

Curriculum Vitae

Name: Hideyuki Okano, M.D., Ph.D.

Sex: Male

Date of Birth: January 26, 1959 in Tokyo, Japan.

Position:

Team Leader, Laboratory for Marmoset Neural Architecture, RIKEN Center for Brain Science

Dean, Keio University Graduate School of Medicine

Professor and Chairman, Department of Physiology,
Keio University School of Medicine, Tokyo, Japan

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Education:

1988 Ph.D. (Dr. of Medical Science), Keio University

1983 M.D. Keio University School of Medicine

Employment:

2018~ RIKEN CBS

2015~Present Dean, Keio University School of Medicine.

2014~Present Team Leader, Laboratory for Marmoset Neural Architecture,
RIKEN BSI

2011~2014: Team Leader, RIKEN-KEIO University Joint Research Laboratory

2009~Present University of New South Wales Visiting Professor

2008~Present University of Queensland Honorary Professor in the Queensland Brain
Institute

2007~ 2015 Dean, Graduate School of Medicine,
Keio University.

2001~Present Professor, Department of Physiology,
Keio University School of Medicine.

1997-2001: Professor, Division of Neuroanatomy,
Department of Neuroscience,
Osaka University Graduate School of Medicine

1994-1997: Professor, Department of Molecular Neurobiology,
Institute of Basic Medical Sciences, University of Tsukuba.

1992-1994: Instructor, Department of Molecular Neurobiology,
Institute of Medical Science, University of Tokyo.

1989-1993 Postdoctoral Research Fellow,
Department of Biological Chemistry,
The Johns Hopkins University School of Medicine.

1985-1989: Instructor, Institute for Protein Research, Osaka University.

1983-1985: Instructor, Department of Physiology,
Keio University School of Medicine.

Scientific Backgrounds:

Molecular Neurobiology, Development and Regeneration of the central nervous system
Modeling human Diseases using iPS cells, Brain Science of Non-human Primate,

Grants

Project Leader, Brain Mapping by Integrated Neurotechnologies for Disease Studies
(supported by MEXT)

Awards:

2017: The Best Teacher Award (from Keio University School of Medicine)

2017: DGD Editor-in-Chief Prize (from Wiley)
2016: Faculty Award for Internationalization: Impact Factor Most Outstanding Lab Award (from Keio University)
2016: Molecular Brain Award
2014: The first prize of the 51st Erwin von Bälz Prize (from Boeringer Ingelheim)
2013: Stem Cells Innovator Award
2013: Most Downloaded Review Article from Circulation Research 2013 (from The Basic Cardiovascular Sciences Council of the American Heart Association)
2011: The Johnson & Johnson Innovation Award
2009: A Medal of Honor with Purple Ribbon (from Japanese Emperor)
2008: Inoue Prize for Science (from Inoue Foundation for Science)
2007: Lead Reviewer Award (from *Stem Cells*)
2006: Minister Award of Ministry of Education, Culture, Sports, Science and Technology
2004: Medical Award of The Japan Medical Association (from The Japan Medical Association)
2004: Distinguished Scientist Award (from University of Catania School of Pharmacy)
2004: Gold Medal, Tokyo Techno-Forum 21 Award (from Tokyo Techno Forum 21)
2001: Naka-akira Tsukahara Award (from Brain Science Foundation)
1998: Kitasato Award (from Sanshi-Kai, Keio University School of Medicine)
1995: Yoshihiro Kato Memorial Award (from Yoshihiro Kato Memorial Foundation)
1988: Sanshikai Award (from Sanshi-Kai, Keio University School of Medicine)

Editor and Editorial Boards

***Inflammation and Regeneration* (Editor-in-Chief)**

***Development, Growth & Differentiation* (Editor)**

***Stem Cell Reports* (Associate Editor)**

***Neuroscience Research* (Section Editor)**

***Journal of Neuroscience Research* (Associate Editor)**

***Genes to Cells* (Associate Editor)**

***Cell Stem Cell* (Editorial Board)**

***Stem Cells* (Editorial Board)**

***Regenerative Medicine* (Editorial Board)**

***eLife* (Board of Reviewing Editors)**

Academic Society

Board of Director, The Japanese Society for Regenerative Medicine

Member, Society for Neuroscience

Member, GFC on the Future of Biotechnologies 2016-2018, - World
Economic Forum

Member, International Society of Neurochemistry

Board of Director, International Society for Stem Cell Research (ISSCR)
(~2017.6)

