

## CURRICULUM VITAE

June 24, 2020

**Name:** Fumitaka Sato, Ph.D.

**Birth Date:** January 8, 1978

**Nationality:** Japan

Department of Microbiology,  
Kindai University Faculty of Medicine  
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### Education:

April 1, 1999-March 31, 2003: Department of Sciences,  
Yokohama City University,  
Yokohama, Kanagawa, Japan,  
B.S.

April 1, 2003-March 31, 2005: Department of Immunology,  
Yokohama City University Graduate School of Medicine,  
Yokohama, Kanagawa, Japan,  
M.S.

April 1, 2005-March 31, 2009: Department of Immunology,  
Yokohama City University Graduate School of Medicine,  
Yokohama, Kanagawa, Japan,  
Ph.D.

### Employments:

April 1, 2009-August 31, 2009: Department of Neurosurgery,  
Yokohama City University School of Medicine,  
Yokohama, Kanagawa, Japan,  
Postdoctoral fellow

September 1, 2009-March 31, 2016: Department of Microbiology and Immunology,  
Louisiana State University Health Sciences Center-Shreveport,  
Shreveport, Louisiana, USA,  
Postdoctoral fellow

April 1, 2016-present: Department of Microbiology,  
Kindai University Faculty of Medicine,  
Osakasayama, Osaka, Japan,  
Assistant Professor

### **Research Grants (Principal Investigator):**

1. The Fellowship from the Malcolm Feist Cardiovascular Research Endowment, September 1, 2011-August 31, 2015 (\$225,000). “Regulatory role of natural killer T (NKT) cells in cardiovirus-induced myocarditis”
2. The Science Research Promotion Fund from the Promotion and Mutual Aid Corporation for Private Schools of Japan, April 1, 2017-March 31, 2018 (\$5,000). “Identification of the phase-specific cardiac biomarkers and blood surrogate markers in a viral model of myocarditis”
3. The Grant-in-Aid for Young Scientists (B) from the Japan Society for the Promotion of Science KAKENHI, April-1, 2017-March 31, 2020 (\$40,000). “Identification of biomarkers in animal models of progressive multiple sclerosis using RNA sequencing”
4. The Faculty Assistance and Development Research Grant from the Kindai University Research Enhancement Grant, April 1, 2017-March 31, 2018 (\$4,000). “Identification of blood surrogate markers in autoimmune models of progressive multiple sclerosis”
5. The Grant-in-Aid for Scientific Research (C) from the Japan Society for the Promotion of Science KAKENHI, April-1, 2020-March 31, 2023 (\$43,000). “Novel communication between Th17 and CD8<sup>+</sup> T cells and combination therapy in animal models of multiple sclerosis”

### **Awards in Professional Societies:**

1. 2011, Consortium of Multiple Sclerosis Centers (CMSC) Scholarship Award
2. 2012, American Heart Association (AHA) Basic Cardiovascular Sciences (BCVS) Travel Award
3. 2014, Japanese Society of Neurology (JSN) Travel Award
4. 2015, American Society for Virology (ASV) Medical Virology Club Travel Award
5. 2017, Sendai Conference Travel Award
6. 2018, Sendai Conference Travel Award

### **Awards in Affiliations:**

1. 2017, Kindai University Faculty of Medicine Best Oral Presentation Award

### **Research articles (international):**

1. Tamura C., Nakazawa M., Kasahara M., Hotta C., Yoshinari M., **Sato F.**, Minami M. Impaired function of dendritic cells in alymphoplasia (*aly/aly*) mice for expansion of CD25<sup>+</sup>CD4<sup>+</sup> regulatory T cells. *Autoimmunity*, 2006, 39(6): 445-453.
2. **Sato F.**, Nakazawa M., Yamamiya S., Tamura C., Hongo N., Hotta C., Minami M. Effect of BSA antigen sensitization during the acute phase of Influenza A viral infection on CD11c<sup>+</sup> pulmonary antigen presenting cells. *Allergol. Int.*, 2009, 58(3): 445-454.
3. Maeda K., Kannno H., Yamazaki Y., Kubo A., **Sato F.**, Yamaguchi Y., Saito T. Transplantation of VHL-peptide delivered neural stem cells promotes recovery in injured rat spinal cord. *Neuroreport*, 2009, 20(17): 1559-1563.
4. **Sato F.**, Martinez N.E., Shahid M., Rose J.W., Carlson N.G., Tsunoda I. Resveratrol exacerbates both autoimmune and viral models for multiple sclerosis. *Am. J. Pathol.*, 2013, 183(5): 1390-1396.
5. Chaitanya G.V., Omura S., **Sato F.**, Martinez N.E., Minagar A., Ramanathan M., Guttman B.W., Zivadinov R., Tsunoda I., Alexander J.S. Inflammation induces neuro-lymphatic protein expression in multiple sclerosis brain neurovasculature. *J. Neuroinflammation*, 2013, 10: 125.

