

CURRICULUM VITAE



Name: Katsuhiko Mikoshiba

Present Address: Team Leader, Laboratory for Developmental Neurobiology
CBS (Center for Brain Science), RIKEN
2-1 Hirosawa, Wako, Saitama 351-0198 JAPAN

Education: 1969 M.D. Keio University School of Medicine
1973 Ph.D. (Dr. of Medical Science), Keio University

Professional Training and Employment:

| | |
|--------------|---|
| 1973-1974 | Instructor, Department of Physiology, Keio University School of Medicine |
| 1974-1982 | Assistant Professor, Department of Physiology, Keio University School of Medicine |
| 1976-1977 | Research Associate Pasteur Institute, Paris, France (c/o Dr. Jean-Pierre Changeux) |
| 1982-1985 | Associate Professor, Department of Physiology, Keio University School of Medicine |
| 1985-1992 | Professor, Division of Regulation of Macromolecular Function, Institute for Protein Research, Osaka University |
| 1986-1991 | Professor, Division of Behavior and Neurobiology, National Institute for Basic Biology (Adjunct position) |
| 1992-1997 | Chief Scientist, Molecular Neurobiology Laboratory, The Institute of Physical and Chemical Research (RIKEN), Tsukuba Life Science Center (Adjunct position) |
| 1992-2007 | Professor, Department of Molecular Neurobiology, The Institute of Medical Science, The University of Tokyo |
| 1995-2000 | Project Leader, Mikoshiba Calciosignal Net Project, Exploratory Research for Advanced Technology (ERATO), Japan Science and Technology Corporation (JST) |
| 1997-2009 | Team Leader, Laboratory for Developmental Neurobiology, Group Director, Neuro-Development Disorder Research Group, Brain Science Institute, RIKEN |
| 2001-2005 | Research Director, The International Cooperative Research Project (calcium oscillation project) Japan Science and Technology Agency (JST) |
| 2003-2015 | Foreign Professor (Adjunct Professor) at Karolinska Institute |
| 2004-Present | Adjunct Professor at Jikeikai Medical School, Yamagata University |
| 2005-Present | Member of Science Council of Japan |
| 2006-2011 | Research Director, Solution Oriented Research for Science and Technology (calcium oscillation project) Japan Science and Technology Agency (JST) |

| | |
|---------------|--|
| 2007-Present | Professor Emeritus of University of Tokyo |
| 2008-2011 | Foreign Professor (WCU, World Class University Professor) of Seoul National University (Korea) |
| 2009-2018 | Senior Team Leader, Laboratory for Developmental Neurobiology, Brain Science Institute, RIKEN |
| 2010- Present | Adjunct Professor at Keio University School of Medicine |
| 2018- Present | Team Leader, Laboratory for Developmental Neurobiology, Center for Brain Science, RIKEN |

Honors:

| | |
|------|---|
| 1974 | Erwin von Bälz Preis |
| 1980 | Kitazato Prize |
| 1987 | Inoue Scientific Prize |
| 1987 | The 1st Memorial Prize for Tsukahara Nakaakira (with Prof. Nobutaka Hirokawa) |
| 1991 | Osaka Prize for Science |
| 1996 | Medical Award of the Japan Medical Association |
| 1996 | Human Frontier Science Program Grant Award (1996-98) |
| 1997 | Uehara Prize (with Prof. Shigekazu Nagata) |
| 1998 | The Keio Medical Science Prize (International Prize) with Dr. M.J. Folkman |
| 1999 | Human Frontier Science Program Grant Award (1999-01) |
| 1999 | The Fritz-Lipmann Lecture Award (Germany) |
| 2000 | College de France Medal (France) |
| 2002 | Medal of Honor in Japan (Medal with Purple Ribbon-Emperor's Prize) |
| 2003 | Klaus Joachim Zülch -Preis (Germany • Max-Planck Institute, Gertrud Reemtsma Foundation) with Professor Fred H. Gage (Salk Institute) |
| 2003 | Foreign Professor at Karolinska Institute (Adjunct Professor), (Sweden) |
| 2004 | Takeda Medical Science Prize (Takeda Foundation, Japan) |
| 2005 | Meister Prize (Endocrinology Society for Japan) |
| 2006 | Nobel Forum Lecture (Karolinska Institute, Sweden) |
| 2007 | Hagiwara Lecture (The Physiological Society of Japan) |
| 2008 | Sherrington Lecture (Liverpool, UK) |
| 2009 | The Naito Foundation Research Prize |
| 2009 | Japan Academy Prize |
| 2010 | Honorary Membership of the Japanese Biochemical Society |
| 2011 | Honorary Doctorate at Karolinska Institutet (Medical Doctor) (Sweden) |
| 2012 | Honorary Membership of the European Calcium Society |
| 2013 | Martin Rodbell Memorial Lecture (NIH-NIEHS, USA) |
| 2013 | Special Award from the International Society for antioxidant |
| 2013 | Légion d' Honneur (Chevalier) from the Republic of France |
| 2014 | George and Catherine Weber Special Symposium Lecture (Bologna, Italy) |

Editorial Board Membership:

1. Science { Science's STKE (Signal Transduction Knowledge Environment) Perspective (Web publication) (American Association for the advancement of Science) (1999 - 2008) Science Signaling (from 2008 -2017)
2. Molecular Neurobiology (Humana Press) (1999 -)
3. Fundamental & Clinical Pharmacology (Elsevier) (1999 -)
4. Journal of General Physiology (American Physiological Society) (1996 -2008)
5. Methods: A Companion to Methods in Enzymology (Academic Press) (1995 - 1999)
6. Glia (Academic Press) (1994 – 1999)
7. Molecular and Cellular Neuroscience (MCN) (Academic Press) (1994 -)
8. Protein Profile (Academic Press) (1994 - 1998)
9. Neuron (Cell Press) (1993 - 1994)
10. Journal of Neurochemistry (Raven Press) (1993 -2003)
11. Receptors and Channels (Chief Editor of Asia & Australia Region (Harwood Academic Publishers GMBH) (1992 -)
12. NeuroProtocols (Academic Press) (1992 – 1996)
13. Journal of Neuroscience Research (Wiley-Liss) (1992 -)
14. Brain Dysfunction (S.Karger, Medical and Scientific Publishers) (1991- 1999)
15. Neuroscience Research (Elsevier) (Section Editor, Molecular Neuroscience) (1990 -)
16. Cell Structure and Function (Japan Society for Cell Biology)
17. Cellular and Molecular Neurobiology (Plenum Publishing Corporation) (1989-)
18. Development, Growth and Differentiation (Academic Press) (1984-)
19. Developmental Neuroscience (S.Karger, Medical and Scientific Publishers) (1983 -1989)
20. Neuro signals (Karger) (1999-)
21. Cell Calcium (Elsevier) (2006-)

Academic Activities:

1. Council Member, International Society for Neurochemistry (1998-2004)
2. Council Member, International Committee on Second Messengers and Phosphoproteins (1997-)
3. Council Member, International Symposium on Calcium Binding Proteins and Calcium Function in Health and Disease (1997-)
4. Chairman, International Symposium on Calcium Binding Proteins and Calcium Function in Health and Disease (1999)
5. Council Member of Asia Pacific Region of IBRO (International Brain Research Organization) (1999-2001)
6. Council Member of Asian Pacific Society for Neuroscience (2000-2006)
7. Full Member, International Society of Developmental Biologists
8. Full Member, Society for Neuroscience
9. Member of Program Committee, Society for Neuroscience
10. Full Member, International Brain Research Organization
11. Full Member, Society for Developmental Neuroscience
12. Board of Director, International Society of Differentiation (1999-) Japanese Society

13. Council Member, Japanese Neuroscience Society (1987-1989, 1992-1995, 1995-1998, 1998-)
14. Council Member, Japanese Society of Cell Biology (1993-1994, 1996-1998, 1998-2000)
15. Council Member, Physiological Society of Japan (1999-2004, 2010-)
16. • President, Japanese Society for Neurochemistry (2000-2002, 2002-2004)
Council Member, Japanese Society for Neurochemistry (1986-1989, 1992-1995, .1996-1998,2001-2004)
17. • Chairman of the Selection Committee for the research grant candidate, Japanese Society for Neurochemistry (1997-1999)
• Chairman of the Committee for the International Affairs, Japanese Society for Neurochemistry (1999-2000, 2001-2005)
• President, The 41st Annual Meeting of the Japanese Society for Neurochemistry (1998)
18. Council Member, Molecular Biology Society of Japan (2000-2005)
19. Council Member, Japan Intractable Diseases Research Foundation (1996-)
20. Council Member, Japanese Society for Regenerative Medicine (2001-2005)
21. Executive Council Member, Japanese Biochemical Society (1994-1996) (2002-2004)
22. Council Member, Center for Academic Societies Japan (1999-2004)
23. Council Member, Center for Academic Journals in Japan (1997-2004)
24. Full Member, Japanese Society of Developmental Biologists
25. Full Member, Japanese Association of Anatomists
26. Full Member, Japanese Association for Neuroethology
27. Full Member, Research Group of Information Biology
28. Council Member, Japan Foundation for Neuroscience and Mental Health (2007-)
29. Council Member, Japan Foundation for Applied Enzymology (1989-)
30. President of Association Pasteur Japon (NPO) (2011-2014)
31. Member for the IUPS General Assembly (2012-)

Foundation member for selection of the Prize:

1. Committee Member, Selection Committee of **Uehara Prize** at Uehara Memorial Foundation (1998-2012)
2. Committee Member, Selection Committee of “**International Prize for Biology**,” Japan Society for the Promotion of Science (1989)
3. Committee Member, Selection Committee of “**Kyoto Prize**,” Inamori Foundation (1986), (1996), (2000)
4. Committee Member, Selection Committee of “**Japan Prize**,” Science and Technology Foundation of Japan (1992), (1996)
5. Committee Member, Selection Committee The “**Teiichi Yamazaki Prize**”, Foundation for Promotion of Material Science and Technology of Japan (2003-)
6. Program Committee Member of Society for Neuroscience (North America) (2009-2011)
7. President of Selection Committee of “**Takeda grant support**” by Takeda Foundation

REVIEW COMMITTEE:

1. Review Committee Member, Mitsubishi Biochemical Institute of Life Sciences
2. Review Committee Member, Niigata University
3. Review Committee Member, Kumamoto University
4. Review Committee Member, Hamamatsu Medical School
5. Review Committee Member, Tokyo Metropolitan Institute
6. Scientific Advisory Board of **Center of Advanced European Studies and Research** at Max Plank Society, Germany (2009-2015)

REMARKS:

Appeared in the 'Who's Who in the World,' MARQUIS WHO'S WHO Vol.15 (1997-)

Appeared in the 'Who's Who in the 21st Century' 1st Edition (International Biographical Centre, Cambridge, England)

Man of the Year 2000 (American Biographical Institute, USA)

Intellectuals of 20th Century (in the field of Neuroscience) (International Biographical Centre Cambridge, UK)
-2008)

Main publications (Mikoshiha Laboratory)

1. Mikoshiha, K., Yokoyama, M., Inoue, Y., Takamatsu, K., Tsukada, Y. & Nomura, T.: Oligodendrocyte abnormalities in shiverer mouse mutant are determined in primary chimaeras. **Nature** 299 357-359 (1982)
2. Furuichi, T., Yoshikawa, S., Miyawaki, A., Wada, K., Maeda, N. & Mikoshiha, K.: Primary structure and functional expression of the inositol 1,4,5-trisphosphate-binding protein P400. **Nature** 342 32-38 (1989)
3. Miyawaki, A., Furuichi, T., Maeda, N. & Mikoshiha, K.: Expressed cerebellar-type inositol 1,4,5-trisphosphate receptor, P400 has calcium release activity in a fibroblast L cell line. **Neuron** 5 11-18 (1990)
4. Mori, Y., Friedrich, T., Kim, M.S., Mikami, A., Nakai, J., Ruth, P., Bosse, E., Hofman, F., Flockerzi, V., Furuichi, T., Mikoshiha, K., Imoto, K., Tanabe, T. & Numa, S.: Primary structure and functional expression from complementary DNA of a brain calcium channel. **Nature** 350 398-402 (1991)
5. Turnley, A.M., Morahan, G., Okano, H., Bernard, O., Mikoshiha, K., Allison, J., Bartlett, P.F. & Miller, J.F.A.P.: Dysmyelination in transgenic mice resulting from expression of class I histocompatibility molecules in oligodendrocytes. **Nature** 353 566-69 (1991)
6. Miyazaki, S., Yuzaki, M., Nakada, K., Shirakawa, H., Nakanishi, S., Nakade, S. & Mikoshiha, K.: Block of Ca^{2+} wave and Ca^{2+} oscillation by antibody to the inositol 1,4,5-trisphosphate receptor in fertilized hamster eggs. **Science** 257 251-255 (1992)
7. Kuwajima, G., Futatsugi, A., Niinobe, M., Nakanishi, S. & Mikoshiha, K.: Two types of ryanodine receptors in mouse brain: Skeletal muscle type exclusively in Purkinje cells and cardiac muscle type in various neurons. **Neuron** 9 1133-42 (1992)
8. Fujita, Y., Mynlieff, M., Dirksen, R.T, Kim, M.S., Niidome, T., Nakai, J., Friedrich, T., Iwabe, N., Miyata, T., Furuichi, T., Furutama, D., Mikoshiha, K., Mori, Y. & Beam, K.G.: Primary structure and functional expression of the ω -conotoxin-sensitive N-type calcium channel from rabbit brain. **Neuron** 10 585-598 (1993)
9. Kume, S., Muto, A., Aruga, J., Nakagawa, T., Michikawa, T., Furuichi, T., Nakade, S., Okano, H. & Mikoshiha, K.: The Xenopus IP_3 receptor : structure, function, and localization in oocytes and eggs. **Cell** 73 555-570 (1993)
10. Kawasaki, M., Uchida, S., Monkawa, T., Miyawaki, A., Mikoshiha, K., Marumo, F., & Sasaki, S.: Cloning and expression of a protein kinase C-regulated chloride channel abundantly expressed in rat brain neuronal cells. **Neuron** 12 597-604 (1994)
11. Kagawa, T., Ikenaka, K., Inoue, Y., Kuriyama, S., Tsujii, T., Nakao, J., Nakajima, K., Aruga, J., Okano, H. & Mikoshiha, K.: Glial cell degeneration and hypomyelination caused by overexpression of myelin proteolipid protein gene. **Neuron** 13 427-442 (1994)
12. Ogawa, M., Miyata, T., Nakajima, K., Yagyū, K., Seike, M., Ikenaka, K., Yamamoto, H. & Mikoshiha, K.: The reeler gene-associated antigen on Cajal-Retzius neurons is a crucial molecule for laminar organization of cortical neurons. **Neuron** 14 899-912 (1995)