Vice Preseident, The Japan Neuroscience Society (~2017. 3)

Biography:

Hideyuki Okano received M.D. in Physiology from Keio University in 1983. After he obtained Ph.D. degree from Keio University in 1988, he held post doctoral position at Johns Hopkins University Medical School. He has appointed full professors at Tsukuba University School of Medicine in 1994, Osaka University School of Medicine in 1997, and returned to Keio University Medical School in 2001 as a full professor of Physiology. Since 2007, he has been a Dean of Keio University Graduate School of Medicine. He has been conducting basic research in the field of regenerative medicine including, neural stem cells and iPS cells, spinal cord injury, developmental genetics and RNA binding proteins. He has awarded numbers of awards and honors including the Medal with Purple Ribbon in 2009 and the first prize of the 51st Erwin von Bälz Prize in 2014. He aims to establish and provide patients-specific iPS cells and genetically modified non-human primate models for neuroscience research and to explore the pathogenic mechanisms of neurological/psychiatric disorders. Currently, he is the leader of Brain Mapping Project in Japan (Brain/MINDS) and the Dean of Keio University School of Medicine.

Hideyuki Okano: Publication List

h-index (Scopus): 101

Sum of the Times Cited (Scopus): 39,131

Number of Original Articles: 637

Number of Review Articles: 108

Number of Book Chapters and Proceedings: 27

(Data on February 1, 2018)

I. Original Articles

- 1) Kimura M, Inoko H, Katsuki M, Ando, A, Sato T, Hirose T, Takashima H, Inayama S, Okano H, Takamatsu K, Mikoshiba K, Tsukada Y, Watanabe I.: Molecular genetic analysis of myelin-deficient mice: *shiverer* mutant mice show deletion in gene(s) coding for myelin basic protein. **J. Neurochem.** 44: 692-696, 1985.
- 2) Mikoshiba K, Fujishiro M, Kohsaka S, Okano H, Takamatsu K, Tsukada Y.: Disorders in myelination in the *twitcher* mutant: immunohistochemical and biochemical studies. **Neurochem. Res.** 10: 1129-1141, 1985.
- 3) Mikoshiba K, Okano H, Tsukada Y.: P400 protein characteristic to Purkinje cells and related proteins in cerebella from neuropathological mutant mice: autoradiographic study by ¹⁴C-leucine and phosphorylation. **Dev. Neurosci.** 7: 179-187, 1985.
- 4) Okano H, Miura M, Moriguchi A, Ikenaka K, Tsukada Y, Mikoshiba K.: Inefficient transcription of the myelin basic protein gene possibly causes hypomyelination in *myelin-deficient* mutant mice. **J. Neurochem.** 48: 470-476, 1987.
- 5) Mikoshiba K, Okano H, Inoue Y, Fujishiro M, Takamatsu K, Lachapelle F, Baumann N, Tsukada Y.: immunohistochemical, biochemical and electron microscopic analysis of myelin formation in the central nervous system of *myelin deficient (mld)* mutant mice. **Brain Res.** 432: 111-121, 1987.
- 6) Moriguchi A, Ikenaka K, Furuichi T, Okano H, Iwasaki Y, Mikoshiba K.: The fifth exon of the myelin proteolipid protein-coding gene is not utilized in the brain of *jimpy* mutant mice. **Gene**, 55: 333-337, 1987.
- 7) Okano H, Tamura T, Miura M, Aoyama A, Ikenaka K, Oshimura M, Mikoshiba K.: Gene organization and transcription of duplicated MBP genes of *myelin deficient (shi^{mld})* mutant mouse. **EMBO J.** 7: 77-83, 1988.
- 8) Ikenaka K, Furuichi T, Iwasaki Y, Moriguchi A, Okano H, Mikoshiba K.: Myelin proteolipid protein gene structure and its regulation of expression in normal and jimpy mutant mice. **J. Mol. Biol.** 199: 587-596, 1988.
- 9) Inoue Y, Takahashi S, Takayama C, Inoue K, Okano H, Mikoshiba K.: Central myelin in the first hybrid mice produced by intercrossing homozygotes of *shiverer* and *myelin-deficient* mutants. **Brain Res.** 449: 271-280, 1988.