6. Fernando V.\*, Omura S.\*, **Sato F.**, Kawai E., Martinez N.E., Elliott S.F., Yoh K., Takahashi S., Tsunoda I. Regulation of an autoimmune model for multiple sclerosis in Th2-biased GATA3 transgenic mice. *Int. J. Mol. Sci.*, 2014, 15(2): 1700-1718. \*Drs. Fernando and Omura contributed equally.
7. Martinez N.E., Karlsson F., **Sato F.**, Kawai E., Omura S., Grisham M.B., Minagar A., Tsunoda I. Protective and detrimental roles for regulatory T cells in a viral model for multiple sclerosis. *Brain Pathol.*, 2014, 24(5): 436-451.
8. Omura S., Kawai E., **Sato F.**, Martinez N.E., Chaitanya G.V., Rollyson P.A., Cvek U., Trutschl M., Alexander J.S., Tsunoda I. Bioinformatics multivariate analysis determined a set of phase-specific biomarker candidates in a novel mouse model for viral myocarditis. *Circ. Cardiovasc. Genet.*, 2014, 7(4): 444-454.
9. Martinez N.E., **Sato F.**, Omura S., Kawai E., Takahashi S., Yoh K., Tsunoda I. ROR $\gamma$ t, but not T-bet, overexpression exacerbates an autoimmune model for multiple sclerosis. *J. Neuroimmunol.*, 2014, 276(1-2): 142-149.
10. **Sato F.**, Omura S., Kawai E., Martinez N.E., Acharya M.M., Reddy P.C., Chaitanya G.V., Alexander J.S., Tsunoda I. Distinct kinetics of viral replication, T cell infiltration, and fibrosis in three phases of myocarditis following Theiler's virus infection. *Cell. Immunol.*, 2014, 292(1-2): 85-93.
11. Martinez N.E., **Sato F.**, Kawai E., Omura S., Takahashi S., Yoh K., Tsunoda I. Th17-biased ROR $\gamma$ t transgenic mice become susceptible to a viral model for multiple sclerosis. *Brain Behav. Immun.*, 2015, 43: 86-97.
12. Kawai E.\*, **Sato F.\***, Omura S., Martinez N.E., Reddy P.C., Taniguchi M., Tsunoda I. Organ-specific protective role of NKT cells in virus-induced inflammatory demyelination and myocarditis depends on mouse strain. *J. Neuroimmunol.*, 2015, 278:174-184. \*Drs. Kawai and **Sato** contributed equally.
13. Alexander J.S., Chervenak R.P., Weinstock-Guttman B., Tsunoda I., Ramanathan M., Martinez N.E., Omura S., **Sato F.**, Chaitanya G.V., Minagar A., McGee J., Jennings M.H., Monceaux C., Becker F., Cvek U., Trutschl M., Zivadinov R. Blood circulating microparticle species in relapsing-remitting and secondary progressive multiple sclerosis. A case-control, cross sectional study with conventional MRI and advanced iron content imaging outcomes. *J. Neurol. Sci.*, 2015, 355(1-2): 84-89.
14. **Sato F.\***, Kawai E.\*, Martinez N.E., Omura S., Park A.-M., Takahashi S., Yoh K., Tsunoda I. T-bet, but not Gata3, overexpression is detrimental in a neurotropic viral infection. *Sci. Rep.*, 2017, 7(1): 10496. \*Drs. **Sato** and Kawai contributed equally.
15. Omura S.\*, **Sato F.\***, Martinez N.E., Range T., Ekshyyan L., Minagar A., Alexander J.S., Tsunoda I. Immunoregulation of Theiler's virus-induced demyelinating disease by glatiramer acetate without suppression of antiviral immune responses. *Arch. Virol.*, 2018, 163(5): 1279-1284.
16. Al-Kofahi M., Omura S., Tsunoda I., **Sato F.**, Becker F., Gavins F.N.E., Woolard M.D., Pattillo C., Zawieja D., Muthuchamy M., Gashev A., Shihab I., Ghoweba M., von der Weid P.-Y., Wang Y., Alexander JS. IL-1 $\beta$  reduces cardiac lymphatic muscle contraction via COX-2 and PGE2 induction: Potential role in myocarditis. *Biomed. Pharmacother.*, 2018, 107: 1591-1600.
17. Omura S., Kawai E., **Sato F.**, Martinez N.E., Minagar A., Al-Kofahi M., Yun J.W., Cvek U., Trutschl M., Alexander J.S., Tsunoda I. Theiler's Virus-Mediated Immunopathology in the CNS and Heart: Roles of Organ-Specific Cytokine and Lymphatic Responses. *Front. Immunol.*, 2018, 9: 2870.
18. Omura S., **Sato F.**, Martinez N.E., Park A.-M., Fujita M., Kennett N.J., Cvek U., Minagar A., Alexander J.S., Tsunoda I. Bioinformatics Analyses Determined the Distinct CNS and Peripheral Surrogate Biomarker Candidates Between Two Mouse Models for Progressive Multiple Sclerosis. *Front. Immunol.*, 2019, 10: 516.

19. Yun J.W., Cvek U., Kilgore P.C.S.R., Tsunoda I., Omura S., **Sato F.**, Zivadinov R., Ramanathan M., Minagar A., Alexander J.S. Neurolymphatic biomarkers of brain endothelial inflammatory activation: Implications for multiple sclerosis diagnosis. *Life Sci.*, 2019, 229: 116-123.

#### Research articles (domestic):

1. Nakamura S., **Sato F.**, Nakamura N. Immunocytochemical localization of Cry j 1 and Cry j 2 –the allergenic proteins of Japanese cedar pollen– in the germinated pollen. *Jpn. J. Palynol.* (Japanese), 2004, 50(1): 15-22.
2. Nakamura K., Nakazawa M., Aihara M., **Sato F.**, Takahashi K., Minami M., Ikezawa Z. Intranasal tolerance was induced by nasal administration of hapten and influenza A virus infection enhanced the sensitization to nasal administration of hapten. *J. Environ. Dermatol. Cutan. Allergol.* (Japanese), 2007, 1(1): 22-30.
3. Omura S., **Sato F.**, Fujita M., Park A.-M., Alexander J.S., Kilgore P.C.S.R., Cvek U., Tsunoda I. Computational analyses associate the CNS lymphatic molecules with disease progression of a viral model for multiple sclerosis. *Neuroinfection* (Japanese), 2018, 23(1): 114-120.
4. **Sato F.** Principal component analysis for characterizing microarray data in animal models of progressive multiple sclerosis. *BIO Clinica*, 2019, 34(5): 53-59.

#### Review articles (international):

1. **Sato F.**, Tanaka H., Hasanovic F., Tsunoda I. Theiler's Virus Infection: Pathophysiology of demyelination and neurodegeneration. *Pathophysiology*, 2011, 18(1): 31-41.
2. **Sato F.**, Omura S., Martinez N.E., Tsunoda I. Heterogeneity Versus Homogeneity of Multiple Sclerosis. *Expert Rev. Clin. Immunol.*, 2011, 7(2): 165-167.
3. Martinez N.E., **Sato F.**, Kawai E., Omura S., Chervenak R.P. and Tsunoda I. Regulatory T cells and Th17 cells in viral infections: implications for multiple sclerosis and myocarditis. *Future Virol.*, 2012, 7(6): 593-608.
4. Martinez N.E., **Sato F.**, Omura S., Minagar A., Alexander J.S., Tsunoda I. Immunopathological patterns from EAE and Theiler's virus infection: Is multiple sclerosis a homogenous 1-stage or heterogeneous 2-stage disease? *Pathophysiology*, 2013, 20(1): 71-84.
5. **Sato F.\***, Martinez N.E.\*, Stewart E.C., Omura S., Alexander J.S., Tsunoda I. "Microglial nodules" and "newly forming lesions" may be a Janus face of early MS lesions; implications from virus-induced demyelination, the Inside-Out model. *BMC Neurol.*, 2015, 15: 219. \*Drs. **Sato** and Martinez contributed equally.
6. Tsunoda I., **Sato F.**, Omura S., Fujita M., Sakiyama N., Park A.-M. Three immune-mediated disease models induced by Theiler's virus: Multiple sclerosis, seizures and myocarditis. *Clin. Exp. Neuroimmunol.*, 2016, 7(4): 330-345.
7. Park A.-M.\*, Omura S.\*, Fujita M., **Sato F.**, Tsunoda I. *Helicobacter pylori* and gut microbiota in multiple sclerosis versus Alzheimer's disease: 10 pitfalls of microbiome studies. *Clin. Exp. Neuroimmunol.*, 2017, 8(3): 215-232. \*Drs. Park and Omura contributed equally.
8. Fujita M., Omura S., **Sato F.**, Park A.-M., Tsunoda I. Influx and efflux of immune cells in the central nervous system. *Anat. Physiol.*, 2017, 7(4): 274.

