

## *Curriculum Vitae*

### **Yukiko Goda**

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### **Education**

1981-1985                      University of Toronto, BSc in Biochemistry and Chemistry  
1985-1991                      Stanford University, PhD in Biochemistry

### **Research and Professional Experience**

1991-1997                      Postdoctoral Fellow, The Salk Institute  
1997-2002                      Assistant Professor, Division of Biology, University of California, San Diego  
2002-2011                      Senior Group Leader, MRC Cell Biology Unit, University College London  
2011-2018                      Senior Team Leader, RIKEN Brain Science Institute  
2014-2022                      Adjunct Professor, Saitama University Brain Science Institute  
2014-2022                      Adjunct Professor, Department of Life Sciences, Graduate School of Arts and Sciences, University of Tokyo  
2015-2017                      Deputy Director, RIKEN Brain Science Institute  
2017-2018                      Acting Director, RIKEN Brain Science Institute  
2018-2022                      Deputy Director and Team Leader, RIKEN Center for Brain Science  
2020-present                      Program Officer, Fusion Oriented Research for Disruptive Science and Technology, Japan Science and Technology Agency  
2022-present                      Professor, Okinawa Institute of Science and Technology Graduate University  
2022-2023                      Adjunct Team Leader, RIKEN Center for Brain Science

### **Awards and Honors**

University of Toronto Open Admission Scholarship (1981-1985)  
Sarah Cusick Gollop and William George Gollop Memorial Scholarship in Chemistry (1982-1985)  
The Governor General's Medal, University of Toronto (1985)  
Damon Runyon-Walter Winchell Cancer Research Fund, Postdoctoral fellow (1991-1994)  
National Alliance for Research on Schizophrenia and Depression, Young Investigator Award (1994-1996)  
Sloan Research Fellow (1998-2000)

National Alliance for Research on Schizophrenia and Depression, Daniel X. Freedman Award (1998)  
Damon Runyon Scholar Award (1999-2000)  
Rita Allen Foundation Scholar (2000-2003)  
Klingenstein Fellowship in the Neurosciences (2001-2003)  
National Alliance for Research on Schizophrenia and Depression, Distinguished Investigator Award (2003)  
Honorary Professor of the Department of Neuroscience, Physiology and Pharmacology, UCL (2010)  
Tsukahara Nakaakira Award, The Brain Science Foundation (2013)  
Science Council of Japan, Member (2014-2025)

### **Other Professional Activities**

#### Editorial boards and services

*Neuron*, 1999-present  
*Cell*, 2009-present  
*Trends in Neurosciences*, 2003-present  
*Faculty Opinions (Neuronal Signaling Section)*, 2011-present  
*npj Science of Learning*, 2015-present  
*eLife (Reviewing Editor)*, 2016-present  
*Royal Society Open Biology*, 2016-2020  
*Neuroscience*, 2016-present  
*Journal of Cell Biology*, 2017-2019  
Section Editor, *Current Opinion in Neurobiology*, Neuronal and Glial Cell Biology issue, 2003  
Associate Editor, *Encyclopedia of Neuroscience*, vol. 3  
Section Editor, *Current Opinion in Neurobiology*, Synaptic Function and Regulation issue, June 2011  
Research Topic Editor on Neuron-Astrocyte Communication at Synapses and Circuits, *Frontiers in Cellular Neuroscience*, 2017  
Section Editor, *Current Opinion in Neurobiology*, Molecular Neuroscience issue, August 2021

#### Conference organization, Committee services

Organizer, Les Treilles Foundation, Conference on Development and Function of the Synapse, 2002  
The American Society for Cell Biology, 2005 Program Committee  
Chair, Gordon Conference on Cell Biology of Neuron, 2006  
IBRO Congress, International Program Committee, 2011  
UCL Neuroscience Symposium Organising Committee, 2011  
Japan Neuroscience Society Annual Meeting Organising Committee, 2014, 2015, 2017, 2019, 2021  
Society for Neuroscience, Program Committee, 2016-2019  
Japan Neuroscience Society, International Collaboration Affairs Committee Chair, 2020-2022  
IBRO Asia Pacific Regional Committee, 2021-2023

### **Invited lectures (past three years)**

#### FY2019

Gordon Research Conference on Dendrites: Molecules, Structure and Function  
39<sup>th</sup> Blankenese Conference, Signaling in Health and Disease  
Seminar, NIH/NICHHD, Bethesda, MD, USA  
Speaker at Brain Camp, Singapore  
Neuro2019 at Niigata, Symposium  
Speaker, IBRO satellite meeting "Synaptic function and neural circuitry", Busan, Korea