13. Matsumoto, M., Nakagawa, T., Inoue, T., Nagata, E., Tanaka, K., Takano, H., Minowa, O., Kuno, J., Sakakibara, S., Yamada, M., Yoneshima, H., Miyawaki, A., Fukuuchi, Y., Furuichi, T., Okano, H., Mikoshiba, K. & Noda, T.: Ataxia and epileptic seizures in mice lacking type 1 inositol 1,4,5-trisphosphate receptor. **Nature** 379 168-171 (1996) K. Mikoshiba: corresponding author
14. Del Rio, J.A., Heimrich, B., Borrell, V., Forster, E., Drakew, A., Alcantara, S., Nakajima, K., Miyata, T., Ogawa, M., Mikoshiba, K., Derer, P., Frotscher, M. & Soriano, E.: A role for Cajal-Retzius cells and reelin in the development of hippocampal connections. **Nature** 385 70-74 (1997)
15. Umemori, H., Inoue, T., Kume, S., Sekiyama, N., Nagao, M., Itoh, H., Nakanishi, S., Mikoshiba, K. & Yamamoto, T.: Activation of the G protein Gq/11 through tyrosine phosphorylation of the α subunit. **Science** 276 1878-1882 (1997)
16. Sheldon, M., Rice, S.D., D' Arcangelo, G., Yoneshima, H., Nakajima, K. & Mikoshiba, K., & Howell, W.B., Cooper, A.J., Goldowitz, D., & Curran, T.: Scrambler and yotari disrupt the disabled gene and produce a reeler-like phenotype in mice. **Nature** 389 730-733 (1997)
17. Kume, S., Muto, A., Inoue, T., Suga, K., Okano, H. & Mikoshiba, K.: Role of inositol 1,4,5-trisphosphate receptor in ventral signaling in Xenopus embryos. **Science** 278 1940-43 (1997)
18. Zhao, H., Ivic, L., Otaki, J.M., Hashimoto, M., Mikoshiba, K., & Firestein, S.: Functional expression of a mammalian odorant receptor. **Science** 279 237-242 (1998)
19. Takei, K., Shin, R.-M., Inoue, T., Kato, K. & Mikoshiba, K.: Regulation of nerve growth mediated by inositol 1,4,5-trisphosphate receptor in growth cones. **Science** 282 1705-708 (1998)
20. Michikawa, T., Hirota, J., Kawano, S., Hiraoka, M., Yamada, M., Furuichi, T. & Mikoshiba, K.: Calmodulin mediates calcium-dependent inactivation of the cerebellar type 1 inositol 1,4,5-trisphosphate receptor. **Neuron** 23 799-808 (1999)
21. Futatsugi, A., Kato, K., Ogura, H., Li, S.-T., Nagata, E., Kuwajima, G., Tanaka, T., Itohara, S. & Mikoshiba, K.: Facilitation of NMDA receptor-independent LTP and spatial learning in mutant mice lacking Ryanodine receptor type 3. **Neuron** 24 701-713 (1999)
22. Ma, H.T., Patterson, R.L., van Rossum, D.B., Birnbaumer, L., Mikoshiba, K. & Gill, D.L.: Requirement of the inositol trisphosphate receptor for activation of store-operated Ca^{2+} channels. **Science** 287 1647-1651 (2000)
23. Mikoshiba, K. & Hattori, M.: IP3 Receptor-operated calcium Entry. **Science STKE**{Science's stke (Signal Transduction Knowledge Environment) Perspective (Web publication)} 1-4 (2000)
24. Nishiyama, M., Hong, K., Mikoshiba, K., Poo, M. & Kato, K.: Calcium stores regulate the polarity and input specificity of synaptic modification. **Nature** 408 584-588 (2000)
25. Fukami, K., Nakao, K., Inoue, T., Kataoka, Y., Kurokawa, M., Fissore, R. A., Nakamura, K., Katsuki, M., Mikoshiba, K., Yoshida, N. & Takenawa, T.: Requirement of phospholipase C δ 4 for the Zona pellucida-induced acrosome reaction. **Science** 292 920-923 (2001)

