

**TAKEO YOSHIKAWA, M.D., PhD**

**Team Leader**

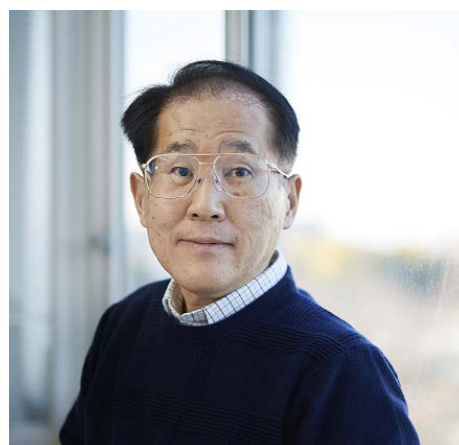
**Laboratory for Molecular Psychiatry**

**RIKEN Center for Brain Science**

**2-1 Hirosawa, Wako**

**Saitama 351-0198, JAPAN**

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**EDUCATION:**

- |             |  |
|-------------|--|
| 1975 - 1979 | Department of Pure and Applied Sciences,<br>College of Arts and Sciences, University of Tokyo<br>(B.Sc., Major: physics)   |
| 1979-1980   | Graduate Course in Department of Biophysics,<br>Institute of Science, University of Tokyo<br>(Major: biophysics)   |
| 1980-1984   | Osaka University School of Medicine (M.D.)   |
| 1991        | Awarded the degree of PhD from Tokyo Medical and<br>Dental University (Major: psychopharmacology)<br>Title: Blockade of behavioral sensitization to<br>methamphetamine by lesion of<br>hippocampo-accumbal pathway |

**PROFESSIONAL EXPERIENCE:**

- |             |  |
|-------------|--|
| 1984 - 1992 | Psychiatrist and Research Fellow, Department of<br>Neuropsychiatry<br>Tokyo Medical and Dental University<br>1-5-45 Yushima, Bunkyo-ku, Tokyo 113, Japan |
| 1992 - 1993 | Research Associate, Laboratory of Neurochemistry<br>National Institute for Physiological Sciences<br>Myodaiji, Okazaki 444, Japan                        |
| 1993 - 1995 | Visiting Fellow, Clinical Neurogenetics Branch<br>National Institute of Mental Health, Bethesda, Maryland<br>20892                                       |
| 1995 - 1997 | Visiting Associate, Clinical Neurogenetics Branch  |

	National Institute of Mental Health, Bethesda, Maryland 20892
1997 - 1999	Associate Professor, Department of Neuropsychiatry Tokyo Medical and Dental University 1-5-45 Yushima, Bunkyo-ku, Tokyo 113, Japan
1999 - present	Head, Laboratory for Molecular Psychiatry, RIKEN brain Science Institute (2009.12~ Senior Team Leader at RIKEN BSI) Visiting Professor at Nagaoka University of Technology (Nagaoka, Japan) Visiting Lecturer at Department of Neuropsychiatry Tokyo Medical and Dental University (Tokyo, Japan)

**QUALIFICATION:**

1990.4	Qualified psychiatrist for legal psychiatry
2007.10	Board approved special psychiatrist

**AWARD:**

1993	Research fellowship of Uehara Memorial Foundation
1998	Shimazaki-Shimazono-Takahashi-Toru Prize of Tokyo Medical and Dental University

**EDITORIAL BOARD:**

Japanese Journal of Molecular Psychiatry (SENTAN IGAKU-SYA, Japan)  
(2000.1~)

Biological Psychiatry (2007.7.1~)

The Open Neuroscience Journal Editorial Advisory Board (2006~)

PLoS ONE Academic Editor (2010.9~)

Pharmacogenomics (2011.4~)

Current psychopharmacology (2011.7~)

Journal of Human Genetics, Associate Editor (2013.11~)

Neuroscience Research, Associate Editor (2015~)