- 10) Okano H, Ikenaka K, Mikoshiba K.: Recombination within the upstream gene of duplicated myelin basic protein genes of *myelin deficient (sh^{imld})* mouse results in the production of antisense RNA. **EMBO J.** 7: 3407-3412, 1988.
- 11) Tamura T, Aoyama A, Inoue T, Miura M, Okano H, Mikoshiba K.: Tissue-specific in vitro transcription from the mouse myelin basic protein promoter. **Mol. Cell. Biol.** 9: 3122-3126, 1989.
- 12) Okano H, Aruga J, Nakagawa T, Shiota C, Mikoshiba K.: Myelin basic protein gene and the function of antisense RNA in its repression in myelin-deficient mutant mouse. **J. Neurochem.** 56: 560-567, 1991.
- 13) Aruga J, Okano H, Mikoshiba K.: Identification of the new isoforms of mouse myelin basic protein: the existence of exon 5a. **J. Neurochem** 56: 1222-1226, 1991.
- 14) Nakagawa T, Okano H, Furuichi T, Aruga J, Mikoshiba K.: The subtypes of the mouse inositol 1,4,5-trisphosphate receptor are expressed in a tissue-specific and developmentally specific manner. **Proc. Natl. Acad. Sci. USA** 88: 6244-6248, 1991.
- 15) Turnley AM, Morahan G, Okano H, Bernard O, Mikoshiba K, Allison J, Bartlett PF, Miller JF.: Dysmyelination in transgenic mice resulting from expression of class I histocompatibility molecules in oligodendrocytes. **Nature** 353: 566-569, 1991.
- 16) Nakagawa T, Shiota C, Okano H, Mikoshiba K.: Differential localization of alternative spliced transcripts encoding inositol 1,4,5-trisphosphate receptors in mouse cerebellum and hippocampus: in situ hybridization study. **J. Neurochem.** 57: 1807-1810, 1991.
- 17) Okano H, Hayashi S, Tanimura T, Sawamoto K, Yoshikawa S, Watanabe J, Iwasaki M, Hirose S, Mikoshiba K, Montell C.: Regulation of Drosophila neural development by a putative secreted protein. **Differentiation** 52: 1-11, 1992.
- 18) Yoshikawa S, Miyamoto I, Aruga J, Furuichi T, Okano H, Mikoshiba K.: Isolation of a Drosophila gene encoding a head-specific guanylyl cyclase. **J. Neurochem.** 60: 1570-1573, 1993. (*H. Okano is the corresponding author in this paper)
- 19) Kume S, Muto A, Aruga J, Nakagawa T, Michikawa T, Furuichi T, Nakade S, Okano H, Mikoshiba K.: The Xenopus IP3 receptor: structure, function, and localization in oocytes and eggs. **Cell** 73: 555-570, 1993. (*H. Okano is the corresponding author in this paper)