#### Review articles (domestic):

1. Tsunoda I., Omura S., Kusunoki S., **Sato F.**, Fujita M., Park A.-M., Hasanovic F., Yanagihara R., Nagata S. Neuropathogenesis of Zika virus infection: Potential roles of antibody-mediated pathology. *Acta Medica Kindai Univ.* (English), 2016, 41(2): 37-52.

2. Tsunoda I., Omura S., **Sato F.**, Sakiyama N., Park A.-M., Fujita M. Theiler's virus induces an animal model for the axonal form of multiple sclerosis: Inside-Out model. *Neuroinfection* (Japanese), 2017, 22: 28-35.

#### **Book chapters (international):**

1. **Sato F.**\*, Omura S.\*, Martinez N.E., Tsunoda I. Animal Models of Multiple Sclerosis. In: *Neuroinflammation* (1st edition), Minagar A. (Ed), Elsevier, Burlington, 2011, Chapter 4: pp55-79. \*Drs. **Sato** and Omura contributed equally.
2. **Sato F.**, Omura S., Jaffe S.L., Tsunoda I. Role of CD4 T lymphocytes in pathophysiology of multiple sclerosis. In: *Multiple sclerosis: A mechanistic view* (1st edition), Minagar A. (Ed), Elsevier, London, UK, 2016, Chapter 4: pp41-69.
3. **Sato F.**, Omura S., Martinez N.E., Tsunoda I. Animal Models of Multiple Sclerosis. In: *Neuroinflammation* (2nd edition), Minagar A. (Ed), Elsevier, Burlington, 2018, Chapter 3: pp37-72.

#### **Others:**

1. **Sato F.**, Omura S., Kawai E. Introduction of neuroscientists: Ikuo Tsunoda. *Clinical Neuroscience* (Japanese), 2013, 31(12): 1458.
2. Martinez N.E., **Sato F.**, Kawai E., Omura S., Takahashi S., Yoh K., Tsunoda I. Th17-biased ROR $\gamma$ t transgenic mice become susceptible to a viral model for multiple sclerosis. 2014, *Elsevier B.V.*, Audioslides. <http://audioslides.elsevier.com/ViewerLarge.aspx?source=1&doi=10.1016/j.bbi.2014.07.008>
3. Martinez N.E., **Sato F.**, Omura S., Kawai E., Takahashi S., Yoh K., Tsunoda I. ROR $\gamma$ t, but not T-bet, overexpression exacerbates an autoimmune model for multiple sclerosis. 2014, *Elsevier B.V.*, Audioslides. <http://audioslides.elsevier.com/ViewerLarge.aspx?source=1&doi=10.1016/j.jneuroim.2014.09.006>
4. **Sato F.**, Omura S., Kawai E., Martinez N.E., Acharya M.M., Reddy P.C., Chaitanya G.V., Alexander J.S., Tsunoda I. Distinct kinetics of viral replication, T cell infiltration, and fibrosis in three phases of myocarditis following Theiler's virus infection. 2014, *Elsevier B.V.*, Audioslides. <http://audioslides.elsevier.com/ViewerLarge.aspx?source=1&doi=10.1016/j.cellimm.2014.10.004>
5. Kawai E. \*, **Sato F.**\*, Omura S., Martinez N.E., Reddy P.C., Taniguchi M., Tsunoda I. Organ-specific protective role of NKT cells in virus-induced inflammatory demyelination and myocarditis depends on mouse strain. 2014, *Elsevier B.V.*, Audioslides. \*Drs. Kawai and **Sato** contributed equally. <http://audioslides.elsevier.com/ViewerLarge.aspx?source=1&doi=10.1016/j.jneuroim.2014.11.003>

#### **Reviewer experiences:**

1. Ad Hoc Reviewer for the *Journal of Multiple Sclerosis*
2. Ad Hoc Reviewer for the *Journal of Visualized Experiments (JoVE)*
3. Ad Hoc Reviewer for *Pathophysiology*
4. Ad Hoc Reviewer for *Frontiers in Cellular Neuroscience*

#### **Invited lectures (international):**

1. Seminar series, Center of Excellence for Arthritis and Rheumatology, Louisiana State University Health Sciences Center, Autoimmunity Discussion Group, "The role of resveratrol, a red wine component, on immune-mediated experimental autoimmune encephalomyelitis (EAE)", Shreveport, Louisiana, USA, November 13, 2009.

2. The 55th Annual Meeting of the Japanese Society of Neurology (JSN), “Autoimmune and viral models of MS in Th2-biased GATA3 transgenic mice”, Fukuoka, Fukuoka, Japan, May 21-24 (May 22), 2014.
3. Sendai Conference 2017, “An RNA virus triggers inflammatory demyelination in the central nervous system by activating anti-myelin autoimmune T cells”, Sendai, Miyagi, Japan, July 8, 2017.
4. Sendai Conference 2018, “Potential prebiotic  $\beta$ -glucan curdlan differently alters viral versus autoimmune models of MS”, Sendai, Miyagi, Japan, July 14, 2018.
5. Sendai Conference 2019, “Altered microbiota could affect distinct CNS immune gene expressions in the Theiler’s virus model of MS”, Sendai, Miyagi, Japan, June 29, 2019.

**Invited lectures (domestic):**

1. Seminar series, Department of Immunology, Yokohama City University School of medicine, “Demyelination and axonal degeneration in animal models of multiple sclerosis: Outside-In model and Inside-Out model”, Yokohama, Kanagawa, Japan, February 9, 2010.

**Oral presentations (international):**

1. The American Society for Microbiology (ASM) South Central Branch Annual Meeting, “Role of Toll-like receptor (TLR) 4 in a viral model for myocarditis”, Monroe, Louisiana, USA, December 2-3 (December 2), 2011.
2. The 34th Annual Meeting of the American Society for Virology (ASV), “Th1 transcription factor T-bet, but not Th2 transcription factor GATA3, overexpression is detrimental in a neurotropic viral infection in the CNS”, London, Ontario, Canada, July 11-15 (July 13), 2015.