**MEMBERSHIP OF ACADEMIC SOCIETIES:**

The Japanese Society of Biological Psychiatry (Trustee: 2013~)

The Japanese Society of Human Genetics (Councilor: 2012~)

Japanese Society of Neuropsychopharmacology (Councilor: 2012~)  
The Japanese Society of Psychiatry and Neurology  
Japan Brain Science Society (Trustee: 2003~)  
Japanese Society of Psychiatric Genetics (Trustee: 2002~)  
Japanese Society of Schizophrenia Research (Councilor: 2004~)  
Japan Neuroscience Society  
Society for Neuroscience (USA)  
The International Society of Psychiatric Genetics  
The Society of Biological Psychiatry (USA)  
COLLEGIUM INTERNATIONALE  
NEURO-PSYCHOPHARMACOLOGICUM (CINP) FELLOW (May 27,  
2008~)  
INTERNATIONAL SOCIETY FOR BIPOLAR DISORDERS

### **REVIEWRS, EXTERNAL APPOINTMENTS AND OTHERS**

Part-time psychiatrist at Hokushin General Hospital: 1998~  
Adjunct Professor at Department of Psychiatry and Behavioral Sciences,  
Tokyo Medical and Dental University Graduate School: 1999~  
Visiting Professor at National Institute of Genetics: 2001 to 2003  
Adjunct Professor at Kobe University School of Medicine: 2004  
Visiting Professor at Nagaoka University of Technology: 2004~  
Adjunct Professor at Tokyo Medical and Dental University Graduate School of  
Biomedical Science: 2004~  
RIKEN Brain Science Institute: Brain Science Training Program (Wako 2011~)  
The Wellcome Trust grant review (2004)  
The BSF (United States-Israel Binational Science Foundation) grant review  
(2006)  
The Hungarian Scientific Research Fund (OTKA) grant review (2007)  
First stage reviewer for Grant-in-Aid for Young Scientists (S) from the JSPS:  
2007  
First stage reviewer for Grant-in-Aid for Scientific Research (S), (A), (B):  
2006-2007  
Referee of a candidate for 22<sup>nd</sup> TSUKAHARA NAKAAKIRA Memorial  
Award 2008  
Examiner of doctor of philosophy theses for a student at the University of  
Sydney (April 2008)

Nominator of JAPAN PRIZE candidates for 2008~  
First stage reviewer for Grant-in-Aid for Scientific Research (C): 2009  
Reviewer for Specially Promoted Research: 2009  
Reviewer for the work done by Grant-in-Aid for Scientific Research (S): 2009  
First stage reviewer for Grant-in-Aid for Exploratory Research: 2010  
The committee member of The 32<sup>nd</sup> Conference on Biological Basis of Mental Functions and Disorders: 2010-2011  
Program Committee member and Lecturer of 32<sup>nd</sup> Naito Conference: 2010-2011: “Biological basis of mental functions and disorders”  
External Reviewer for the Center for Forensic Mental Health, Chiba University: 2010  
Program committee member of the Neuro2011  
Reviewer of the promotion of Dr. Noboru Hiroi to a Professor of Psychiatry and Neuroscience at the Albert Einstein College of Medicine: 2011  
2010 – 2011: The Organizing Committee Member of the 32<sup>nd</sup> Naito Conference on Biological basis of mental functions and disorders  
2011: Reviewer for the applications for the Yamada Science Foundation grants  
2011: External Reviewer for Center for Forensic Mental Health, Chiba University  
Review of Career Development Award (CDA), THE INTERNATIONAL HUMAN FRONTIER SCIENCE ORGANIZATION, 2012  
Lecturer at International Summer Program 2012 of Tokyo Medical and Dental University  
First stage reviewer for Grant-in-Aid for Exploratory Research: 2013  
2013: Reviewer for the applications for the Yamada Science Foundation grants  
2013: External Reviewer for Center for Forensic Mental Health, Chiba University  
Examiner of doctor of philosophy theses for a student at Ochanomizu University in Japan (January 2015)  
The Medical Research Council grant review (MRC Reference: MR/M023451/1) (2015)