26. Nagai, T., Ibata, K., Park, ES., Kubota, M., Mikoshiba, K. & Miyawaki, A.: A variant of yellow fluorescent protein with fast and efficient maturation for cell-biological applications. **Nature Biotechnol.** 20 87-90 (2002)
27. Saneyoshi, T., Kume, S., Amasaki, Y. & Mikoshiba, K.: The Wnt/Calcium pathway activates NF-AT and promotes ventral cell fate in *Xenopus* embryos. **Nature** 417 295-299 (2002)
28. Bosanac, I., Alattia, J. R., Mal, T. K., Chan, J., Talarico, S., Tong, F. K., Tong, K. I., Yoshikawa, F., Furuichi, T., Iwai, M., Michikawa, T., Mikoshiba, K. & Ikura, M.: Structure of the inositol 1, 4, 5-trisphosphate receptor binding core in complex with IP₃. **Nature** 420 696-700 (2002)
29. Herrera, E., Brown, L., Aruga, J., Rachel, R.A., Dolen, G., Mikoshiba, K, Brown, S. & Mason, C.A.: *Zic2* patterns binocular vision by specifying the uncrossed retinal projection. **Cell** 114 545-557 (2003)
30. Higo, T., Hattori, M., Nakamura, T., Natsume, T., Michikawa, T & Mikoshiba, K.: Subtype-specific and ER-luminal-environment-dependent Regulation of Inositol 1,4,5-Trisphosphate Receptor Type 1 by ERp44. **Cell** 120:85-98 (2005)
31. Bosanac, I., Yamazaki, H., Matsu-ura, T., Michikawa, T., Mikoshiba, K. & Ikura, M.: Crystal structure of the ligand binding suppressor domain of type 1 inositol 1,4,5-trisphosphate receptor. **Molecular Cell** 17:193-203 (2005)
32. Futatsugi, A., Nakamura, T., Yamada, M. K., Ebisui, E., Nakamura, K., Uchida, K., Kitaguchi, T., Takahashi-Iwanaga, H., Noda, T., Aruga, J. & Mikoshiba, K.: IP₃ Receptor Types 2 and 3 mediate exocrine secretion underlying energy metabolism. **Science** 309:2232-2234 (2005)
33. Hisatsune, C., & Mikoshiba, K.: Novel compartment implicated in calcium signaling—Is it an “Induced coupling domain”? **Science STKE** 2005(13) pe53 (2005)
34. Ando, H., Mizutani, A., Kiefer, H., Tsuzurugi, D., Michikawa, T. & Mikoshiba, K. : IRBIT suppresses IP₃ receptor activity by competing with IP₃ for the common binding site on IP₃ receptor in a phosphorylation-dependent manner. **Molecular Cell** 22:795-806 (2006)
35. Higazi DR, Fearnley CJ, Drawnel FM, Talasila A, Corps EM, Ritter O, McDonald F, Mikoshiba K, Bootman MD, Roderick HL Endothelin-1-stimulated InsP₃-induced Ca²⁺ release is a nexus for hypertrophic signaling in cardiac myocytes. **Molecular Cell** 33(4): 472-82 (2009)
36. Bannai H, Lévi S, Schweizer C, Inoue T, Launey T, Racine V, Sibarita JB, Mikoshiba K, Triller A. Activity-dependent tuning of inhibitory neurotransmission based on GABAAR diffusion dynamics. **Neuron** 62(5):670-82. (2009)
37. Akiyama H, Matsu-ura T, Mikoshiba K, and Kamiguchi H., Control of neuronal growth cone navigation by asymmetric inositol 1,4,5-trisphosphate signals. **Science Signaling** 2(79): ra34. (2009)
38. Horikawa K., Yamada Y.(equal contribution to 1st author), Matsuda T, Kobayashi K, Hashimoto M, Matsu-ura T, Miyawaki A, Michikawa T, Mikoshiba K and Nagai T. Spontaneous network activity visualized by ultra-sensitive Ca²⁺ indicators, yellow cameleon-Nano. **Nature Methods**, 7(9): 729-32. (2010)
39. Higo T, Hamada K, Hisatsune C, Nukina N, Hashikawa T, Hattori M, Nakamura T, Mikoshiba K. Mechanism of ER stress-induced brain damage by IP₃ receptor.

40. Yang D, Li Q, So I, Huang CL, Ando H, Mizutani A, Seki G, Mikoshiba K, Thomas PJ, Muallem S. IRBIT governs epithelial secretion in mice by antagonizing the WNK/SPAK kinase pathway. **J Clinical Investigation** 121(3): 956-65 (2011)
41. Arizono M, Bannai H, Nakamura K, Niwa F, Enomoto M, Matsu-Ura T, Miyamoto A, Sherwood MW, Nakamura T, Mikoshiba K. Receptor-selective diffusion barrier enhances sensitivity of astrocytic processes to metabotropic glutamate receptor stimulation. **Science Signaling** 5(218): ra27. (2012)
42. Hamada K, Mikoshiba K. Revisiting Channel Allostery: A Coherent mechanism in IP₃ and ryanodine receptors. **Science Signaling** 5(225): pe24. (2012)
43. Drawnel FM, Wachten D, Molkentin JD, Maillet M, Aronsen JM, Swift F, Sjaastad I, Liu N, Catalucci D, Mikoshiba K, Hisatsune C, Okkenhaug H, Andrews SR, Bootman MD, Roderick HL. Mutual antagonism between IP(3)RII and miRNA-133a regulates calcium signals and cardiac hypertrophy. **J Cell Biol.** 199(5): 783-98. (2012)
44. Klar J, Hisatsune C, Baig SM, Tariq M, Johansson AC, Rasool M, Malik NA, Ameer A, Sugiura K, Feuk L, Mikoshiba K, Dahl N. Abolished InsP3R2 function inhibits sweat secretion in both humans and mice **J Clinical Investigation** 124(11): 4773-80 (2014)
Mikoshiba: corresponding author
45. Tsuboi D, Kuroda K, Tanaka M, Namba T, Iizuka Y, Taya S, Shinoda T, Hikita T, Muraoka S, Iizuka M, Nimura A, Mizoguchi A, Shiina N, Sokabe M, Okano H, Mikoshiba K, and Kaibuchi K. Disrupted-in-Schizophrenia-1 regulates transport of IP3R1 mRNA for synaptic plasticity. **Nature Neurosci.** 18(5): 698-707. (2015)
46. Kawaai K, Mizutani A, Shoji H, Ogawa N, Ebisui E, Kuroda Y, Wakana S, Miyakawa T, Hisatsune C, Mikoshiba K. IRBIT regulates CaMKII α activity and contributes to catecholamine homeostasis through tyrosine hydroxylase phosphorylation. **Proc Natl Acad Sci U S A.** 112(17): 5515-20. (2015)
47. Hisatsune C, Ebisui E, Usui M, Ogawa N, Suzuki A, Mataga N, Takahashi-Iwanaga H, Mikoshiba K. ERp44 Exerts Redox-Dependent Control of Blood Pressure at the ER. **Molecular Cell.** 2015 May 6. pii: S1097-2765(15)00264-6. doi: 10.1016/j.molcel.2015.
48. Bannai H, Niwa F, Sherwood M.W, Shrivastava A.N, Arizono M, Miyamoto A, Sugiura K, Lévi S, Triller A, Mikoshiba K Bidirectional control of synaptic GABAAR clustering by glutamate and calcium. **Cell Reports** 13:1-3 (2015)
49. Tohmonda T, Yoda M, Iwawaki T, Matsumoto M, Nakamura M, Mikoshiba K, Toyama Y, Horiuchi K. IRE1 α /XBP1-mediated branch of the unfolded protein response regulates osteoclastogenesis. **J Clinical Investigation** 125(8): 3269-79. (2015)