Speaker, IBRO2019 Symposium, Daegu, Korea  
Seminar, Neuroscience Graduate Program, UCSF, CA, USA

FY2020

Institute of Biomedicine of Seville (IBiS) Seminar  
Seminar, Wu Tsai Neurosciences Institute, Stanford, CA, USA  
Speaker, China-Japan High-Level Expert Symposium on Brain Science  
Speaker, 11<sup>th</sup> BRI International Symposium, Niigata University  
Seminar, Centre for Developmental Neurobiology, King's College London  
Seminar, Tokyo Metropolitan Institute of Medical Science  
Symposium Speaker, Japanese Association of Anatomists and The Physiological Society of Japan Joint Annual Meeting

FY2021

Speaker, ALBA Webinar on South-East Asia Diversity Issues in Brain Science  
Seminar, VIB Distinguished Lecture Series, VIB-KU Leuven Center for Brain and Disease Research  
Speaker, Workshop on Astrocytes, Computational Neuroscience Meeting 2021  
Special Lecture, Japan Neuroscience Society Annual Meeting  
Speaker, GRI Genes Roundtable, CureGRIN Foundation  
Speaker, JSPS core-to-core Program Annual Symposium  
Speaker, RIKEN Diversity Office, Leadership Program

FY2022

Lecturer, OIST Computational Neuroscience Course  
Speaker, 8<sup>th</sup> FAONS Symposium  
Symposium Speaker, ISN-APSN 2022 Meeting, Honolulu, Hawaii  
Seminar, Research Institute of Environmental Medicine, Nagoya University  
Director's Seminar, The John Curtin School of Medical Research, Australian National University

**Publications**

- Bunting JW, Chew VSF, Abhyankar SB, Goda Y. (1984) Pseudobase formation from 9-substituted 10-methylacridinium cations in aqueous solution. *Can J Chem.* 62, 351-354.
- Goda Y, Greenblatt J. (1985) Efficient modification of *E. coli* RNA polymerase *in vitro* by the *N* gene transcription antitermination protein of bacteriophage  $\lambda$ . *Nucl Acids Res.* 13, 2569-2582.
- Goda Y, Pfeffer SR. (1988) Selective Recycling of the mannose 6-phosphate/IGF-II receptor to the *trans* Golgi network *in vitro*. *Cell* 55, 309-320.
- Goda Y, Pfeffer SR. (1989) Cell-free systems to study vesicular transport along the secretory and endocytic pathways. *FASEB J.* 3, 2488-2495.
- Draper RK, Goda Y, Brodsky FM, Pfeffer SR. (1990) Antibodies to clathrin inhibit endocytosis but not receptor recycling to the *trans* Golgi network *in vitro*. *Science* 248, 1539-1541.
- Goda Y, Pfeffer SR. (1991) Identification of a novel, *N*-ethylmaleimide-sensitive cytosolic factor required for vesicular transport from endosomes to the *trans* Golgi network *in vitro*. *J Cell Biol.* 112, 823-831.
- Goda Y, Soldati T, Pfeffer SR. (1992) Transport from late endosomes to *trans* Golgi network in semiintact cell extracts. *Methods in Enzymol.* 219, 153-159.
- Lombardi D, Soldati T, Riederer MA, Goda Y, Zerial M, Pfeffer SR. (1993) Rab9 functions in transport between late endosomes and the *trans* Golgi network. *EMBO J.* 12, 677-682.
- Abeliovich A, Chen C, Goda Y, Silva AJ, Stevens CF, Tonegawa S.\* (1993) Modified hippocampal long-term potentiation in PKC $\gamma$ -mutant mice. *Cell* 75, 1253-1262.

\*The authors are listed alphabetically.