## **SELECTED PUBLICATION:**

1. Maekawa M, Watanabe A, Iwayama Y, Kimura T, Hamazaki K, Balan S, Ohba H, Hisano Y, Nozaki Y, Ohnishi T, Toyoshima M, Shimamoto C, Iwamoto K, Bundo M, Osumi N, Takahashi E, Takashima A, Yoshikawa T: Polyunsaturated fatty acid deficiency during neurodevelopment in mice models the prodromal state of schizophrenia through epigenetic changes in nuclear receptor genes. *Translational Psychiatry* 7: e1229, 2017.
2. Sugiura L\*, Toyota T, Matsuba-Kurita H, Iwayama Y, Mazuka R, Yoshikawa T\*, Hagiwara H: Age-dependent effects of catechol-O-methyltransferase (*COMT*) gene Val158Met polymorphism on language function in developing children. *Cerebral Cortex*, 27: 104-116, 2017. \*Co-corresponding authors.
3. Gerstner JR, Perron IJ, Riedy SM, Yoshikawa T, Kadotani H, Owada Y, Hans P.A. Van Dongen HPA, Galante R, Dickinson J, Yin JCP, Pack AI, Frank MG: “Normal sleep requires the astrocyte brain-type fatty acid binding protein FABP7”. *Science Advances* 3, e1602663, 2017.
4. Morimura N, Yasuda H, Yamaguchi K, Katayama K, Hatayama M, Tomioka N, Odagawa M, Kamiya A, Iwayama Y, Maekawa M, Nakamura K, Matsuzaki H, Tsujii M, Yamada K, Yoshikawa T, Jun Aruga: Autism-like behaviors and enhanced memory formation and synaptic plasticity in *Lrfrn2/SALM1*-deficient mice. *Nature Communications* 8: 15800, 2017.
5. Toyoshima M, Akamatsu W, Okada Y, Ohnishi T, Balan S, Hisano Y, Iwayama Y, Toyota T, Matsumoto T, Itasaka N, Sugiyama S, Tanaka M, Yano M, Dean B, Okano H, Yoshikawa T: “Schizophrenia patient-derived induced pluripotent stem cells exhibit changes in neurogenic and gliogenic competences.” *Translational Psychiatry* 6: e934, 2016.
6. Maekawa M, Yamada K, Toyoshima M, Ohnishi T, Iwayama Y, Shimamoto C, Toyota T, Nozaki Y, Balan S, Matsuzaki H, Iwata Y, Suzuki K, Miyashita M, Kikuchi M, Kato M, Okada Y, Akamatsu W, Mori N, Owada Y, Itokawa M, Okano H, Yoshikawa T: Utility of scalp hair follicles as a novel source of biomarker genes for psychiatric illnesses. *Biological Psychiatry*, 78: 116-125, 2015.

