

# **Kiminobu Sugaya, Ph.D.**

## **Professor, Molecular Science Center**

### **EDUCATION:**

1992-94 Post-doctoral Fellow/ Research Associate, Pharmacology, Mayo Clinic Jacksonville, Jacksonville, FL, USA (with Dr. M. McKinney)

1988-89 Post-doctoral Fellow/ Research Associate, Department of Pharmacology, Southern Illinois University, School of Medicine, Springfield, IL, USA (with Dr. E. Giacobini)

1985-88 Ph.D., Department of Pharmacology, Faculty of Pharmaceutical Sciences, Science University of Tokyo, Tokyo, Japan

1983-85 M.S., Department of Pharmacology, Faculty of Pharmaceutical Sciences, Science University of Tokyo, Tokyo, Japan

1979-83 B.S., Department of Pharmacology, Faculty of Pharmaceutical Sciences, Science University of Tokyo, Tokyo, Japan

### **APPOINTMENTS:**

2004- Professor with Tenure, Molecular Science Center, University of Central Florida, Orlando, FL

2003-2004 Associate Professor with Tenure, Department of Psychiatry, The University of Illinois at Chicago, Chicago, IL, USA

2003-2004 Associate Professor with Tenure, Department of Physiology and Biophysics, The University of Illinois at Chicago, Chicago, IL, USA

2003-2004 Adjunct Associate Professor of Ophthalmology with Tenure, Department of Ophthalmology, The University of Illinois at Chicago, Chicago, IL, USA

2003-2004 Adjunct Associate Professor of Bioengineering with Tenure, Department of Bioengineering, The University of Illinois at Chicago, Chicago, IL, USA

2002- Founder, Chairman of the Board and CSO, NewNeural Inc., Chicago, IL, USA

2001-2002 Adjunct Assistant Professor of Ophthalmology, Department of Ophthalmology, The University of Illinois at Chicago, Chicago, IL, USA

1999-2002 Assistant Professor, Department of Psychiatry, The University of Illinois at Chicago, Chicago, IL, USA

1999-2002 Assistant Professor, Department of Physiology and Biophysics, The University of Illinois at Chicago, Chicago, IL, USA

1997-1999 Research Assistant Professor, Department of Psychiatry, The University of Illinois at Chicago, Chicago, IL, USA

1997-1999 Principal Investigator, Research and Development Service, West Side VA Medical Center at Chicago, Chicago, IL, USA

1997 Assistant Professor, Pharmacology, Mayo Clinic, Jacksonville, FL, USA

1994-97 Associate Consultant, Neuropharmacology, Mayo Clinic Jacksonville, Jacksonville, FL, USA

1993-94 Research Associate, Neuropharmacology, Mayo Clinic Jacksonville, Jacksonville, FL, USA

1992-93 Research Fellow, Neuropharmacology, Mayo Clinic Jacksonville, Jacksonville, FL, USA

1991-92 Full-time Lecturer, Division of Aging and Intractable Diseases, Research Institute for Biosciences, Science University of Tokyo, Noda, Chiba, Japan

1989-91 Senior Staff Research Associate, Division of Aging and Intractable Diseases, Research Institute for Biosciences, Science University of Tokyo, Noda, Chiba, Japan

1988-89 Research Associate, Department of Pharmacology, Southern Illinois University, School of Medicine, Springfield, IL, USA

### **TEACHING EXPERIENCE:**

2006- Tissue engineering, Biomolecular Science Center, Burnett College of Biomedical Sciences, University of Central Florida

2005- Neuroscience, Biomolecular Science Center, Burnett College of Biomedical Sciences, University of Central Florida

2005- Biomolecular PHD Core course, Biomolecular Science Center, Burnett College of Biomedical Sciences, University of Central Florida

2000-2004 Pharmacology, Department of Physiology and Biophysics, University of Illinois at Chicago, Chicago, IL, USA

2000-2004 Human physiology, Department of Physiology and Biophysics, University of Illinois at Chicago, Chicago, IL, USA

1999-2004 Topics of Neuroscience for PGY-1 Residents, Department of Psychiatry, University of Illinois at Chicago, Chicago, IL, USA

1998-1999 Training Course for Aging, Residents of Psychiatry, Department of Psychiatry, University of Illinois at Chicago, Chicago, IL, USA

1997 Graduate course of Pharmacology, Department of Pharmacology, Mayo Clinic, Rochester, MN, USA

1989-92 Graduate course of Pharmacology, Course organizer, Department of Pharmacology, Faculty of Pharmaceutical Sciences, Science University of Tokyo, Tokyo, Japan

1989-92 Under Graduate course of Pharmacology, Course organizer, Department of Pharmacology, Faculty of Pharmaceutical Sciences, Science University of Tokyo, Tokyo, Japan

