tokyo, Japan

Licensure & Certification

1995 Board Certified in Neurosurgery
1989 Licensed to Practice Medicine in Japan

Professional Training & Employment

2011-present Senior Team Leader, RIKEN Brain Science Institute
2003-2011 Team Leader, RIKEN Brain Science Institute
1999-2002 Senior Scientist, RIKEN Brain Science Institute
1996-1998 Research Associate with Prof. Vance Lemmon,
Department of Neurosciences, Case Western Reserve University, Cleveland, OH, USA
1995 Instructor, Department of Neurosurgery, Keio University
1994 Chief Resident, Department of Neurosurgery, Keio University
1992-1993 Senior Resident & Clinical Fellow, Department of Neurosurgery, Keio University
1991 Medical Staff in Neurosurgery, Urawa City Hospital, Saitama, Japan
1990 Medical Staff in Neurosurgery, Saiseikai Utsunomiya Hospital, Tochigi, Japan
1989 Resident in Surgery, Keio University Hospital, Tokyo, Japan

Adjunctive Appointments

2016-2021 Principal Investigator, Japan Agency for Medical Research and Development (AMED-CREST)
2016-2018 Program Officer, Research Center for Science Systems,
Japan Society for the Promotion of Science (JSPS)
2007-2009 Visiting Professor, Waseda University Faculty of Science and Engineering, Tokyo, Japan
2004 Invited Lecturer, Chiba University Graduate School of Science & Technology, Chiba, Japan
2004 Invited Professor, University of Louis Pasteur, Strasbourg, France

Academic Society Activity

Executive Committee Chair, The 42nd Annual Meeting of the Japan Neuroscience Society (2019)
Editor-in-Chief of *Neuroscience Research*, the official journal of the Japan Neuroscience Society (2017-present)

Chair of Selection Committee, Japan Neuroscience Society Young Investigator Award (2016-2017)
Chair of Selection Committee, Tokizane Memorial Award for Excellent Graduate Study in Neuroscience (2017)
Director of the Japan Neuroscience Society (2015-present)
Executive Committee Member, The 38th Annual Meeting of the Japan Neuroscience Society (2015)
International Collaboration Affairs Committee of the Japan Neuroscience Society (2013-present)
IBRO Asian/Pacific Regional Committee (2013-2015)
Executive Committee Chair, The 36th Annual Meeting of the Japan Neuroscience Society (2013)
Director of the Japanese Society for Neural Growth, Regeneration and Transplantation (2008-2012)
Chair of Organizing Committee, RIKEN Brain Science Institute Summer Program (2008)
Executive Committee Member, The 31st Annual Meeting of the Japan Neuroscience Society (2008)
Organizer, IBRO Advanced School (2007)
Council Member of the Japan Society for Cell Biology (2006-2010)
Council Member of the Japanese Society for Neurochemistry (2005-present)
Hydrocephalus Research Committee, The Ministry of Health, Labour and Welfare of Japan (1999-2004)
Academic Trustee of The Japan Neurosurgical Society (1995-present)

Awards & Honors

Kitasato Award (2017)
The Japanese Society for Neurochemistry Young Scientists Lectureship Award (2004)
Medical School Alumni Award from Keio University (2002)
Award from the Japan Intractable Diseases Research Foundation (2001)

Editorial Board

Neuroscience Research (2014-present): Editor-in-Chief (2017-present)
Experimental Neurology (2009-present)
Neural Development (2008-present)

Selected Publications

Wada F, Nakata A, Tatsu Y, Ooashi N, Fukuda T, Nabetani T, **Kamiguchi H**: Myosin Va and endoplasmic reticulum calcium channel complex regulates membrane export during axon guidance. *Cell Reports* 15: 1329-1344, 2016

Akiyama H, Fukuda T, Tojima T, Nikolaev VO, **Kamiguchi H**: Cyclic nucleotide control of microtubule dynamics for axon guidance. *Journal of Neuroscience* 36: 5636-5649, 2016

Guy AT, Nagatsuka Y, Ooashi N, Inoue M, Nakata A, Greimel P, Inoue A, Nabetani T, Murayama A, Ohta K, Ito Y, Aoki J, Hirabayashi Y, **Kamiguchi H**: Glycerophospholipid regulation of modality-specific sensory axon guidance in the spinal cord. *Science* 349: 974-977, 2015