**Oral presentations (domestic):**

1. The 23rd Annual Meeting of the Japanese Society for Neuroimmunology (JSNI), “Effect of curdlan, a Th17-cell inducer, in a viral model for multiple sclerosis: Theiler’s virus infection”, Shinjuku, Tokyo, Japan, September 15-17 (September 17), 2011.
2. The 27th Annual Meeting of the Japan Cytometry Society (JCS), “Roles of regulatory T cells in the Theiler’s murine encephalomyelitis virus-induced demyelination model”, Kobe, Hyogo, Japan, June 10-11 (June 10), 2017.
3. The 76th Annual Meeting of Kindai University Faculty of Medicine, “Viral infections act as adjuvant, accelerating spontaneous EAE”, Osakasayama, Osaka, Japan, July 19, 2017.
4. The 29th Annual Meeting of the Japanese Society for Neuroimmunology (JSNI), “Overexpression of the transcription factor T-bet exacerbates neurotropic viral infection”, Sapporo, Hokkaido, Japan, October 6-7 (October 7), 2017.
5. The 46th Annual Meeting of the Japanese Society for Immunology (JSI), “Protective and detrimental effects of curdlan, a Th17 cell inducer, in immune-mediated demyelination induced by a neurotropic viral infection”, Sendai, Miyagi, Japan, December 12-14 (December 12), 2017.
6. The 23rd Annual Meeting of the Japanese Society for Neuroinfectious Diseases (JSND), “Overexpression of the transcription factor T-bet renders resistant C57BL/6 mice lethal in a neurotropic viral infection”, Edogawa-ku, Tokyo, Japan, October 19-20 (October 19), 2018.
7. The 66th Annual Meeting of the Japanese Society for Virology (JSV), “Theiler’s virus-induced myocarditis model with acute viral replication, subacute T cell infiltration and chronic fibrosis in the heart”, Kyoto, Kyoto, Japan, October 28-30 (October 29), 2018.

8. The 47th Annual Meeting of the Japanese Society for Immunology (JSI), “TLR4 exacerbates a novel model of myocarditis induced with a picornavirus”, Fukuoka, Fukuoka, Japan, December 10-12 (December 12), 2018.
9. The 67th Annual Meeting of the Japanese Society for Virology (JSV), “Alteration of microbiota and immune gene expressions in the central nervous system in a picornavirus-induced acute myelitis model”, Edogawa-ku, Tokyo, Japan, October 29-31 (October 31), 2019.

**Abstracts (international):**

1. **Sato F.**, Tamura C., Yamamiya S., Nakazawa M., Minami M. The effect of inhaled antigen sensitization during the acute phase of influenza A viral infection on pulmonary dendritic cells. The 93rd Annual Meeting of the American Association of Immunologists (AAI), 2006, Boston, Massachusetts, USA. Poster.
2. **Sato F.**, Carlson N.G., Rose J.W., Wood B.L., Martinez N.E., Tsunoda I. Neuroprotection and suppression of IL-17A and IFN-gamma by resveratrol, a red wine component, in a Neurotropic CNS Theiler’s virus infection. The Louisiana NCRR/IDeA 2010 Biomedical Research Symposium, 2010, Baton Rouge, Louisiana, USA. Poster.
3. **Sato F.**, Rose J.W., Carlson N.G., Minagar A., Tsunoda I. Possible Neuroprotection and Th17 Modulation by a Red Wine Component, Resveratrol, in a Mouse Model for Multiple Sclerosis, Theiler’s Virus Infection. The 62nd Annual Meeting of the American Academy of Neurology (AAN), 2010, Toronto, Ontario, Canada. Poster.
4. **Sato F.**, Martinez N.E., Rose J.W., Carlson N.G., Tsunoda I. Resveratrol, a red wine component, exacerbated MOG-induced EAE. The 10th International Congress of Neuroimmunology (ISNI), 2010, Barcelona, Catalonia, Spain. Poster.
5. Omura S., **Sato F.**, Martinez, N.E., Kennett N.J., Tsunoda I. Roles of Th1 and Th17 cells in autoimmune and viral models for relapsing-remitting versus progressive multiple sclerosis. The 63rd Annual Meeting of the American Academy of Neurology (AAN), 2011, Honolulu, Hawaii, USA. Oral.
6. **Sato F.**, Martinez N.E., Omura S., Rose J.W., Carlson N.G., Tsunoda I. Resveratrol, a red wine component, exacerbated viral and autoimmune models for multiple sclerosis. The 9th Annual Meeting of Louisiana Biomedical Research Network (LBRN), 2011, Shreveport, Louisiana, USA. Poster.
7. **Sato F.**, Martinez N.E., Omura S., Carlson N.G., Rose J.W., Tsunoda I. Resveratrol, a red wine polyphenol component, exacerbated autoimmune and viral models for MS with increased CNS inflammation. The 25th Annual Meeting of the Consortium of Multiple Sclerosis Centers (CMSC), 2011, Montreal, Quebec, Canada. Poster.
8. Martinez N.E., Karlsson F., **Sato F.**, Omura S., Grisham M.B., Tsunoda I. Regulatory T cells play a detrimental role in a viral model for multiple sclerosis. The 25th Annual Meeting of the Consortium of Multiple Sclerosis Centers (CMSC), 2011, Montreal, Quebec, Canada. Poster.
9. Omura S., **Sato F.**, Martinez N.E., Kennett N.J., Tsunoda I. Is MS a homogenous or heterogenous disease? Insight from Th1 and Th17 cytokines in autoimmune and viral models for RR-MS versus PP-MS. The 25th Annual Meeting of the Consortium of Multiple Sclerosis Centers (CMSC), 2011, Montreal, Quebec, Canada. Poster.
10. Alexander J.S., Ganta C.V., Orr A.W., Funk S., Yurdagul A., Cromer W., Mathis J.M., Erdreich-Epstein A., Nagra R.M., Minagar A., Tsunoda I., **Sato F.**, Martinez N.E., Omura S. Ephrin/Eph receptor expression on brain microvascular endothelial cells and microparticles: regulation by inflammatory cytokines. The 25th International Symposium on Cerebral Blood Flow, Metabolism and Function and the 10th International Conference on Quantification of Brain Function with PET, 2011, Barcelona, Catalonia, Spain. Oral.