**Medical Students:** Hojoong M. Kim, Anthony Gray. Ankur V. Vaghani, Jamey E. , Eklund, Louis C. Keiler

**Graduate Students:** Masanori Takahashi (Ph.D.), Akiko Mizukami (M.S.), Kwak, Young-Don (Ph.D. student), Tomoharu Inoue, (Ph.D. student), Srikanth B. Yellanki (Ph.D. student), Yan Zhuang (M.S. student),

**Post-doctoral Fellows:** S. Sujyung, M.D., Ph.D. , Tingyu Qu, M.D., Ph.D., X. Don, Ph.D, Hiroko Koike, M.D., Ph.D.

#### **FIELDS OF SPECIALIZATION:**

Neuropharmacology, Molecular biology, Neuroinformatics, Stem cell biology, Aging and neurodegenerative diseases

#### **PROFESSIONAL SOCIETIES:**

Society for Neuroscience

American Association for the Advancement of Science

The Association for Research in Vision and Ophthalmology

Sigma Xi

The Japanese Pharmacological Society

The Japanese Society of Neuropsychopharmacology

#### **FUNDING:**

1989-1992 Pharmacological Study of agonist and antagonist of cholecystokinin. Co-investigator. Torii & Co., Ltd.

1990 Study of cholecystokinin as a anti-dementia drug. Principal Investigator. Science University of Tokyo

1990 Basic study of Senescence Accelerated Mouse as a CNS aging model animal. Co-investigator. Asahi Breweries, Ltd.

1990 Effect of FTS on the CNS aging of Senescence Accelerated Mouse. Principal Investigator. Mitsui Pharmaceuticals Inc.

1990-1992 Development of a new instrument for the neurotransmitter release from the brain slice. Principal Investigator. Muromach Kikai Co. Ltd.

1990-1993 Pharmacological study of "Kaketsukeo". Principal Investigator. Iskra Industry Co., Ltd.

1991 The computerized control and database system for an animal center. Principal Investigator. The Telecommunications Advancement Foundation

1991 Effect of NGF releaser on the cholinergic degeneration in NBM lesion rat. Principal Investigator. Mitsui Pharmaceuticals Inc.

1992 Study of the FTS binding site in rat. Principal Investigator. Mitsui Pharmaceuticals Inc.

1992-1993 Early diagnosis of Alzheimer's disease by abnormal protein. Principal Investigator. Fujisawa Pharmaceutical Co., Ltd.

1994-1995 Exploration of specific marker for Alzheimer's disease. Principal Investigator. Fujisawa Pharmaceutical Co., Ltd.

1995 Is apoptosis a major cause of neuronal death in Alzheimer's disease? Principal Investigator. Florida State Memory Disorder Clinic

1995-1996 Identification of specific proteins in the blood of insulin resistant subject with and without diabetics mellitus. Collaborator. Fujisawa Pharmaceutical Co., Ltd.

1999 5-Lipoxygenase gene polymorphism and onset of Alzheimers. Co-investigator, Campus Research Board Funding, The University of Illinois at Chicago

1999-2001 Glial activation in aged memory impaired rats (R03AG16474), Principal Investigator, NIH

1999-2001 Reward Deficiency ERPs: Effects of D2A1, Gambling Pathology & ADHD, Co-investigator, National Center for Responsible Gambling

2001-2002 Effect of APP on Human Neural Stem Cell Biology, Principal Investigator, CRB Funding, The University of Illinois at Chicago

2001-2003 Basic study of neural replacement therapy for Alzheimer's disease (R03AG19874), Principal Investigator, NIH

2002-2004 Production of human retinal cells from mesenchymal (bone marrow) stem cells, Principal Investigator, McGraw Foundation

2002-2006 Interactive multiple gene expression map (1 R01AG20011-01), Principal Investigator, NIH.

2002- Neuroreplacement therapy for Parkinson's disease. Principal Investigator, the Boothroyd Foundation

2003 Neural stem cells transplantation into a non-human primate model of stroke, Co-investigator, CRB Funding, The University of Illinois at Chicago

2003-2008 Neuroreplacement strategies by mesenchymal stem cell (1 R01 AG 23472-01), Principal Investigator, NIH.

2003-2004 Stem cell transplantation for ALS model mouse, Principal Investigator, The ALS Therapy Development Foundation, collaborative research

2003-2006 Beta-amyloid precursor protein function in stem cell biology (IIRG-03-5577), Principal Investigator, Alzheimer Association.