Tojima T, Itofusa R, **Kamiguchi H**: Steering neuronal growth cones by shifting the imbalance between exocytosis and endocytosis. *Journal of Neuroscience* 34: 7165-7178, 2014

- Tojima T, Hines JH, Henley JR, **Kamiguchi H**: Second messengers and membrane trafficking direct and organize growth cone steering. *Nature Reviews Neuroscience* 12: 191-203, 2011
- Akiyama H, **Kamiguchi H**: Phosphatidylinositol 3-kinase facilitates microtubule-dependent membrane transport for neuronal growth cone guidance. *Journal of Biological Chemistry* 285: 41740-41748, 2010
- Tojima T, Itofusa R, **Kamiguchi H**: Asymmetric clathrin-mediated endocytosis drives repulsive growth cone guidance. *Neuron* 66: 370-377, 2010
- Tamada A, Kawase T, Murakami F, **Kamiguchi H**: Autonomous right-screw rotation of growth cone filopodia drives neurite turning. *Journal of Cell Biology* 188: 429-441, 2010
- Akiyama H, Matsu-ura T, Mikoshiba K, **Kamiguchi H**: Control of neuronal growth cone navigation by asymmetric inositol 1,4,5-trisphosphate signals. *Science Signaling* 2: ra34, 2009
- Tojima T, Itofusa R, **Kamiguchi H**: The nitric oxide-cGMP pathway controls the directional polarity of growth cone guidance via modulating cytosolic Ca²⁺ signals. *Journal of Neuroscience* 29: 7886-7897, 2009
- Tojima T, Akiyama H, Itofusa R, Li Y, Katayama H, Miyawaki A, **Kamiguchi H**: Attractive axon guidance involves asymmetric membrane transport and exocytosis in the growth cone. *Nature Neuroscience* 10: 58-66, 2007
- Ooashi N, Futatsugi A, Yoshihara F, Mikoshiba K, **Kamiguchi H**: Cell adhesion molecules regulate Ca²⁺-mediated steering of growth cones via cyclic AMP and ryanodine receptor type 3. *Journal of Cell Biology* 170: 1159-1167, 2005
- Nishimura K, Yoshihara F, Tojima T, Ooashi N, Yoon W, Mikoshiba K, Bennett V, **Kamiguchi H**: L1-dependent neuritogenesis involves ankyrin_B that mediates L1-CAM coupling with retrograde actin flow. *Journal of Cell Biology* 163: 1077-1088, 2003
- Nishimura T, Fukata Y, Kato K, Yamaguchi T, Matsuura Y, **Kamiguchi H**, Kaibuchi K: CRMP-2 regulates polarized Numb-mediated endocytosis for axon growth. *Nature Cell Biology* 5: 819-826, 2003
- Nakai Y, **Kamiguchi H**: Migration of nerve growth cones requires detergent-resistant membranes in a spatially defined and substrate-dependent manner. *Journal of Cell Biology* 159: 1097-1108, 2002
- Kamiguchi H**, Yoshihara F: The role of endocytic L1 trafficking in polarized adhesion and migration of nerve growth cones. *Journal of Neuroscience* 21: 9194-9203, 2001
- Kamiguchi H**, Lemmon V: IgCAMs: bidirectional signals underlying neurite growth. *Current Opinion in Cell Biology* 12: 598-605, 2000

Kamiguchi H, Lemmon V: Recycling of the cell adhesion molecule L1 in axonal growth cones. *Journal of Neuroscience* 20: 3676-3686, 2000

Kamiguchi H, Long KE, Pendergast M, Schaefer AW, Rapoport I, Kirchhausen T, Lemmon V: The neural cell adhesion molecule L1 interacts with the AP-2 adaptor and is endocytosed via the clathrin-mediated pathway. *Journal of Neuroscience* 18: 5311-5321, 1998

Kamiguchi H, Lemmon V: A neuronal form of the cell adhesion molecule L1 contains a tyrosine-based signal required for sorting to the axonal growth cone. *Journal of Neuroscience* 18: 3749-3756, 1998

Kamiguchi H, Hlavin ML, Yamasaki M, Lemmon V: Adhesion molecules and inherited diseases of the human nervous system. *Annual Review of Neuroscience* 21: 97-125, 1998

In total, 74 articles in English and 29 articles in Japanese have been published.