

# Susumu Tonegawa

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Birth Date: September 5, 1939  
Birth Place: Nagoya, Japan  
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## Academic Education

Department of Chemistry, Kyoto University, Kyoto, Japan 4/1959 – 3/1963. B.S.  
Institute for Virus Research, Kyoto University, Japan 4/1963 – 8/1963.  
Department of Biology, University of California, San Diego 9/1963 – 8/1968. Ph.D.

## Postgraduate Work

Department of Biology, University of California, San Diego 9/1968 – 4/1969  
Laboratory of Dr. Hayashi  
The Salk Institute, San Diego, California 5/1969 – 12/1970  
Laboratory of Dr. Dulbecco

## Professional Positions

Director, RIKEN Brain Science Institute 4/1/09 - present  
Director, RIKEN-MIT Center for Neural Circuit Genetics at MIT 4/1/08 – present  
Picower Professor of Biology and Neuroscience 5/1/02 – present  
Professor of Biology, Center for Cancer Research and Department of Biology, Massachusetts Institute of Technology, Cambridge, Massachusetts 9/1/81 – present  
Howard Hughes Medical Institute Investigator 2/88 – 3/09  
Director, RIKEN-MIT Neuroscience Research Center 10/98 – 4/08  
Director, the Picower Institute for Learning and Memory 5/1/02 – 12/31/06  
Whitehead Professor of Biology and Neuroscience 4/1/99 – 4/30/02  
Director, MIT Center for Learning and Memory 4/1/94 – 4/30/02  
Amgen Professor of Biology and Neuroscience 5/1/93 – 6/30/99  
Member, Basel Institute for Immunology, Basel, Switzerland 1/71 – 8/81  
Teaching Assistant, Department of Biology, University of California, San Diego, California 9/64 – 6/68  
Research Assistant, Department of Biology, University of California, San Diego, California 9/63 – 6/64

## **Memberships**

Honorary Member, American Association of Immunologists  
Honorary Member, Scandinavian Society for Immunology  
Honorary Member, Japanese Biochemical Society  
Member, American Association for the Advancement of Science  
Member, U.S. Society for Neuroscience

## **Advisory Roles**

Member, Advisory Council, 50th Anniversary of the Fulbright Program  
Member, External Steering Committee, UCLA Pharmacogenetics and Pharmacogenomics Research Group  
Member, Calouste Gulbenkian Foundation  
Member, Royal Academy of Morocco, Hassan II Academy of Sciences and Technology  
Member, Board of Scientific Governors, The Scripps Research Institute  
Member, Board of Governors, Okinawa Institute of Science and Technology  
Member, Jury, Antonio Champalimaud Vision Award  
Special Advisor, RIKEN-Brain Science Institute  
Member, Wellcome Trust, Neuroscience and Mental Health Strategy Committee  
Member, Scientific Committee, Champalimaud Foundation

## **Scholarships and Fellowships**

Damon Runyon Memorial Fund, Postdoctoral Fellowship 7/69 – 12/70  
David Sarnoff RCA Scholarship 4/62 – 3/63

## **Honorary Degrees**

2009 Honorary Degree, City University of Hong Kong  
2006 Honorary Degree, University of Alcala, Madrid  
2006 Honorary Degree, University of Massachusetts Lowell  
2004 Honorary Degree, Kyoto University, Kyoto Japan  
1986 Honorary Degree, Doctor of Science, Northwestern University, Evanston, Illinois

## **Editorial Boards**

Neuron (2000 – present)  
Molecular Neurobiology (1997 – present)  
Physiological Genomics (1998 – 2006)  
Immunity (1994 – 2000)  
Immunological Reviews (1995 – 1998)  
Current Opinion in Immunology (1992 – 1998)  
International Journal of Immunology (1988 – 1998)

## **Awards and Major Honors**

2010 David M. Bonner Lifetime Achievement Award, UCSD  
2008 University College London (UCL) Prize Lecturer in Clinical Science  
2007 Gold Medal, Spanish National Research Council, Cajal Institute (CSIC), Madrid  
2007 RIKEN Fellow, Saitama, Japan  
2002 Presidential Lecturer, Society for Neuroscience Annual Meeting  
2002 Professorship, Picower Foundation  
1999 Professorship, Whitehead Family Funds  
1999 1999 Mike Hogg Award, the University of Texas M.D. Anderson Cancer Center