11. **Sato F.**, Martinez N.E., Omura S., Alexander J.S., Tsunoda I. Curdlan, a Th17 cell inducer, is both detrimental and protective in Theiler's virus infection. The 15th International Congress of Virology (ICV), 2011, Sapporo, Hokkaido, Japan. Poster.
12. Martinez N.E., Karlsson F., **Sato F.**, Omura S., Grisham M.B., Tsunoda I. Regulatory T cells play a detrimental role in a viral model for multiple sclerosis. The 15th International Congress of Virology (ICV), 2011, Sapporo, Hokkaido, Japan. Poster.
13. **Sato F.**, Martinez N.E., Omura S., Alexander J.S., Tsunoda I. Curdlan, a Th17 cell inducer, plays contrasting roles in Theiler's virus infection. The Southeast Regional IDeA Meeting, 2011, New Orleans, Louisiana, USA. Poster.
14. Martinez N.E., Karlsson F., **Sato F.**, Omura S., Grisham M.B., Tsunoda I. Contrasting roles of regulatory T cells in the Theiler's virus model for multiple sclerosis. The Southeast Regional IDeA Meeting, 2011, New Orleans, Louisiana, USA. Poster.
15. Martinez N.E., Karlsson F., **Sato F.**, Omura S., Minagar A., Grisham M.B., Tsunoda I. Regulatory T cells play contrasting roles in a viral model for multiple sclerosis. The 136th Annual Meeting of American Neurological Association (ANA), 2011, San Diego, California, USA.
16. **Sato F.**, Omura S., Martinez N.E., Chaitanya G.V., Alexander J.S., Tsunoda I. Role of Toll-like receptor (TLR) 4 in a viral model for myocarditis. The American Society for Microbiology (ASM) South Central Branch Annual Meeting, 2011, Monroe, Louisiana, USA. Oral.
17. Tsunoda I., Omura S., **Sato F.**, Martinez N.E., Karlsson F., Grisham M.B., Chaitanya G.V., Alexander J.S. Theiler's virus infection: Animal models for multiple sclerosis and myocarditis. The American Society for Microbiology (ASM) South Central Branch Annual Meeting, 2011, Monroe, Louisiana, USA. Oral.
18. **Sato F.**, Martinez N.E., Omura S., Alexander J.S., Minagar A., Tsunoda I. Curdlan, a Th17 cell inducer, plays contrasting roles in viral model for multiple sclerosis. The 64th Annual Meeting of the American Academy of Neurology (AAN), 2012, New Orleans, Louisiana, USA. Poster.
19. Omura S., Kawai E., **Sato F.**, Martinez N.E., Trutschl M., Cvek U., Tsunoda I. Bioinformatics analysis of microarray data in cardiomyocytes neuronal cells infected with Theiler's virus. NIH, NIGHS Fourth Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE), 2012, Washington, DC, USA. Poster.
20. Martinez N.E., **Sato F.**, Omura S., Kawai E., Takahashi S., Yoh K., Tsunoda I. Th17 bias renders mice susceptible to virus-induced demyelinating disease. NIH, NIGHS Fourth Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE), 2012, Washington, DC, USA. Poster.
21. Omura S., **Sato F.**, Martinez N.E., Chaitanya G.V., Claycomb W.C., Alexander J.S., Tsunoda I. Upregulation of chemokines and interferon-associated genes in a novel model for myocarditis induced by cardiovirus infection. The 31st Annual Meeting of the American Society for Virology (ASV), 2012, Madison, Wisconsin, USA. Oral.
22. **Sato F.**, Omura S., Martinez N.E., Kawai E., Chaitanya G.V., Alexander J.S., Tsunoda I. Detrimental role of Toll-like receptor 4 in cardiovirus-induced myocarditis. American Heart Association (AHA) Basic Cardiovascular Sciences (BCVS) 2012 Scientific Sessions, 2012, New Orleans, Louisiana, USA. Poster.
23. Kawai E., Omura S., **Sato F.**, Martinez N.E., Chaitanya G.V., Claycomb W.C., Alexander J.S., Tsunoda I. Chemokine and autophagy-related genes in novel *in vivo* and *in vitro* models for viral myocarditis. American Heart Association (AHA) Basic Cardiovascular Sciences (BCVS) 2012 Scientific Sessions, 2012, New Orleans, Louisiana, USA. Poster.



24. Martinez N.E., **Sato F.**, Omura S., Kawai E., Takahashi S., Yoh K., Tsunoda I. Th17 bias renders mice susceptible to a viral model for multiple sclerosis. The 11th International Congress of Neuroimmunology (ISNI), 2012, Boston, Massachusetts, USA. Poster.
25. Omura S., **Sato F.**, Kawai E., Martinez N.E., Pearson S.F., Rollyson P., Cvek U., Trutschl M., Tsunoda I. Computational analysis of microarray gene expression patterns discriminates the acute viral versus subacute immune phases of myocarditis induced by cardiovirus. The 32nd Annual Meeting of the American Society for Virology (ASV), 2013, State College, Pennsylvania, USA. Oral.
26. **Sato F.**, Omura S., Martinez N.E., Kawai E., Pearson S.F., Fernando V., Acharya M.M., Chaitanya G.V., Alexander J.S., Ajuebor M.N., Taniguchi M., Tsunoda I. Natural killer T cells play protective roles in cardiovirus-induced myocarditis by inducing anti-viral and regulatory cytokines. American Heart Association (AHA) Basic Cardiovascular Sciences (BCVS) 2013 Scientific Sessions, 2013, Las Vegas, Nevada, USA. Poster.
27. Kawai E., Omura S., **Sato F.**, Martinez N.E., Fernando V., Rollyson P., Cvek U., Trutschl M., Tsunoda I. Determination of phase-specific biomarkers of viral myocarditis induced by Theiler's virus using multivariate analyses of viral genome, troponin, transcriptome and echocardiography data. American Heart Association (AHA) Basic Cardiovascular Sciences (BCVS) 2013 Scientific Sessions, 2013, Las Vegas, Nevada, USA. Poster.
28. Shafiei F., Omura S., Kawai E., **Sato F.**, Martinez N.E., Fernando V., Morris L.A., Alexander J.S., Trutschl M., Cvek U., Tsunoda I. Computational multivariate analyses for phase-specific biomarker identification in novel *in vivo* and *in vitro* viral myocarditis models induced by cardiovirus. American College of Cardiology (ACC) 63rd Annual Scientific Session & Expo, 2014, Washington, DC, USA. Poster.
29. **Sato F.**, Fernando V., Omura S., Martinez N.E., Kawai E., Takahashi S., Yoh K., Tsunoda I. Autoimmune and viral models of MS in Th2-biased GATA3 transgenic mice. The 55th Annual Meeting of the Japanese Society of Neurology (JSN), 2014, Fukuoka, Fukuoka, Japan. Oral and poster.
30. Tsunoda I., Martinez N.E., Omura S., Kawai E., **Sato F.** Inside-Out model of multiple sclerosis: Theiler's virus infection. The 55th Annual Meeting of the Japanese Society of Neurology (JSN), 2014, Fukuoka, Fukuoka, Japan. Oral.
31. Omura S., Cvek U., Trutschl M., **Sato F.**, Martinez N.E., Kawai E., Fernando V., Morris L.A., Acharya M.M., Shafiei F., Alexander J.S., Tsunoda I. Brain biomarkers and spleen surrogate markers for primary progressive MS models. The 55th Annual Meeting of the Japanese Society of Neurology (JSN), 2014, Fukuoka, Fukuoka, Japan. Oral and poster.
32. Martinez N.E., **Sato F.**, Omura S., Kawai E., Takahashi S., Yoh K., Tsunoda I. Th17 biased ROR $\gamma$ t transgenic mice show an exacerbation of an autoimmune model for multiple sclerosis. The 55th Annual Meeting of the Japanese Society of Neurology (JSN), 2014, Fukuoka, Fukuoka, Japan. Oral and poster.
33. Omura S., **Sato F.**, Kawai E., Martinez N.E., Cvek U., Trutschl M., Alexander J.S., Tsunoda I. Phase-specific cardiac biomarkers and blood surrogate markers for a mouse model of myocarditis induced by cardiovirus. The 33rd Annual Meeting of the American Society for Virology (ASV). 2014, Fort Collins, Colorado, USA. Oral.
34. Yun J.W., Stevenson E.V., Omura S., **Sato F.**, Tsunoda I., Minagar A., Becker F., Castor T., Xiao A., Alexander J.S. Endothelial dysfunction in neurodegenerative disease. The 5th Annual Meeting of the International Society for Neurovascular Disease (ISNVD), 2015, Naples, Campania, Italy. Oral and poster.
35. Stevenson E.V., Yun J.W., Omura S., **Sato F.**, Tsunoda I., Minagar A., Becker F., Castor T., Couraud P.-O., Romero I.A., Weksler B., Alexander J.S. Fluid dynamic influences on cerebrovascular endothelial activation responses. The