2016

- 16-01) Hashimoto M, Nara T, Mita T, Mikoshiba K. Morpholino antisense oligo inhibits trans-splicing of pre-inositol 1,4,5-trisphosphate receptor mRNA of *Trypanosoma cruzi* and suppresses parasite growth and infectivity **Parasitology**

International 65(3): 175–179 (2016)

- 16-02) Ujita S, Sasaki T, Asada A, Funayama K, Gao M, Mikoshiba K, Matsuki N, Ikegaya Y. cAMP-dependent calcium oscillations of astrocytes: an implication for pathology **Cereb Cortex**. 1-16 (2016)
doi: 10.1093/cercor/bhv310
- 16-03) Nakayama T, Mikoshiba K, Akagawa K. The cell- and tissue-specific transcription mechanism of the TATA-less syntaxin 1A gene. **FASEB J**. 30(2): 525-43 (2016)
- 16-04) Matsu-Ura T, Sasaki H, Okada M, Mikoshiba K, Ashraf M. Attenuation of teratoma formation by p27 overexpression in induced pluripotent stem cells. **Stem Cell Res Therapy** 7(1): 30 (2016)
- 16-05) Sugita M, Yamazaki Y, Goto JI, Fujiwara H, Aihara T, Mikoshiba K, Fujii S. Role of postsynaptic inositol 1, 4, 5-trisphosphate receptors in depotentiation in guinea pig hippocampal CA1 neurons. **Brain Research** 1642: (16) 30163-9 (2016)
- 16-06) Monai H, Ohkura M, Tanaka M, Oe Y, Konno A, Hirai H, Mikoshiba K, Itohara S, Nakai J, Iwai Y, Hirase H. Calcium imaging reveals glial involvement in transcranial direct current stimulation-induced plasticity in mouse brain. **Nature Communications** (2016)
doi: 10.1038/ncomms11100.
- 16-07) Kim SK, Hayashi H, Ishikawa T, Shibata K, Shigetomi E, Shinozaki Y, Inada H, Roh SE, Kim SJ, Lee G, Bae H, Moorhouse AJ, Mikoshiba K, Fukazawa Y, Koizumi S, Nabekura J. Cortical astrocytes rewire somatosensory cortical circuits for peripheral neuropathic pain. **J Clinical Investion** 126(5): 1983-97 (2016)
- 16-08) Fujii S, Yamazaki Y, Goto J, Fujiwara H, Mikoshiba K. Prior activation of inositol 1,4,5-trisphosphate receptors suppresses the subsequent induction of long-term potentiation in hippocampal CA1 neurons. **Learn & Memory** 23(5): 208-20 (2016)
- 16-09) Staats KA, Humblet-Baron S, Bento-Abreu A, Scheveneels W, Nikolaou A, Deckers K, Lemmens R, Goris A, Van Ginderachter JA, Van Damme P, Hisatsune C, Mikoshiba K, Liston A, Robberecht W, Van Den Bosch L. Genetic ablation of IP3 receptor 2 increases cytokines and decreases survival of SOD1G93A mice. **Hum Mol Genet**. 5(16):3491-3499. (2016)
- 16-10) Uchida K, Nakazawa M, Yamagishi C, Mikoshiba K, Yamagishi H. Type 1 and 3 inositol trisphosphate receptors are required for extra-embryonic vascular development. **Developmental Biology** 418(1): 89-97 (2016)

