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EXPERIENCE

Nathan S. Kline Institute for Psychiatric Research 2025 - current
Research Technician
Jordan P. Hamm lab

Burke Neurological Institute, Weill Cornell Medicine College
Assistant Professor of Research 2022-2024
Instructor 2018-2022
Yutaka Yoshida lab

Cincinnati Children's Hospital Medical Center
Research Associate 2015-2018
Postdoctoral Fellow 2010-2015
Yutaka Yoshida lab

Okinawa Institute of Science and Technology, Japan
Postdoctoral Fellow 2007-2010
Ichiro Masai lab

Yokohama-City University, Japan
Postdoctoral Fellow 2006-2007
Shigeo Ohno lab

Tokyo Women's Medical University, Japan
Research Technician 2000-2001
Takahiko Yokoyama lab

EDUCATION

Yokohama-City University, Japan Ph.D. in Medical Science, 2001-2006

Meiji University, Japan B. S. in Agriculture, 1995-1999

HONORS AND AWARDS

Research Fellowship of the Japan Society for the Promotion of Science for Young Scientists (DC1),
2004-2006

Grant-in-Aid the Japan Society for the Promotion of Science (JSPS) for Young Scientists (Start-up),
2007-2008

Publication

Complete list of published work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/fumiyasu.imai.1/bibliography/public/>

Nishiyama M, Kalambogias J, **Imai F**, Yang E, Lang S, de Nooij JC, Yoshida Y. Anatomical and functional analysis of the corticospinal tract in an FRDA mouse model. *bioRxiv*. 2024 Jul 2;. doi: 10.1101/2024.06.28.601178. PubMed PMID: 39005321; PubMed Central PMCID: PMC11244874.

Imai F, Matsuura K, Yang E, Klinefelter K, Alexandrou G, Letelier A, Takatani H, Osakada F, Yoshida Y. Layer Va neurons, as major presynaptic partners of corticospinal neurons, play critical roles in skilled movements. *bioRxiv*. 2024 Jun 28;. doi: 10.1101/2024.06.28.601172. PubMed PMID: 38979259; PubMed Central PMCID: PMC11230360.

Takatani H, Fujita N, **Imai F**, Yoshida Y. Forelimb motor recovery by modulating extrinsic and intrinsic signaling as well as neuronal activity after the cervical spinal cord injury. *bioRxiv*. 2024 Jun 27;. doi: 10.1101/2024.06.22.600167. PubMed PMID: 38979293; PubMed Central PMCID: PMC11230274.

Upadhyay A, Gradwell MA, Vajtay TJ, Conner J, Sanyal AA, Azadegan C, Patel KR, Thackray JK, Bohic M, **Imai F**, Ogundare SO, Yoshida Y, Abdus-Saboor I, Azim E, Abraira VE. The Dorsal Column Nuclei Scale Mechanical Sensitivity in Naive and Neuropathic Pain States. *bioRxiv*. 2024 Apr 25;. doi: 10.1101/2024.02.20.581208. PubMed PMID: 38712022; PubMed Central PMCID: PMC11071288.

Gu Z, Matsuura K, Letelier A, Basista M, Craig C, **Imai F**, Yoshida Y. Axon Fasciculation, Mediated by Transmembrane Semaphorins, Is Critical for the Establishment of Segmental Specificity of Corticospinal Circuits. *J Neurosci*. 2023 Aug 9;43(32):5753-5768. doi: 10.1523/JNEUROSCI.0073-22.2023. Epub 2023 Jun 21. PubMed PMID: 37344234; PubMed Central PMCID: PMC10423052.

Martins LF, Brambilla I, Motta A, de Pretis S, Bhat GP, Badaloni A, Malpighi C, Amin ND, **Imai F**, Almeida RD, Yoshida Y, Pfaff SL, Bonanomi D. Motor neurons use push-pull signals to direct vascular remodeling critical for their connectivity. *Neuron*. 2022 Dec

21;110(24):4090-4107.e11. doi: 10.1016/j.neuron.2022.09.021. Epub 2022 Oct 13. PubMed PMID: 36240771; PubMed Central PMCID: PMC10316999.