5th Annual Meeting of the International Society for Neurovascular Disease (ISNVD), 2015, Naples, Campania, Italy. Oral and poster.

36. **Sato F.**, Kawai E., Martinez N.E., Omura S., Cliburn E.A., Takahashi S., Yoh K., Tsunoda I. Th1 transcription factor T-bet, but not Th2 transcription factor GATA3, overexpression is detrimental in a neurotropic viral infection in the CNS. The 34th Annual Meeting of the American Society for Virology (ASV), 2015, London, Ontario, Canada. Oral.
37. **Sato F.**, Martinez N.E., Omura S., Alexander J.S., Tsunoda I. Th1/Th2 imbalance by “gain-of-function” mutations cause fatal Theiler’s virus infection in mice. The Southeast Regional IDeA Meeting, 2015, Biloxi, Mississippi, USA. Poster.
38. Omura S., **Sato F.**, Alexander J.S., Kilgore P.C.S.R., Cvek U., Trutschl M., Tsunoda I. Upregulation of lymphatic markers and vascular adhesion molecules in CNS RNAseq transcriptome of a viral model for multiple sclerosis. The 6th Annual Meeting of the International Society for Neurovascular Disease (ISNVD), 2016, New York, New York, USA. Oral and poster.
39. **Sato F.**, Legaux K.N., Creason T.G., Omura S., Park A.-M., Fujita M., Stokes K.Y., Tsunoda I. An RNA virus triggers inflammatory demyelination in the central nervous system by activating anti-myelin autoimmune T cells. Sendai Conference 2017, Sendai, Miyagi, Japan. Oral.
40. Omura S., **Sato F.**, Martinez N.E., Park A.-M., Fujita M., Kilgore P.C.S.R., Cvek U., Trutschl M., Minagar A., Alexander J.S., Tsunoda I. Computational analysis determined the homogeneities and heterogeneities between two distinct EAE models for progressive multiple sclerosis. Sendai Conference 2017, Sendai, Miyagi, Japan. Oral.
41. **Sato F.**, Omura S., Park A.-M., Fujita M., Stokes K.Y., Tsunoda I. Viral infection activates myelin-specific T cells, triggering MS-like CNS inflammatory demyelination. The 23rd World Congress of Neurology, 2017, Kyoto, Kyoto, Japan. Poster.
42. Omura S., **Sato F.**, Martinez N.E., Park A.-M., Cvek U., Minagar A., Alexander J.S., Tsunoda I. Bioinformatics analysis determined the CNS and peripheral lymphoid surrogate biomarker candidates between two distinct EAE models for progressive multiple sclerosis. The 23rd World Congress of Neurology, 2017, Kyoto, Kyoto, Japan. Poster.
43. Omura S., **Sato F.**, Park A.-M., Fujita M., Alexander J.S., Kilgore P.C.S.R., Cvek U., Tsunoda I. Bioinformatics analyses identified phase-specific heart biomarkers and blood surrogate markers for a mouse model of viral myocarditis. The 16th Annual Meeting of Louisiana Biomedical Research Network (LBRN), 2018, Shreveport, Louisiana, USA. Poster.
44. Tsunoda I., Omura S., **Sato F.**, Park A.-M., Fujita M., Sakiyama N., Minagar A., Kilgore P.C.S.R., Cvek U., Alexander J.S. Neurotropic virus infection downregulates lymphatic molecules, suppressing lymphocyte exit from the central nervous system. The 12th China-Japan International Conference of Virology, 2018, Wuhan, PR China. Oral.
45. **Sato F.**, Martinez N.E., Omura S., Park A.-M., Fujita M., Minagar A., Alexander J.S., Tsunoda I. Potential prebiotic  $\beta$ -glucan curdlan differently alters viral versus autoimmune models of MS. Sendai Conference 2018, Sendai, Miyagi, Japan. Oral.
46. Omura S., Shimizu K., Kuwahara M., Morikawa M., Fujita M., Park A.-M., **Sato F.**, Kusunoki S., Tsunoda I. Distinct sets of anti-glycolipid antibodies are associated with latent factors in Guillain-Barré syndrome by exploratory factor analysis. The 14th International Congress of Neuroimmunology (ISNI), 2018, Brisbane, Australia. Oral.
47. Omura S., **Sato F.**, Park A.-M., Fujita M., Alexander J.S., Kilgore P.C.S.R., Cvek U., Tsunoda I. Bioinformatics analyses identified phase-specific heart biomarkers and blood surrogate markers for a mouse model of viral myocarditis. Research and Industry Day (RAID) Conference, 2018, Shreveport, Louisiana, USA. Poster.