2004 Enhanced Neural Stem Cell Production in Aging Brain, (R43 AG023998-01), Co-investigator, NIH

Pending Autologous stem cell therapy for retinal regeneration, (R41 EY015619-01), Principal Investigator, NIH

Pending Adult Marrow Stem Cells for Neuro-Replacement Therapy (R43 NS048625-01), Co-investigator, NIH

Pending Pyrimidine derivatives to enhance neurogenesis in aging (1 R01 AG024960-01) Principal Investigator, NIH

**MANUSCRIPT REVIEWER:**

The Japanese Journal of Pharmacology, Neurochemistry International, Restorative Neurology and Neuroscience. Biochemical Pharmacology, Experimental Neurology, Drugs, Cellular and Molecular Life Sciences, Journal Informatics, NeuroImage, Cytology, Neurobiology of Aging

**GRANT REVIEWER**

Alzheimer Association Research Grant

CRB grant at UIC,

NIH study section, SSS-E Human Brain Project

NIH study section, the Neurogenesis and Cell Fate (NCF)

NIH study section, ZRG1 MDCN-G (55) Human Brain Project member

NIH study section, BSCT Member

NIH study section, ZRG1 MDCN-L(10), SBIR/STTR member

NIH study section, ZNS1 SRB W-20 the NIH Blueprint for Neuroscience Research member

Medical Research Council Research Career Awards (London, England)

Guy's & St Thomas' Charitable Foundation research grant (London, England)

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**INVITED LECTURES**

8/3/90 Fuji Film Ashigara Research Laboratories, Minami-Ashigara, Current research in Alzheimer's disease therapy

10/4/90 Fujisawa Pharmaceutical Co., Ltd. Tsukuba Research Laboratories, Tsukuba, Alzheimer type dementia as an abnormal aging of central nervous system.

10/17/90 Calbee Food Co., Tokyo, Japan The way to the study of Alzheimer's disease

1/23/91 The 4th Life Science Seminar, Science University of Tokyo, Noda, Japan Alzheimer Disease: Current Research in Early Diagnosis and Therapy. (Invited Symposium)

11/7/91 Southern Illinois University, School of Medicine, USA, Neuropharmacological Models of Alzheimer Disease (AD).

11/17/91 The 11th Annual Meeting of The Kampo Society of Japan. Tokyo, JAPAN. Neuropharmacological Study of "Kaketukeo" as a Anti-dementia Drug. (Invited Symposium)

10/18/92 The Kampo Society of Japan Kansai Area Meeting. Osaka, JAPAN. Neuropharmacological Study of "Kaketukeo" as a Anti-dementia Drug. (Invited Symposium)

6/29/93 Miami University, School of Medicine, FL, Selective Changes of Nicotinic Receptor Subtypes in Alzheimer's Disease.

9/13/94 Mayo Clinic Rochester, Research Society, Rochester, MN, Apoptotic Neuronal Cell Death by Activated BV-2 Microglial Cells.

5/18/99 University of Illinois at Chicago, School of Medicine, Department of Physiology and Biophysics, Chicago, IL, Brain Aging; Glial Activation and Oxidative stress.

10/11/00 University of Illinois at Chicago, School of Medicine, Department of Psychiatry, Chicago, IL, Grand Round, Human Stem Cells "in vitro" expansion Before their use in the treatment of neurodegenerative disorders.

12/14/00 Zentrum für Molekulare Biologie der Universität Heidelberg, Heidelberg, Germany, Possibility of human neuronal stem cells in research and clinical application.

1/5/01 RUSH University, Department of Pharmacology, Chicago, IL. Current findings in human stem cell studies.

4/5/01 5th International conference on Progress in Alzheimer's and Parkinson's Disease, Kyoto, Japan. Human Neural Stem Cell Transplantation Improves Cognitive Function of Aged Brain. (Invited symposium)

4/6/02 The 7th International Geneva/Springfield Symposium on Advance in Alzheimer Therapy, Geneva, Switzerland . Stem cells as potential AD therapy (Invited Special Lecture)

8/26/02 the XII World Congress of Psychiatry, Yokohama Japan. Stem cell strategies, future and beyond. (Invited Symposium)

12/3/02 Ground Rounds at Elgin Mental Healthcare Center, Elgin, IL. Stem cell therapy for Alzheimer's disease.

12/6/02 Zentrum für Molekulare Biologie der Universität Heidelberg, Heidelberg, Germany, Effect of pathological conditions on stem cells.

1/15/03 Ground Rounds, Department of Psychiatry, University of Illinois at Chicago. Chicago, IL. Stem cell strategies in psychiatry.

1/15/03 Ground Rounds, Department of Ophthalmology, University of Illinois at Chicago. Chicago, IL. Stem cell strategies in ophthalmology.