7. Shimamoto C, Ohnishi T, Maekawa M, Watanabe A, Ohba H, Arai R, Iwayama Y, Hisano Y, Toyota T, Toyoshima M, Suzuki K, Nakamura K, Mori N, Owada Y, Kobayashi T, Yoshikawa T: Functional characterization of *FABP3*, 5 and 7 gene variants identified in schizophrenia and autism spectrum disorder and mouse behavioral studies. *Human Molecular Genetics* 23: 6495-6511, 2014.
8. Balan S, Iwayama Y, Toyota T, Toyoshima M, Maekawa M, Yoshikawa T: Exome comparison of two 22q11.2 deletion carriers reveals potential schizophrenia-associated novel variants. *British Journal of Psychiatry* 204: 398-399, 2014.
9. Ohnishi T, Murata T, Watanabe A, Hida A, Ohba H, Iwayama Y, Mishima A, Gondo Y, Yoshikawa T: Defective craniofacial development and brain function in a mouse model for depletion of intracellular inositol synthesis. *Journal of Biological Chemistry* 289: 10785-10796, 2014.
10. Bundo M, Toyoshima M, Okada Y, Akamatsu W, Ueda J, Nemoto-Miyauchi T, Sunaga F, Toritsuka M, Ikawa D, Kakita A, Kato M, Kasai K, Kishimoto T, Nawa H, Okano H, Yoshikawa T, Kato T, Iwamoto K: Increased L1 retrotransposition in the neuronal genome in schizophrenia. *Neuron* 81: 306-313, 2014.
11. Arai M, Yuzawa H, Nohara I, Ohnishi T, Obata N, Iwayama Y, Haga S, Toyota T, Ujike H, Arai M, Ichikawa T, Tanaka Y, Furukawa A, Aikawa Y, Kuroda O, Niizato K, Izawa R, Nakamura K, Mori N, Matsuzawa D, Hashimoto K, Iyo M, Sora I, Matsushita M, Okazaki Y, Yoshikawa T, Miyata T, Itokawa M: Enhanced carbonyl stress in a subpopulation of schizophrenia. *Archives of General Psychiatry (JAMA Psychiatry)* 67: 598-607, 2010.
12. Satake W, Nakabayashi Y, Mizuta I, Hirota Y, Ito C, Kubo M, Kawaguchi T, Tsunoda T, Watanabe M, Takeda A, Tomiyama H, Nakashima K, Hasegawa K, Obata F, Yoshikawa T, Kawakami H, Sakoda S, Yamamoto M, Hattori N, Murata M, Nakamura Y, Toda T: Genome-wide association study identifies common variants at four loci as genetic risk factors for Parkinson's disease. *Nature Genetics* 41: 1303-1307, 2009.

13. Watanabe A, Toyota T, Owada Y, Hayashi T, Iwayama Y, Matsumata M, Ishitsuka Y, Nakaya A, Maekawa M, Ohnishi T, Arai R, Sakurai K, Yamada K, Kondo H, Hashimoto K, Osumi N, Yoshikawa T: *Fabp7* maps to a quantitative trait locus for a schizophrenia endophenotype. *PLoS Biology* 5: 2469-2483, 2007.
14. Yamada K, Gerber DJ, Iwayama Y, Ohnishi T, Ohba H, Toyota T, Arga J, Yoshio Minabe Y, Tonegawa S, Yoshikawa T: Genetic analysis of the calcineurin pathway identifies the *EGR* family and specifically *EGR3*, as potential candidates in schizophrenia. *Proc. Natl. Acad. Sci. USA* 104: 2815-2820, 2007.
15. Nakatani N, Hattori E, Ohnishi T, Dean B, Iwayama Y, Matsumoto I, Kato T, Osumi N, Higuchi T, Niwa S, Yoshikawa T: Genome-wide expression analysis detects eight genes with robust alterations specific to bipolar I disorder: relevance to neuronal network perturbation. *Human Molecular Genetics* 15: 1949-1962, 2006.
16. Yamada K, Ohnishi T, Hashimoto K, Ohba H, Iwayama-Shigeno Y, Toyoshima M, Okuno A, Takao H, Toyota T, Minabe Y, Nakamura K, Shimizu E, Itokawa M, Mori N, Iyo M, Yoshikawa T: Identification of multiple serine racemase (*SRR*) mRNA isoforms and genetic analyses of *SRR* and *DAO* in schizophrenia and D-serine levels. *Biological Psychiatry* 57: 1493-1503, 2005.
17. Yoshikawa T, Watanabe A, Ishitsuka Y, Nakaya A, Nakatani N: Identification of multiple genetic loci linked to the propensity for "behavioral despair" in mice. *Genome Research* 12: 357-366, 2002.