48. **Sato F.**, Omura S., Park A.-M., Fujita M., Khadka S., Sakiyama N., Katsuki A., Nakamura Y., Nishio K., Tsunoda I. Altered microbiota could affect distinct CNS immune gene expressions in the Theiler's virus model of MS. Sendai Conference 2019, Sendai, Miyagi, Japan. Oral.

**Abstracts (domestic):**

1. **Sato F.**, Yamamiya S., Nakazawa M., Minami M. The effect of inhaled antigen sensitization during the acute phase of influenza A viral infection on pulmonary dendritic cells. The 34th Annual Meeting of the Japanese Society for Immunology (JSI), 2004, Sapporo, Hokkaido, Japan.
2. Yamamiya S., Nakazawa M., **Sato F.**, Hotta C., Minami M. The effect of adoptive transfer IL-10-treated bone marrow-derived dendritic cells in mouse model of asthma. The 34th Annual Meeting of the Japanese Society for Immunology (JSI), 2004. Sapporo, Hokkaido, Japan.
3. Yoshinari M., Tamura C., **Sato F.**, Nakazawa M., Minami M. Immune responses in alymphoplasia mutant mice against *Schistosoma mansoni* infection. The 35th Annual Meeting of the Japanese Society for Immunology (JSI), 2005, Yokohama, Kanagawa, Japan.
4. Tamura C., Nakazawa M., **Sato F.**, Minami M. Induction of OVA-specific regulatory T cells in OT-II mice by intraperitoneal administration of OVA. The 35th Annual Meeting of the Japanese Society for Immunology (JSI), 2005, Yokohama, Kanagawa, Japan.
5. **Sato F.**, Nakazawa M., Kato W., Minami M. Inhaled antigen sensitization during the acute phase of influenza A viral infection enhanced Th2 response. The 36th Annual Meeting of the Japanese Society for Immunology (JSI), 2006, Osaka, Osaka, Japan.
6. **Sato F.**, Mori M., Nakazawa M., Hotta C., Minami M. Regulatory T cells induced by IL-10-treated bone marrow dendritic cells induce apoptosis *in vivo* and *in vitro*. The 38th Annual Meeting of the Japanese Society for Immunology (JSI), 2008, Kyoto, Kyoto, Japan.
7. **Sato F.**, Martinez N.E., Omura S., Alexander J.S., Tsunoda I. Effect of curdlan, a Th17-cell inducer, in a viral model for multiple sclerosis: Theiler's virus infection. The 23rd Annual Meeting of Japanese Society for Neuroimmunology (JSNI), 2011, Shinjuku, Tokyo, Japan. Oral.
8. Omura S., **Sato F.**, Martinez N.E., Kennett N.J., Alexander J.S., Tsunoda I. Systems biology approach in animal models for relapsing-remitting versus progressive multiple sclerosis. The 23rd Annual Meeting of Japanese Society for Neuroimmunology (JSNI), 2011, Shinjuku, Tokyo, Japan. Oral.
9. Omura S., **Sato F.**, Alexander J.S., Kilgore P.C.S.R., Cvek U., Trutschl M., Tsunoda I. Upregulation of vascular adhesion molecules and downregulation of BBB/lymphatic molecules correlate with the pathophysiology of a progressive model for multiple sclerosis. The 28th Annual Meeting of the Japanese Society for Neuroimmunology (JSNI), 2016, Nagasaki, Nagasaki, Japan. Oral.
10. Tsunoda I., **Sato F.**, Omura S., Sakiyama N., Park A.-M., Fujita M. Pathomechanism of inflammatory demyelination and axonal degeneration induced with Theiler's murine encephalomyelitis virus. The 21st Annual Meeting of the Japan Society for Neuroinfectious Diseases (JSND), 2016, Kanazawa, Ishikawa, Japan. Oral.
11. Tsunoda I., Omura S., **Sato F.**, Park A.-M., Fujita M. Principal component analyses determined lymphatic biomarkers from gene profiles in a viral model of multiple sclerosis. The 90th Annual Meeting of the Japan Society for Occupational Health, 2017, Koto-ku, Tokyo, Japan. Oral.

12. **Sato F.**, Martinez N.E., Karlsson F., Omura S., Park A.-M., Fujita M., Grisham M.B., Tsunoda I. Roles of regulatory T cells in the Theiler's murine encephalomyelitis virus-induced demyelination model. The 27th Annual Meeting of the Japan Cytometry Society (JCS), 2017, Kobe, Hyogo, Japan. Oral.
13. **Sato F.**, Omura S., Park A.-M., Fujita M., Tsunoda I. Viral infections act as adjuvant, accelerating spontaneous EAE. The 76th Kindai University Medical Association Meeting, 2017, Osakasayama, Osaka, Japan. Oral.
14. Omura S., **Sato F.**, Martinez N.E., Park A.-M., Fujita M., Kilgore P.C.S.R., Cvek U., Trutschl M., Minagar A., Alexander J.S., Tsunoda I. Principal component analyses determined biomarkers associated with the pathophysiology/pathology in murine models of progressive multiple sclerosis. The 76th Kindai University Medical Association Meeting, 2017, Osakasayama, Osaka, Japan. Oral.
15. **Sato F.**, Omura S., Park A.-M., Fujita M., Sakiyama N., Takahashi S., Yoh K., Tsunoda I. Overexpression of the transcription factor T-bet exacerbates neurotropic viral infection. The 29th Annual Meeting of the Japanese Society for Neuroimmunology (JSNI), 2017, Sapporo, Hokkaido, Japan. Oral.
16. Omura S., **Sato F.**, Fujita M., Park A.-M., Alexander J.S., Kilgore P.C.S.R., Cvek U., Tsunoda I. Computational analyses associate the CNS lymphatic molecules with disease progression of a viral model for multiple sclerosis. The 22nd Annual Meeting of the Japanese Society for Neuroinfectious Diseases (JSND), 2017, Kitakyusyu, Fukuoka, Japan. Oral.
17. Omura S., **Sato F.**, Park A.-M., Fujita M., Alexander J.S., Kilgore P.C.S.R., Cvek U., Tsunoda I. Bioinformatics analyses identified phase-specific heart biomarkers and blood surrogate markers for a mouse model of viral myocarditis. The 65th Annual Meeting of the Japanese Society for Virology (JSV), 2017, Osaka, Osaka, Japan. Poster.
18. **Sato F.**, Martinez N.E., Omura S., Park A.-M., Fujita M., Tsunoda I. Protective and detrimental effects of curdlan, a Th17 cell inducer, in immune-mediated demyelination induced by a neurotropic viral infection. The 46th Annual Meeting of the Japanese Society for Immunology (JSI), 2017, Sendai, Miyagi, Japan. Oral and poster.
19. Omura S., Shimizu K., Kuwahara M., Morikawa M., Fujita M., Park A.-M., **Sato F.**, Pedio E., Kusunoki S., Tsunoda I. Identification of latent factors associated with distinct sets of anti-glycolipid antibodies in Guillain-Barré syndrome using an exploratory factor analysis. The 77th Kindai University Medical Association Meeting, 2018, Osakasayama, Osaka, Japan. Oral.
20. Omura S., Shimizu K., Kuwahara M., Morikawa M., Fujita M., Park A.-M., **Sato F.**, Pedio E., Kusunoki S., Tsunoda I. Exploratory factor analysis determines latent factors associated with distinct sets of anti-glycolipid antibodies in Guillain-Barré syndrome. The 30th Annual Meeting of the Japanese Society for Neuroimmunology (JSNI), 2018, Koriyama, Fukushima, Japan. Oral.
21. **Sato F.**, Omura S., Park A.-M., Fujita M., Sakiyama N., Takahashi S., Yoh K., Tsunoda I. Overexpression of the transcription factor T-bet renders resistant C57BL/6 mice lethal in a neurotropic viral infection. The 23rd Annual Meeting of the Japanese Society for Neuroinfectious Diseases (JSND), 2018, Edogawa-ku, Tokyo, Japan. Oral.
22. **Sato F.**, Omura S., Kawai E., Martinez N.E., Acharya M.M., Reddy P.C., Alexander J.S., Tsunoda I. Theiler's virus-induced myocarditis model with acute viral replication, subacute T cell infiltration and chronic fibrosis in the heart. The 66th Annual Meeting of the Japanese Society for Virology (JSV), 2018, Kyoto, Kyoto, Japan. Oral.
23. **Sato F.**, Omura S., Kawai E., Martinez N.E., Acharya M.M., Reddy P.C., Alexander J.S., Tsunoda I. TLR4 exacerbates a novel model of myocarditis induced with a picornavirus. The 47th Annual Meeting of the Japanese Society for Immunology (JSI), 2018, Fukuoka, Fukuoka, Japan. Oral and poster.