5/6/03 Symposium on Stem cells in Neuroscience, Karolinska institute, Sweden. Stem cell strategies in Alzheimer's disease. (Invited Symposium)

5/8-12/03 the 6th International Conference on Alzheimer's disease and Parkinson's disease. Seville, Spain. (Invited Symposium)

6/13-15/03 Epigenetic Mechanisms and Psychosis Symposium in Santiago de Compostela. Santiago, Spain (Invited Symposium)

10/17/03 Frontiers in Vision Science. Department of Ophthalmology, University of Illinois at Chicago. Chicago, IL. Genetic and epigenetic modification of stem cells to produce sensory cells. (Invited Symposium)

4/15/04 8th International Montreal/Springfield Symposium on Advances in Alzheimer Therapy, POSSIBLE USE OF AUTOLOGOUS STEM CELL THERAPIES FOR ALZHEIMER'S DISEASE. Montreal, Canada (Chair, Invited Symposium)

12/8-12/04 Stem cells in AD therapy. 2<sup>nd</sup> International Winter-Conference on Alzheimer's Disease, Zur, Austria. (Invited Symposium)

12/14/03 Biasing stem cell differentiation by gene transfection, Karolinska institute, Sweden

3/9-13/05, Stem cell therapy in Alzheimer's disease. The 7<sup>th</sup> International Conference AD/PD 2005, Sorrento, Italy. (Invited Symposium)

5/3-5/05, Transplants of an adult stem cell product (ACT-N<sup>TM</sup> cells) form new neurons and lead to improved memory in rodents. The International Society for Cellular Therapy 2005 Annual Meeting, Vancouver, Canada

6/19-22/05, Stem Cells for Treatment of Neurological Diseases. BIO 2005 Annual International Convention Philadelphia, Pennsylvania. (Chair, Invited Symposium)

6/23-25/05, MARROW-DERIVED STEM CELLS DIFFERENTIATE INTO NEURONS AND IMPROVE MEMORY IN ADULT RATS. the International Society for Stem Cell Research 3rd Annual Meeting, San Francisco, CA

November 18th, 2005, Stem cell therapies, future and beyond, Invited lecture at Daytona Beach Community College, Daytona Beach, FL

3/23/06 Future of Stem Cells, National Aeronautics and Space Administration, Kennedy Space Center, FL

4/20/06 9th International Geneva/Springfield Symposium on Advances in Alzheimer Therapy, Practical issues in stem cell therapy for AD. Geneva, Switzerland (Chair, Invited Symposium)

4/26/06 The Stem Cell RFA Grantees meeting, embryonic stem cell-like cells derived from human bone marrow, NIH, Rockville, MD

4/29/06 What can we do with the stem cells? Lupus Foundation, Greater Florida Chapter Inc, Orlando FL

5/11/06 Stem Cell Therapy for Alzheimer's disease, Grand Round, Orlando Regional Healthcare System, Orlando FL

6/21/06 REU lecture, AMPAC, University of Central Florida, Orlando FL

9/5/06 LIFE at UCF, University of Central Florida, Orlando FL

9/17/06 Plenary lecture for Japanese Pharmaceutical Society Annual meeting, Kagoshima, Japan

10/13/06 Plenary lecture for The 12th Annual Meeting of the German Society of Neurogenetics, University of Rostock, Rostock, Germany

10/19/06 Plenary lecture for ADI research sub-committee, Orlando, FL

10/21/06 Plenary lecture for the 1<sup>st</sup> International Brain Bank Symposium, Fukushima, Japan

11/11/06 Plenary lecture for annual meeting of Alzheimer's Resource Center, Orlando, FL

**PATENTS:**

(WO94/10205) Specific protein markers for Alzheimer's disease and diagnosis method for Alzheimer's disease using the specific markers.

(WO95/05395) Diagnosis method for Alzheimer's disease.

(WO 03/060085) NOVEL MAMMALIAN MULTIPOTENT NEURAL STEM CELLS AND COMPOSITIONS, METHODS OF PREPARATION AND METHODS OF ADMINISTRATION THEREOF

(WO 03/060082) USE OF MODIFIED PYRIMIDINE COMPOUNDS TO PROMOTE STEM CELL MIGRATION AND PROLIFERATION

(WO 03/059276) NOVEL MAMMALIAN MULTIPOTENT STEM CELLS AND COMPOSITIONS, METHODS OF PREPARATION AND METHODS OF ADMINISTRATION THEREOF

**Nonprovisional patents**

US60/642,925 Interactive multiple gene expression map system

US60/621,901 Method and material for increasing potency of cells

US60/621,903 Material and method for suppressing pain

US60/621,902 Method and system for biasing cellular development

US60/621,904 Method and products for biasing cellular development

**Provisional patents**

A novel combination use of stem cells and biocompatible materials

A method to promote neurogenesis of endogenous and transplanted neural stem cell and uses thereof