- 20) Xiong WC, Okano H, Patel NH, Blendy JA, Montell C.: *repo* encodes a glial-specific homeo domain protein required in the *Drosophila* nervous system. **Genes Dev.** 8: 981-994, 1994.
- 21) Sawamoto K, Okano H, Kobayakawa Y, Hayashi S, Mikoshiba K, Tanimura T.: The function of *argos* in regulating cell fate decisions during *Drosophila* eye and wing vein development. **Dev. Biol.** 164: 267-276, 1994. (*H. Okano is the corresponding author in this paper)
- 22) Nakamura M, Okano H, Blendy JA, Montell C.: Musashi, a neural RNA-binding protein required for *Drosophila* adult external sensory organ development. **Neuron** 13: 67-81, 1994. (*Nakamura, M. and Okano, H. equally contributed to this paper)
- 23) Okano H, Yoshikawa S, Suzuki A, Ueno N, Kaizu M, Okabe M, Takahashi T, Matsumoto M, Sawamoto K, Mikoshiba K.: Cloning of a *Drosophila* melanogaster homologue of the mouse type-I bone morphogenetic proteins-2/-4 receptor: a potential decapentaplegic receptor. **Gene** 148: 203-209, 1994.
- 24) Kagawa T, Ikenaka K, Inoue Y, Kuriyama S, Tsujii T, Nakao J, Nakajima K, Aruga J, Okano H, Mikoshiba K.: Glial cell degeneration and hypomyelination caused by overexpression of myelin *proteolipid protein* gene. **Neuron** 13: 427-442, 1994.
- 25) 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.
- 26) Sawamoto K, Okabe M, Tanimura T, Hayashi S, Mikoshiba K, Okano H.: *argos* Is required for projection of photoreceptor axons during optic lobe development in *Drosophila*. **Developmental Dynamics** 205: 162-171, 1996.
- 27) Okabe M, Sawamoto K, Okano H.: The function of the *Drosophila argos* gene product in the development of embryonic chordotonal organs. **Dev. Biol.** 175: 37-49, 1996.
- 28) Sakakibara S, Imai T, Hamaguchi K, Okabe M, Aruga J, Nakajima K, Yasutomi D, Nagata T, Kurihara Y, Uesugi S, Miyata T, Ogawa M, Mikoshiba K, Okano H.: Mouse-Musashi-1, a neural RNA-binding protein highly enriched in the mammalian CNS stem cell. **Dev. Biol.** 176: 230-242, 1996.

- 29) Sawamoto K, Okabe M, Tanimura T, Mikoshiba K, Nishida Y, Okano H.: The Drosophila secreted protein Argos regulates signal transduction in the Ras/MAPK pathway. **Dev. Biol.** 178: 13-22, 1996.
- 30) Muto A, Kume S, Inoue T, Okano H, Mikoshiba K.: Calcium waves along the cleavage furrows in cleavage-stage *Xenopus* embryos and its inhibition by heparin. **J. Cell Biol.** 135: 181-190, 1996.
- 31) Murata T, Ogura K, Murakami R, Okano H, Yokoyama KK.: hiiragi, a gene essential for wing development in *Drosophila melanogaster*, affects the Notch cascade. **Genes & Genetic Systems** 71: 247-254, 1996.
- 32) Kurihara Y, Nagata T, Imai T, Hiwatashi A, Horiuchi M, Sakakibara S, Katahira M, Okano H, Uesugi S.: Structural properties and RNA-binding activities of two RNA recognition motifs of a mouse neural RNA-binding protein, mouse-Musashi-1. **Gene** 186: 21-27, 1997.
- 33) Okabe M, Okano H.: Two-step induction of chordotonal organ precursors in *Drosophila* embryogenesis. **Development** 124: 1045-1053, 1997.
- 34) Kume S, Yamamoto A, Inoue T, Muto A, Okano H, Mikoshiba K.: Developmental expression of the inositol 1,4,5-trisphosphate receptor and structural changes in the endoplasmic reticulum during oogenesis and meiotic maturation of *Xenopus laevis*. **Dev. Biol.** 182: 228-239, 1997.
- 35) Hisahara S, Shoji S, Okano H, Miura M.: ICE/CED-3 family executes oligodendrocyte apoptosis by tumor necrosis factor. **J. Neurochem.** 69: 10-20, 1997.
- 36) Konishi Y, Kobayashi Y, Kishimoto T, Makino Y, Miyawaki A, Furuichi T, Okano H, Mikoshiba K, Tamura T.: Demonstration of an E-box and its CNS-related binding factors for transcriptional regulation of the mouse type 1 inositol 1,4,5-trisphosphate receptor gene. **J. Neurochem.** 69: 476-484, 1997.
- 37) Kume S, Muto A, Okano H, Mikoshiba K.: Developmental expression of the inositol 1,4,5-trisphosphate receptor and localization of inositol 1,4,5-trisphosphate during early embryogenesis in *Xenopus laevis*. **Mech. Dev.** 66: 157-168, 1997.
- 38) Sakakibara S, Okano H.: Expression of neural RNA-binding proteins in the postnatal CNS: implications of their roles in neuronal and glial cell development. **J. Neurosci.** 17: 8300-8312, 1997.
- 39) 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: 1940-1943, 1997.