- 16-11) Niwa F, Sakuragi S, Kobayashi A, Takagi S, Oda Y, Bannai H, Mikoshiba K. Dissection of local Ca²⁺ signals inside cytosol by ER-targeted Ca²⁺ indicator. **Biochem Biophys Res Commun.** 479(1): 67-73
- 16-12) Ushioda R, Miyamoto A, Inoue M, Watanabe S, Okumura M, Maegawa KI, Uegaki K, Fujii S, Fukuda Y, Umitsu M, Takagi J, Inaba K, Mikoshiba K., * Nagata K. Redox-assisted regulation of Ca²⁺ homeostasis in the endoplasmic reticulum by disulfide reductase ERdj5. **Proc Natl Acad Sci U S A.** 113(41): E6055-E6063. (2016)
- 16-13) Miyamoto A, Sugiura K, * Mikoshiba K. * Development of a convenient and supersensitive high-throughput screening system for genetically encoded fluorescent probes of small molecules using a confocal microscope. **Cell Calcium.** S0143-4160(16)30113-0. (2016)
- 16-14) Yamada Y.[‡], Matsumoto Y.[†], Okahara N, and * Mikoshiba K.^{‡†}Co-first author, [‡]Co-corresponding author Chronic multiscale imaging of neuronal activity in the awake common marmoset **Scientific Reports** 6:35722. (2016)
- 16-15) Miyamoto A, Mikoshiba K. Probes for manipulating and monitoring IP₃. **Cell Calcium** S0143-4160(16): 30188-9. (2016)
- 16-16) Bonneau B, Ando H, Kawaai K, Hirose M, Takahashi-Iwanaga H, Mikoshiba K. IRBIT controls apoptosis by interacting with the Bcl-2 homolog, Bcl2l10, and by promoting ER-mitochondria contact. **Elife** 19896. (2016)
- 16-17) Hashimoto M, Doi M, Kurebayashi N, Furukawa K, Hirawake-Mogi H, Ohmiya Y, Sakurai T, Mita T, Mikoshiba K, Nara T. Inositol 1,4,5-trisphosphate receptor determines intracellular Ca²⁺ concentration in *Trypanosoma cruzi* throughout its life cycle. **FEBS Open Bio.** 6(12): 1178-1185. (2016)

2017

- 17-1) Sherwood MW, Arizono M, Hisatsune C, Bannai H, Ebisui E, Sherwood JL, Panatier A, Oliet SH, Mikoshiba K. Astrocytic IP₃ Rs: Contribution to Ca²⁺ signalling and hippocampal LTP. **Glia** 65(3): 502-513. (2017)
- 17-2) Garcia CR, Alves E, Pereira PH, Bartlett PJ, Thomas AP, Mikoshiba K, Plattner H, Sibley LD. InsP₃ signaling in apicomplexan parasites. **Curr Top Med Chem.** 80:89-99. (2017)
- 17-3) Bittremieux M, Gerasimenko JV, Schuermans M, Luyten T, Stapleton E, Alzayady KJ, De Smedt H, Yule DI, Mikoshiba K, Vangheluwe P, Gerasimenko OV, Parys JB, Bultynck G. DPB162-AE, an inhibitor of store-operated Ca²⁺ entry, can deplete the endoplasmic reticulum Ca²⁺ store. **Cell Calcium.** 132:133-142. (2017)

- 17-4) Hashimoto M, Doi M, Kurebayashi N, Furukawa K, Hirawake-Mogi H, Ohmiya Y, Sakurai T, Mita T, Mikoshiba K, Nara T. Inositol 1,4,5-trisphosphate receptor determines intracellular Ca²⁺ concentration in *Trypanosoma cruzi* throughout its life cycle. **FEBS Open Bio.** 6(12): 1178-1185. (2017)
- 17-5) Hisatsune C, Mikoshiba K. IP₃ receptor mutations and brain diseases in human and rodents. **J Neurochem.** 486(4): 879-885. (2017)
- 17-6) Kabayama H, Tokushige N, Takeuchi M, Kabayama M, Fukuda M, Mikoshiba K. Parkin promotes proteasomal degradation of synaptotagmin IV by accelerating polyubiquitination. **Mol Cell Neurosci.** 80:89-99. (2017)
- 17-7) Vervliet T, Pintelon I, Welkenhuyzen K, Bootman MD, Bannai H, Mikoshiba K, Martinet W, Nadif Kasri N, Parys JB, Bultynck G. Basal ryanodine receptor activity suppresses autophagic flux. **Biochem Pharmacol.** 132:133-142. (2017)
- 17-8) Sakuragi S, Niwa F, Oda Y, Mikoshiba K, Bannai H. Astroglial Ca²⁺ signaling is generated by the coordination of IP₃R and store-operated Ca²⁺ channels. **Biochem Biophys Res Commun.** 486(4): 879-885. (2017)
- 17-9) Kawaai K, Ando H, Satoh N, Yamada H, Ogawa N, Hirose M, Mizutani A, Bonneau B, Seki G, Mikoshiba K. Splicing variation of Long-IRBIT determines the target selectivity of IRBIT family proteins. **Proc Natl Acad Sci U S A.** 114(15): 3921-3926. (2017)
- 17-10) Bittremieux M, Mikoshiba K, Bultynck G. Data on cytotoxicity in HeLa and SU-DHL-4 cells exposed to DPB162-AE compound. **Data Brief.** 12:91-96. (2017)
- 17-11) Hamada K, Miyatake H, Terauchi A, Mikoshiba K. IP₃-mediated gating mechanism of the IP₃ receptor revealed by mutagenesis and X-ray crystallography. **Proc Natl Acad Sci U S A.** 114(18): 4661-4666. (2017)
- 17-12) Butler MR, Ma H, Yang F, Belcher J, Le YZ, Mikoshiba K, Biel M, Michalakis S, Iuso A, Krizaj D, Ding XQ. Endoplasmic reticulum (ER) Ca²⁺-channel activity contributes to ER stress and cone death in cyclic nucleotide-gated channel deficiency. **J Biol Chem.** Jul7;292(27)11189-11205 (2017)
- 17-13) Tobe BT, Crain AM, Winquist AM, Calabrese B, Makihara H, Zhao WN, Lalonde J, Nakamura H, Konopaske G, Sidor M, Pernia CD, Yamashita N, Wada M, Inoue Y, Nakamura F, Sheridan SD, Logan RW, Brandel M, Wu D, Hunsberger J, Dorsett L, Duerr C, Basa RCB, McCarthy MJ, Udeshi ND, Mertins P, Carr SA, Rouleau GA, Mastrangelo L, Li J, Gutierrez GJ, Brill LM, Venizelos N, Chen G, Nye JS, Manji H, Price JH, McClung CA, Akiskal HS, Alda M, Chuang DM, Coyle JT, Liu Y, Teng YD, Ohshima T, Mikoshiba K, Sidman RL,