24. **Sato F.**, Omura S., Martinez N.E., Range T., Ekshyyan L., Minagar A., Alexander J.S., Tsunoda I. Glatiramer acetate is safe for a virus-induced demyelinating disease model. The 60th Annual Meeting of the Japanese Society of Neurology (JSN), 2019, Osaka, Osaka, Japan. Poster.
25. Khadka S., Omura S., **Sato F.**, Park A.-M., Fujita M., Sakiyama N., Nakamura Y., Katsuki A., Tsunoda I. Efficacy of antiretroviral therapy in HIV positive patients in Nepal. The 78th Kindai University Medical Association Meeting, 2019, Osakasayama, Osaka, Japan. Oral.
26. **Sato F.**, Omura S., Park A.-M., Fujita M., Khadka S., Nishio K., Tsunoda I. Alteration of microbiota and immune gene expressions in the central nervous system in a picornavirus-induced acute flaccid myelitis model. The 67th Annual Meeting of the Japanese Society for Virology (JSV), 2019, Edogawa-ku, Tokyo, Japan. Oral.
27. Khadka S., Tsunoda I., Omura S., **Sato F.**, Park A.-M., Fujita M., Sakiyama N., Nakamura Y., Katsuki A., Pandit R., Dhital S., Baniya J.B., Tiwari S., Shrestha B., Pandit S., Sharma M., Mishra S.K. First national hepatitis B viral load testing in Nepal: Laboratory perspective for Nepalese national treatment guideline. The 67th Annual Meeting of the Japanese Society for Virology (JSV), 2019, Edogawa-ku, Tokyo, Japan. Oral.
28. Tsunoda I., **Sato F.**, Omura S., Khadka S., Fujita M., Park A.-M., Katsuki A., Nakamura Y., Sakiyama N., Lindeberg F. Immune system and Theiler's virus-induced animal model for seizures/epilepsy. The 53rd Annual Congress of the Japan Epilepsy Society (JES), 2019, Kobe, Hyogo, Japan. Oral.
29. Omura S., **Sato F.**, Khadka S., Nakamura Y., Katsuki A., Nishio K., Kakeya H., Tsunoda I. Efficacy of CMG treatment and microbiota changes in a mouse model of multiple sclerosis. Frontier Research on Chemical Communications 6th Symposium, 2019, Yokohama, Kanagawa, Japan. Poster.

**Committee Members:**

1. Japan Multiple Sclerosis Network (JSMN).

**Judge Experiences (poster presentation):**

1. The Southeast Regional IDeA Meeting, 2015, Biloxi, Mississippi, USA.

**Trainings:**

1. The Second Annual Preclinical Micro-ultrasound and Photoacoustic Imaging Symposium, October 25-27, 2011, Houston, Texas, USA.
2. The American Association of Immunologists (AAI) 2012 Advanced Course in Immunology, July 29-August 3, 2012, Boston, Massachusetts, USA.

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## **BIBLIOGRAPHY**

### **Biography:**

Fumitaka Sato obtained his Ph.D. degree from Yokohama City University Graduate School of Medicine, Yokohama, Japan, in 2009. After that, he worked in the Department of Microbiology & Immunology at Louisiana State University Health Sciences Center-Shreveport, Louisiana, USA, as a postdoctoral fellow for 7 years. Since April 1st, 2016, he has been working in the Department of Microbiology at Kindai University Faculty of Medicine, Osaka, Japan, as an assistant professor in Dr. Tsunoda's laboratory.

### **Research Interests:**

My research has been aimed at elucidating the pathogenesis of viral infections and autoimmune disorders in the central nervous system (CNS), using viral and autoimmune models of multiple sclerosis (MS): Theiler's murine encephalomyelitis virus (TMEV) infection and experimental autoimmune encephalomyelitis (EAE). I have studied both host immune responses and pathogens (viruses), *in vivo* and *in vitro*, using virological, immunological, and neuropathological methods. I have investigated the roles of axonal degeneration, helper T (Th) 1 cells, Th2 cells, Th17 cells, regulatory T cells (Tregs), and natural killer T (NKT) cells in the two models. I have established novel transgenic mice overexpressing transcription factors, T-bet, Gata3, and ROR $\gamma$ t, which are associated with differentiation into Th1, Th2, or Th17 cells, respectively. The established transgenic mice will be used to elucidate the roles of the three Th cell subsets in deciphering how the Th cells interact and contribute to the pathogenesis of the two models. I have also investigated a model of myocarditis induced with TMEV, using the transgenic mice, virologically, immunologically, and histologically.