- 40) Shiraiwa N, Okano H, Miura M.: Bcl-2 prevents TNF-and Fas-induced cell death but does not inhibit initial processing of caspase-3. **Biomedical Research** 18: 405-411, 1997.
- 41) Sawamoto K, Taguchi A, Hirota Y, Yamada C, Jin MH, Okano H.: Argos induces programmed cell death in the developing *Drosophila* eye by inhibition of the Ras pathway. **Cell Death and Differentiation** 5: 262-270, 1998.
- 42) Hamada S, Senzaki K, Hamaguchi-Hamada K, Tabuchi K, Yamamoto H, Yamamoto T, Yoshikawa S, Okano H, Okado N.: Localization of 5-HT_{2A} receptor in rat cerebral cortex and olfactory system revealed by immunohistochemistry using two antibodies raised in rabbit and chicken. **Brain Res. Mol. Brain Res.** 54: 199-211, 1998.
- 43) Hisahara S, Kanuka H, Shoji S, Yoshikawa S, Okano H, Miura M.: *Caenorhabditis elegans* anti-apoptotic gene *ced-9* prevents *ced-3*-induced cell death in *Drosophila* cells. **J. Cell Sci.** 111: 667-673, 1998.
- 44) Pincus DW, Keyoung HM, Harrison-Restelli C, Goodman RR, Fraser RA, Edgar M, Sakakibara S, Okano H, Nedergaard M, Goldman SA.: Fibroblast growth factor-2/brain-derived neurotrophic factor-associated maturation of new neurons generated from adult human subependymal cells. **Annals of Neurology** 43: 576-585, 1998.
- 45) Saito T, Sawamoto K, Okano H, Anderson DJ, Mikoshiba K.: Mammalian BarH homologue is a potential regulator of neural bHLH genes. **Dev. Biol.** 199: 216-225, 1998.
- 46) Good P, Yoda A, Sakakibara S, Yamamoto A, Imai T, Sawa H, Ikeuchi T, Tsuji S, Satoh H, Okano H.: The human Musashi homolog 1 (MSI1) gene encoding the homologue of Musashi/Nrp-1, a neural RNA-binding protein putatively expressed in CNS stem cells and neural progenitor cells. **Genomics** 52: 382-384, 1998.
- 47) Tabuchi K, Yoshikawa S, Yuasa Y, Sawamoto K, Okano H.: A novel *Drosophila* paired-like homeobox gene related to *Caenorhabditis elegans* *unc-4* is expressed in subsets of postmitotic neurons and epidermal cells. **Neurosci. Lett.** 257: 49-52, 1998.
- 48) Kanuka H, Hisahara S, Sawamoto K, Shoji S, Okano H, Miura M.: Proapoptotic activity of *Caenorhabditis elegans* CED-4 protein in *Drosophila*: implicated mechanisms for caspase activation. **Proc. Natl. Acad. Sci. USA** 96, 145-150, 1999 (Okano, H. and Miura, M. equally contributed to this work)