Imai F, Adam M, Potter SS, Yoshida Y. HoxD transcription factors define monosynaptic sensory-motor specificity in the developing spinal cord. *Development*. 2021 Jun 15;148(12). doi: 10.1242/dev.191122. Epub 2021 Jun 15. PubMed PMID: 34128984; PubMed Central PMCID: PMC8254864.

Imai F, Yoshida Y. Molecular mechanisms underlying monosynaptic sensory-motor circuit development in the spinal cord. *Dev Dyn*. 2018 Apr;247(4):581-587. doi: 10.1002/dvdy.24611. Epub 2018 Jan 17. Review. PubMed PMID: 29226492; PubMed Central PMCID: PMC5854510.

Imai F, Chen X, Weirauch MT, Yoshida Y. Requirement for Dicer in Maintenance of Monosynaptic Sensory-Motor Circuits in the Spinal Cord. *Cell Rep*. 2016 Nov 22;17(9):2163-2172. doi: 10.1016/j.celrep.2016.10.083. PubMed PMID: 27880894; PubMed Central PMCID: PMC5152923.

Imai F, Ladle DR, Leslie JR, Duan X, Rizvi TA, Ciraolo GM, Zheng Y, Yoshida Y. Synapse Formation in Monosynaptic Sensory-Motor Connections Is Regulated by Presynaptic Rho GTPase Cdc42. *J Neurosci*. 2016 May 25;36(21):5724-35. doi: 10.1523/JNEUROSCI.2146-15.2016. PubMed PMID: 27225763; PubMed Central PMCID: PMC4879194.

Wehner AB, Abdesselem H, Dickendeshler TL, **Imai F**, Yoshida Y, Giger RJ, Pierchala BA. Semaphorin 3A is a retrograde cell death signal in developing sympathetic neurons. *Development*. 2016 May 1;143(9):1560-70. doi: 10.1242/dev.134627. PubMed PMID: 27143756; PubMed Central PMCID: PMC4909861.

Gu Z, **Imai F**, Kim IJ, Fujita H, Katayama Ki, Mori K, Yoshihara Y, Yoshida Y. Expression of the immunoglobulin superfamily cell adhesion molecules in the developing spinal cord and dorsal root ganglion. *PLoS One*. 2015;10(3):e0121550. doi: 10.1371/journal.pone.0121550. eCollection 2015. PubMed PMID: 25826454; PubMed Central PMCID: PMC4380438.

Imai F, Yoshida Y. Axon Guidance in the Spinal Cord. *Semaphorins: A Diversity of Emerging Physiological and Pathological Activities*. 2015; :39-63.

Imai F, Yoshizawa A, Matsuzaki A, Oguri E, Araragi M, Nishiwaki Y, Masai I. Stem-loop binding protein is required for retinal cell proliferation, neurogenesis, and intraretinal axon pathfinding in zebrafish. *Dev Biol*. 2014 Oct 1;394(1):94-109. doi: 10.1016/j.ydbio.2014.07.020. Epub 2014 Aug 5. PubMed PMID: 25106852.

Pooya S, Liu X, Kumar VB, Anderson J, **Imai F**, Zhang W, Ciraolo G, Ratner N, Setchell KD, Yoshida Y, Jankowski MP, Dasgupta B. The tumour suppressor LKB1 regulates myelination

through mitochondrial metabolism. *Nat Commun.* 2014 Sep 26;5:4993. doi: 10.1038/ncomms5993. PubMed PMID: 25256100; PubMed Central PMCID: PMC4431623.

Fukuhara K*, **Imai F***, Ladle DR, Katayama K, Leslie JR, Arber S, Jessell TM, Yoshida Y. Specificity of monosynaptic sensory-motor connections imposed by repellent *Sema3E*-*PlexinD1* signaling. *Cell Rep.* 2013 Nov 14;5(3):748-58. doi: 10.1016/j.celrep.2013.10.005. Epub 2013 Nov 7. PubMed PMID: 24210822; PubMed Central PMCID: PMC3844154.