- Halpain S, Haggarty SJ, Goshima Y, Snyder EY. Probing the lithium-response pathway in hiPSCs implicates the phosphoregulatory set-point for a cytoskeletal modulator in bipolar pathogenesis. **Proc Natl Acad Sci U S A.** 114(22):E4462-E4471. (2017)
- 17-14) Wang Q, Yue WWS, Jiang Z, Xue T, Kang SH, Bergles DE, Mikoshiba K, Offermanns S, Yau KW. Synergistic signaling by light and acetylcholine in mouse Iris sphincter muscle. **Curr Biol.** 27(12): 1791-1800. (2017)
- 17-15) Sugawara T, Hisatsune C, Miyamoto H, Ogawa N, Mikoshiba K. Regulation of spinogenesis in mature Purkinje cells via mGluR/PKC -mediated phosphorylation of CaMKII β . **Proc Natl Acad Sci U S A.** 114(26): E5256-E5265. (2017)
- 17-16) Casey JP, Hirouchi T, Hisatsune C, Lynch B, Murphy R, Dunne AM, Miyamoto A, Ennis S, van der Spek N, O'Hici B, Mikoshiba K, Lynch SA. A novel gain-of-function mutation in the ITPR1 suppressor domain causes spinocerebellar ataxia with altered Ca²⁺ signal patterns. **J Neurol.** 264(7): 1444-1453. (2017)
- 17-17) Tanaka M, Wang X, Mikoshiba K, Hirase H, Shinohara Y. Rearing-environment-dependent hippocampal local field potential differences in wildtype and inositol trisphosphate receptor type 2 knockout mice. **J Physiol.** (DOI) - 10.1113/JP274573 (2017)
- 17-18) Ando H, Kawaai K, Bonneau B, Mikoshiba K. Regulation of inositol 1,4,5-trisphosphate receptors through oncogenes and tumor suppressors **Advances in Biological Regulation** S2212-4926(17)30188-4 (2017)
- 17-19) Nakayama K, Ohashi R, Shinoda Y, Yamazaki M, Abe M, Fujikawa A, Shigenobu S, Futatsugi A, Noda M, Mikoshiba K, Furuichi T, Sakimura K, Shiina N. RNG105/caprin1, an RNA granule protein for dendritic mRNA localization, is essential for long-term memory formation **eLife** DOI:<https://doi.org/10.7554/eLife.29677.001> (2017)
- 17-20) Kozo Saito#, Eiji Shigetomi#, Rei Yasuda, Ryuichi Sato, Masakazu Nakano, Kei Tashiro, Kenji F. Tanaka, Kazuhiro Ikenaka, Katsuhiko Mikoshiba, Ikuko Mizuta, Tomokatsu Yoshida#, Masanori Nakagawa, Toshiki Mizuno and *Schuichi Koizumi Aberrant astrocyte Ca²⁺ signals “AxCa signals” exacerbate pathological alterations in an Alexander disease model. **Glia** URL:[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1098-1136](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1098-1136) (2018)
- 17-21) Nakayama K, Ohashi R, Shinoda Y, Yamazaki M, Abe M, Fujikawa A, Shigenobu S, Futatsugi A, Noda M, Mikoshiba K, Furuichi T, Sakimura K, Shiina N. RNG105/caprin1, an RNA granule protein for dendritic mRNA localization, is essential for long-term memory formation **eLife** DOI:<https://doi.org/10.7554/eLife.29677.001> (2017)

- 18-1) Kozo Saito#, Eiji Shigetomi#, Rei Yasuda, Ryuichi Sato, Masakazu Nakano, Kei Tashiro, Kenji F. Tanaka, Kazuhiro Ikenaka, Katsuhiko Mikoshiba, Ikuko Mizuta, Tomokatsu Yoshida#, Masanori Nakagawa, Toshiki Mizuno and *Schuichi Koizumi
Aberrant astrocyte Ca²⁺ signals “AxCa signals” exacerbate pathological alterations in an Alexander disease model. **Glia**
[URL:http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1098-1136](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1098-1136) (2018)