- 49) Yoshihara Y, Mizuno T, Nakahira M, Kawasaki M, Watanabe Y, Kagamiyama H, Jishage K, Ueda O, Suzuki H, Tabuchi K, Sawamoto K, Okano H, Noda T, Mori K.: A genetic approach to visualization of multisynaptic neural pathways using plant lectin transgene. **Neuron** 22: 33-41, 1999.
- 50) Umemori H, Kadowaki Y, Hirose K, Yoshida Y, Hironaka K, Okano H, Yamamoto T.: S Stimulation of myelin basic protein gene transcription by Fyn tyrosine kinase for myelination. **J. Neurosci.** 19: 1393-1397, 1999.
- 51) Nagata T, Kanno R, Kurihara Y, Uesugi S, Imai T, Sakakibara S, Okano H, Katahira M.: Structure, backbone dynamics and interactions with RNA of the C-terminal RNA-binding domain of a mouse neural RNA-binding protein, Musashi1. **J. Mol. Biol.**, 287: 315-330, 1999.
- 52) Sawamoto K, Yamada C, Kishida S, Hirota Y, Taguchi A, Kikuchi A, Okano H: Ectopic expression of constitutively activated Ral GTPase inhibits cell shape changes during Drosophila eye development. **Oncogene** 18: 1967-1974, 1999.
- 53) Araki T, Saruta T, Okano H, Miura M.: Caspase activity is required for nephrogenesis in the developing mouse metanephros. **Exp. Cell Res.** 248: 423-429, 1999.
- 54) Rocheleau CE, Yasuda J, Shin TH, Lin R, Sawa H, Okano H, Priess JR, Davis RJ, Mello CC.: WRM-1 activates the LIT-1 protein kinase to transduce anterior/posterior polarity signals in *C. elegans*. **Cell** 97: 717-726, 1999.
- 55) Sawamoto K, Winge P, Koyama S, Hirota Y, Yamada C, Miyao S, Yoshikawa S, Jin MH, Kikuchi A, Okano H.: The Drosophila Ral GTPase regulates developmental cell shape changes through the Jun NH(2)-terminal kinase pathway. **J. Cell Biol.** 146: 361-372, 1999.
- 56) Akamatsu W, Okano HJ, Osumi N, Inoue T, Nakamura S, Sakakibara S, Miura M, Matsuo N, Darnell RB, Okano H.: Mammalian ELAV-like neuronal RNA-binding proteins HuB and HuC promote neuronal development in both the central and the peripheral nervous systems. **Proc. Natl. Acad. Sci. USA** 96: 9885-9890, 1999.
- 57) Hirota Y, Okabe M, Imai T, Kurusu M, Yamamoto A, Miyao S, Nakamura M, Sawamoto K, Okano H.: Musashi and seven in absentia downregulate Tramtrack through distinct mechanisms in *Drosophila* eye development. **Mech. Dev.** 87: 93-101, 1999.
- 58) Fujimoto J, Sawamoto K, Okabe M, Takagi Y, Tezuka T, Yoshikawa S, Ryo H, Okano H, Yamamoto T.: Cloning and characterization of Dfak56, a homolog

- of focal adhesion kinase, in *Drosophila melanogaster*. **J. Biol. Chem.** 274: 29196-29201, 1999.
- 59) Kanuka H, Sawamoto K, Inohara N, Matsuno K, Okano H, Miura M.: Control of the cell death pathway by Dapaf-1, a *Drosophila* Apaf-1/CED-4-related caspase activator. **Molecular Cell** 4: 757-769, 1999. (Okano, H. and Miura, M. equally contributed to this work)
- 60) Kaneko Y, Sakakibara S, Imai T, Suzuki A, Nakamura Y, Sawamoto K, Ogawa Y, Toyama Y, Miyata T, Okano H.: Musashi1: an evolutionally conserved marker for CNS progenitor cells including neural stem cells. **Dev. Neurosci.** 22: 139-153, 2000.
- 61) Tabuchi K, Sawamoto K, Suzuki E, Ozaki K, Sone M, Hama C, Tanifuji-Morimoto T, Yuasa Y, Yoshihara Y, Nose A, Okano H.: GAL4/UAS-WGA system as a powerful tool for tracing *Drosophila* transsynaptic neural pathways. **J. Neurosci.Res.** 59: 94-99, 2000.
- 62) Nakamura Y, Sakakibara S, Miyata T, Ogawa M, Shimazaki T, Weiss S, Kageyama R, Okano H.: The bHLH gene *hes1* as a repressor of the neuronal commitment of CNS stem cells. **J. Neurosci.** 20: 283-293, 2000.
- 63) Roy NS, Benraiss A, Wang S, Fraser RA, Goodman R, Couldwell WT, Nedergaard M, Kawaguchi A, Okano H, Goldman SA.: Promoter-targeted selection and isolation of neural progenitor cells from the adult human ventricular zone. **J. Neurosci.Res.** 59: 321-331, 2000.
- 64) Roy NS, Wang S, Jiang L, Kang J, Benraiss A, Harrison-Restelli C, Fraser RA, Couldwell WT, Kawaguchi A, Okano H, Nedergaard M, Goldman SA.: In vitro neurogenesis by progenitor cells isolated from the adult human hippocampus. **Nature Medicine** 6: 271-277, 2000.
- 65) Igaki T, Kanuka H, Inohara N, Sawamoto K, Nunez G, Okano H, Miura M.: Drob-1, a *Drosophila* member of the Bcl-2/CED-9 family that promotes cell death. **Proc.Natl.Acad.Sci.USA.** 97: 662-667, 2000.
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- 67) Hisahara S, Araki T, Sugiyama F, Yagami K, Suzuki M, Abe K, Yamamura K, Miyazaki J, Momoi T, Saruta T, Bernard CC, Okano H, Miura M.: Targeted expression of baculovirus p35 caspase inhibitor in oligodendrocytes protects mice against autoimmune-mediated demyelination. **EMBO J.** 19: 341-348, 2000.