Katayama K, **Imai F**, Suto F, Yoshida Y. Deletion of *Sema3a* or *plexinA1/plexinA3* causes defects in sensory afferent projections of statoacoustic ganglion neurons. *PLoS One.* 2013;8(8):e72512. doi: 10.1371/journal.pone.0072512. eCollection 2013. PubMed PMID: 23991118; PubMed Central PMCID: PMC3753268.

Katayama K*, **Imai F***, Campbell K, Lang RA, Zheng Y, Yoshida Y. *RhoA* and *Cdc42* are required in pre-migratory progenitors of the medial ganglionic eminence ventricular zone for proper cortical interneuron migration. *Development.* 2013 Aug;140(15):3139-45. doi: 10.1242/dev.092585. PubMed PMID: 23861058; PubMed Central PMCID: PMC3931736.

Leslie JR, **Imai F**, Zhou X, Lang RA, Zheng Y, Yoshida Y. *RhoA* is dispensable for axon guidance of sensory neurons in the mouse dorsal root ganglia. *Front Mol Neurosci.* 2012;5:67. doi: 10.3389/fnmol.2012.00067. eCollection 2012. PubMed PMID: 22661927; PubMed Central PMCID: PMC3357536.

Leslie JR*, **Imai F***, Fukuhara K, Takegahara N, Rizvi TA, Friedel RH, Wang F, Kumanogoh A, Yoshida Y. Ectopic myelinating oligodendrocytes in the dorsal spinal cord as a consequence of altered semaphorin 6D signaling inhibit synapse formation. *Development.* 2011 Sep;138(18):4085-95. doi: 10.1242/dev.066076. Epub 2011 Aug 10. PubMed PMID: 21831918; PubMed Central PMCID: PMC3160102.

Imai F, Yoshizawa A, Fujimori-Tonou N, Kawakami K, Masai I. The ubiquitin proteasome system is required for cell proliferation of the lens epithelium and for differentiation of lens fiber cells in zebrafish. *Development.* 2010 Oct;137(19):3257-68. doi: 10.1242/dev.053124. Epub 2010 Aug 19. PubMed PMID: 20724448.

Yamaguchi M, **Imai F**, Tonou-Fujimori N, Masai I. Mutations in *N-cadherin* and a *Stardust* homolog, *Nagie oko*, affect cell-cycle exit in zebrafish retina. *Mech Dev.* 2010 May-Jun;127(5-6):247-64. doi: 10.1016/j.mod.2010.03.004. Epub 2010 Mar 31. PubMed PMID: 20362667.

Imai F, Horikoshi Y, Kishikawa M, Ohno S. [Regulation of cell polarity in establishment of epithelium]. *Seikagaku.* 2006 Jul;78(7):622-30. Review. PubMed PMID: 16910556.

Imai F, Hirai S, Akimoto K, Koyama H, Miyata T, Ogawa M, Noguchi S, Sasaoka T, Noda T, Ohno S. Inactivation of aPKC λ results in the loss of adherens junctions in neuroepithelial cells without affecting neurogenesis in mouse neocortex. *Development*. 2006 May;133(9):1735-44. doi: 10.1242/dev.02330. Epub 2006 Mar 29. PubMed PMID: 16571631.

Manabe N, Hirai S, **Imai F**, Nakanishi H, Takai Y, Ohno S. Association of ASIP/mPAR-3 with adherens junctions of mouse neuroepithelial cells. *Dev Dyn*. 2002 Sep;225(1):61-9. doi: 10.1002/dvdy.10139. PubMed PMID: 12203721.

Yasuhiko Y, **Imai F**, Ookubo K, Takakuwa Y, Shiokawa K, Yokoyama T. Calmodulin binds to inv protein: implication for the regulation of inv function. *Dev Growth Differ*. 2001 Dec;43(6):671-81. doi: 10.1046/j.1440-169x.2001.00604.x. PubMed PMID: 11737147.

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