- 1994 Honorary member of the Polish Academy of Medicine and awarded the Golden Medal *Medicus Magnus*
- 1994 Professorship, Amgen, Inc.
- 1991 Order of the Southern Cross, presented by Fernando Collor de Melo, President of Brazil, Sao Paulo, Brazil
- 1989 Rabbi Shai Shacknai Memorial Prize in Immunology and Cancer Research, Jerusalem, Israel
- 1989 Distinguished Investigator Award of American College of Rheumatology, Atlanta, U.S.A.
- 1988 Kihara Prize of Japanese Society for Genetics, Kyoto, Japan
- 1987 Nobel Prize for Physiology or Medicine, Stockholm, Sweden
- 1987 Albert and Mary Lasker Award (Basic Research), New York City
- 1986 Foreign Associate, National Academy of Sciences of the United States
- 1986 Robert Koch Prize of the Robert Koch Foundation, Bonn, West Germany
- 1986 Bristol-Myers Award for Distinguished Achievement in Cancer Research, New York, U.S.A.
- 1984 Fellow, American Academy of Arts and Sciences
- 1984 Order of Culture "Bunkakunsho" from the Emperor of Japan
- 1983 Person of Cultural Merit "Bunkakorsha" of the Japanese Government
- 1983 Gairdner Foundation International Awards of the Gairdner Foundation, Toronto, Canada
- 1983 The V.D. Mattia Award of the Roche Institute of Molecular Biology, Nutley, U.S.A.
- 1982 Louisa Gross Horwitz Prize of Columbia University, New York, U.S.A.
- 1982 Asahi Prize of Asahi - Shimbun (Asahi Press), Tokyo, Japan
- 1981 Avery Landsteiner Prize of the Gesselschat fur Immunologie, West Germany
- 1981 Genetics Grand Prize of Genetics Promotion Foundation, Japan
- 1980 Warren Triennial Prize of the Massachusetts General Hospital, U.S.A.
- 1978 The Cloetta Prize of Foundation Professor Dr. Max Cloetta, Switzerland

## Bibliography

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2. Arsenault, D., Dal-Pan, A., Tremblay, C., Bennett, D. A., Guitton, M. J., De Koninck, Y., Tonegawa, S., & Calon, F. PAK inactivation impairs social recognition in 3xTg-AD mice without increasing brain deposition of tau and A $\beta$ . *J Neurosci*. **33**(26):10729-10740 (2013).
3. Dragoi, D. and Tonegawa, S. Distinct preplay of multiple novel spatial experiences in the rat. *PNAS*. **110** (22): 9100-9105 (2013).
4. Dolan, B.M., Duron, S.G., Campbell, D.A., Vollrath, B., Rao, B.S.S., Ko, H.Y., Lin, G.G., Govindarajan, A., Choi, S.Y., Tonegawa, S. Rescue of fragile X syndrome phenotypes in Fmr1 KO mice by the small-molecule PAK inhibitor FRAX486. *PNAS*. **110** (14):5671-6 (2013).
5. Liu X., Ramirez, S., Pang, P., Puryear, C., Govindarajan, A., Deisseroth, K., and Tonegawa S. Optogenetic stimulation of a hippocampal engram activates fear memory recall. *Nature* **484**: 381–385 (2012).
6. Place R., Lykken C., Beer Z., Suh J., McHugh T.J., Tonegawa S., Eichenbaum H., Sauvage M.M. Nmda Signaling in Ca1 Mediates Selectively the Spatial Component of Episodic Memory. *Learn. Mem.* **19**(4): 164-69 (2012).
7. Nakashiba, T., Cushman, J., Pelkey, K., Renaudineau, S., Buhl, D., McHugh, T.J., Rodriguez Barrera, V., Chittajallu, R., Iwamoto, K.S., McBain, C.J., Fanselow, M.S. and Tonegawa, S. Young Dentate Granule Cells Mediate Pattern Separation whereas Old Granule Cells Facilitate Pattern Completion. *Cell* **149** (1): 188-201 (2012).

8. Suh, J., Rivest, A.J., Nakashiba, T., Tominaga, T., Tonegawa, S. Entorhinal cortex layer III input to the hippocampus is crucial for temporal association memory. *Science* **334**: 1415-2 (2011).
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14. Slutsky, I., Abumaria, N., Wu, L., Huang, C., Zhang, L., Li, B., Zhao, X., Govindarajan, A., Zhao, M., Zhuo, M., Tonegawa, S., Liu, G. Enhancement of Learning and Memory by Elevating Brain Magnesium. *Neuron* **65**: 165-177 (2010).
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69. Levelt, C.N., DeJong, Y.P., Muzoguchi, E., O'Farrelly, C., Bhan, A.K., Tonegawa, S., Terhorst, C., and Simpson, S.J. High- and low-affinity single-peptide/MHC ligands have distinct effects on the development of mucosal CD8 $\alpha\alpha$  and CD8 $\alpha\beta$  T lymphocytes. *PNAS* **96**:5628-5633 (1999).

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77. Koeltzow, T.E., Xu, M., Cooper, D.C., Hu, X.-T., Tonegawa, S., Wolf, M.E., and White, F.J. Alterations in dopamine release but not dopamine autoreceptor function in dopamine D3 receptor mutant mice. *J. Neurosci.* **18**:2231-2238 (1998).
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