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- 74) Sawa H, Kouike H, Okano H.: Components of the SWI/SNF complex are required for asymmetric cell division in *C. elegans*. **Molecular Cell** 6: 617-624, 2000.
- 75) Shibata M, Hisahara S, Hara H, Yamawaki T, Fukuuchi Y, Yuan J, Okano H, Miura M.: Caspases determine the vulnerability of oligodendrocytes in the ischemic brain. **J. Clin. Invest.** 106: 643-653, 2000.
- 76) Nguyen TQ, Sawa H, Okano H, White JG.: The *C. elegans* septin genes, *unc-59* and *unc-61*, are required for normal postembryonic cytokineses and morphogenesis but have no essential function in embryogenesis. **J. Cell Sci.** 113: 3825-3833, 2000.

- 77) Yoda A, Sawa H, Okano H.: MSI-1, a neural RNA-binding protein, is involved in male mating behaviour in *Caenorhabditis elegans*. **Genes Cells** 5: 885-895, 2000.
- 78) Kawaguchi A, Miyata T, Sawamoto K, Takashita N, Murayama A, Akamatsu W, Ogawa M, Okabe M, Tano Y, Goldman SA, Okano H.: *Nestin*-EGFP transgenic mice: visualization of the self-renewal and multipotency of CNS stem cells. **Mol. Cell. Neurosci.** 17: 259-273, 2001.
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III. Book Chapters and Proceedings

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IV. Representative Patents

[Name of Inventions/Inventor/ The registration number of the patent (Date of the Registration)]

1. **Method of Concentrating and Separating DOPAMINergic Neurons** /Hideyuki Okano, Kazunobu Sawamoto, Kazuto Kobayashi, Natsuki Matsushita/ USA 7270998 (2007.9.18), Canada 2381065 (2007.6.5)
2. **Process for Producing Nerve Stem Cells, Motor Neurons, and GABAergic Neurons from Embryonic Stem Cells.** /Hideyuki Okano and Takuya Shimazaki/ USA7294510 (2007.11.13), Canada 2443151 (2011.06.07)
3. **Method for isolating and purifying multipotential neural progenitor cells and multipotential neural progenitor cells** /Hideyuki Okano, Steven Goldman/ USA 7468277 (2008.12.23)
4. **Numb Protein Expression Inhibitor Making Use Musashi/** Takao Imai, Akinori Tokunaga, Tetsu Yoshida, Katsuhiko Mikoshiba, Masato Nakafuku, Hideyuki Okano/ USA 7264793 (2007.9.4), Canada 2,418,088 (2014.01.14)

5. **Agent for Inhibiting Proliferation of Neural Stem Cells/** Hideyuki Okano, Masanori Sakaguchi, Kazunobu Sawamoto, Jun Hirabayashi/ USA 7662385 (2010.2.16), Japan 4997432 (2012/05/25)
6. **Method of Constructing Spinal Injury Model Monkey and Utilization Thereof /** Hideyuki Okano and 6 other persons / USA 7753054 (2010/07/13), Japan 4332650 (2009.7.3)
7. **Method of Promoting Subsistence and/or Proliferation of Neural Stem Cell and Promoting Extension of Neurite, Promoter therefore, Pharmaceutical Composition Containing Neural Stem Cell, Method of Assay and Method of Screening /** Hideyuki Okano and 4 other persons / USA 7785596 (2010/08/31) , Japan 5099288 (2012/10/05) , Europe 1674566 (UK, France) (2011/04/13)
8. **Recombinant HSV Useful for Treatment of Human Glioma /** Takahito Yazaki, Hideyuki Okano, Takeshi Kawase, Ryuichi Kanai/ USA 7790451(2010/09/07), Japan 5070583 (2012/08/31)
9. **Method for Introducing foreign Gene Into Early Embryo of Primate animal, and Method for Production of Transgenic Primate Animal Comprising The Introduction Method /** Hideyuki Okano, Erika Sasaki / USA 8592643 (2013/11/26) , Europe 2246423 2016/03/23, 1. China ZL200880128383.3 (2014/11/26), Japan 5374389 (2013/9/27) , Singapore 163739 (W02009/096101) 2013/09/30, Korea 10-1588474 (2016/01/19)
10. **Method of Detecting Activation of Notch Signal Transmission System /** Hideyuki Okano, Akinori Tokunaga, Keiko Nakao, Jun Kohyama/USA 8257920 (2012/09/04), Japan 4599610 (2010/10/08)
11. **Method for Producing Neural Stem Cells /**Hideyuki Okano, Wado Akamatsu / USA 5608645(2014/09/05), China ZL200980153873.3 (2014/06/04)
12. **Intrathecal administration of HGF after spinal cord injury /** Hideyuki Okano and 7 other persons /Europe 2116255 (2013/04/10) , Japan 5419045 (2013/11/29) , Hong Kong 1134445 (2013/08/23) , Europe (Norway) 2116255 (2013/08/26)
13. **Method of inducing the differentiation of stem cells into myocardial cells /** Keiichi Fukuda, Shinsuke Yuasa, Hideyuki Okano and 4 other persons / USA 7727762 (2010/06/01) , Australia 2004278634 (2009/10/01), Canada 2540135 (2012/12/04) , China 1863904 (2014/05/28) , Korea 101164104 (2012/07/12) , Russia 2392315 (2010/06/01)

14. **Preparation for treatment of spinal cord injury** / Miho Maeda, Hideyuki Okano and 4 other persons / USA 9,040,062 (2015/05/26) , Japan 5881606 (2016/02/12), China ZL201180048515.3 (2015/07/08)
15. **Method for selection secondary neurosphere derived from differentiated Cell-derived pluripotent stem cell, clone selected by the method and use of the clone** / Hideyuki Okano, Masaya Nakamura, Osahiko Tsuji, Shinya Yamanaka, Kyoko Miura / Europe 2321406 (2014/12/10), Japan 5671737 (2015/01/09)
16. **Central Nervous System Neural Progenitor Cell which Induces Synapse-Forming Neurons in the Spinal Cord** / Hideyuki Okano, Yuto Ogawa / Japan 03763749 (2006.1.27)
17. **Therapeutic Agent for Spinal Cord Injury Comprising INTERLEUKIN-6** / Hideyuki Okano and 3 other persons/Singapore 116011 (2007.8.31) , Japan 4555924 (2010/07/30), Australia 2004212843(2009.10.08), China ZL201280009762.7 (2016/01/20)
18. **Remedy for Dysmnnesia** / Hideyuki Okano and 3 other persons / Japan 4374469 (2009.9.18)
19. **Signal Transduction System Activator** / Hideyuki Okano and 4 other persons / Japan 4925262 (2012/02/17)
20. **Agent for promoting neuronal differentiation and method therefor** / Hideyuki Okano, Takuya Shimazaki, Hayato Naka/ Japan 5794693 (2015/08/21) , Singapore 185062 (2014/04/22) , Australia 2009280769 (2015/01/08)
21. **Therapeutic agent for corneal sensory nerve damage containing semaphorin inhibitor as active ingredient**/ Hideyuki Okano, Kazuo Tsubota and 4 other persons/ Japan 5898672 (2016/03/11)