- Goda Y. (1994) Long-term potentiation: In pursuit of a retrograde messenger. *Curr Biol.* 4, 148-150.
- Geppert M, Goda Y, Hammer ER, Li C, Rosahl TW, Stevens CF, Südhof TC.\* (1994) Synaptotagmin I: A major  $Ca^{2+}$ -sensor for transmitter release at a central synapse. *Cell* 79, 717-727.
- \*The first two authors contributed equally to this work.
- Goda Y, Stevens CF. (1994) Two components of transmitter release at a central synapse. *Proc Natl Acad Sci USA* 91, 12942-12946.
- Goda Y. (1995) A common cascade for long-term memory. *Curr Biol.* 5, 136-138.
- Goda Y. (1995) Photographic memory in flies. *Curr Biol.* 5, 852-853.
- Tonegawa S, Li Y, Erzurumlu RS, Jhaveri S, Chen C, Goda Y, Paylor R, Silva AJ, Kim JJ, Wehner JM, Stevens CF, Abeliovich A. (1995) The gene knockout technology for the analysis of learning and memory, and neural development. *Prog Brain Res.* 105, 3-14.
- Goda Y, Stevens CF. (1996) Long-term depression properties in a simple system. *Neuron* 16, 103-111.
- Goda Y, Stevens CF. (1996) The basis for particular types of learning. *Curr Biol.* 6, 375-378.
- Goda Y, Stevens CF, Tonegawa S. (1996) Phorbol ester effects at hippocampal synapses act independently of the  $\gamma$  isoform of PKC. *Learning Memory* 3, 182-187.
- Goda Y. (1996) Probing presynaptic mechanisms of synaptic plasticity. In Gene Targeting and New Developments in Neurobiology, S Nakanishi, AJ Silva, M Katsuki, eds. (Tokyo: Japan Scientific Societies Press), pp. 49-59.
- Goda Y. (1997) SNAREs and regulated vesicle exocytosis. *Proc Natl Acad Sci USA* 94, 769-772.
- Geppert M, Goda Y, Stevens CF, Südhof TC.\* (1997) The small GTP-binding protein Rab3A regulates a late step in synaptic vesicle fusion. *Nature* 387, 810-814.
- \*The authors are listed alphabetically. Y.G. is the corresponding author.
- Goda Y, Südhof TC. (1997)  $Ca^{2+}$ -regulation of neurotransmitter release: reliably unreliable? *Curr Op Cell Biol.* 9, 513-518.
- Geppert M, Khvotchev M, Krasnoperov V, Goda Y, Missler M, Hammer RE, Ichtchenko K, Petrenko AG, Südhof TC. (1998) Neurexin Ia as an  $\alpha$ -latrotoxin receptor. *J Biol Chem* 273, 1705-1710.
- Goda Y, Stevens CF. (1998) Readily releasable pool size associated with long-term depression. *Proc Natl Acad Sci USA* 95, 1283-1288.
- Hagler DJ, Goda Y. (1998) Synaptic adhesion: The building blocks of memory? *Neuron* 20, 1059-1062.
- Goda Y, Mutneja M. (1998) Memory mechanisms: The nociceptin connection. *Curr Biol* 8, 889-891.
- Morales M, Goda Y. (1999) Nomadic AMPA receptors and LTP. *Neuron* 23, 419-422.
- Janz R, Goda Y, Geppert M, Missler M, Südhof TC.\* (1999) SV2A and SV2B function as redundant  $Ca^{2+}$  regulators in neurotransmitter release. *Neuron* 24, 1003-1016.
- \*The first three authors contributed equally to this work.
- Morales M, Colicos MA, Goda Y. (2000) Actin-dependent regulation of neurotransmitter release at central synapses. *Neuron* 27, 539-550.
- Hagler DJ, Goda Y. (2001) Properties of synchronous and asynchronous release during pulse train depression in cultured hippocampal neurons. *J Neurophysiol.* 85, 2324-2334.
- Colicos MA, Collins BE, Sailor MJ, Goda Y. (2001) Remodeling of synaptic actin induced by photoconductive stimulation. *Cell* 107, 605-616.
- Tarsa L, Goda Y. (2002) Synaptophysin regulates activity-dependent synapse formation in cultured hippocampal neurons. *Proc Natl Acad Sci USA* (track II) 99, 1012-1016.
- Goda Y. (2002) Cadherins communicate structural plasticity of presynaptic and postsynaptic terminals. *Neuron* 35, 1-7.
- Tokuoka H, Goda Y. (2003) Synaptotagmin in  $Ca^{2+}$ -dependent exocytosis: dynamic action in a flash. *Neuron* 38, 521-524.
- Goda Y, Davis GW. (2003) Mechanisms of synapse assembly and disassembly. *Neuron* 40, 243-264.
- Dillon C, Goda Y. (2005) The actin cytoskeleton: Integrating form and function at the synapse. *Annu Rev Neurosci* 28, 25-54.

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- Goda Y, Colicos MA. (2006) Photoconductive stimulation of neurons cultured on silicon wafers. *Nat Protocols* 1, 461-467.
- Darcy K, Staras K, Collinson L, Goda Y. (2006) An ultrastructural readout of fluorescence recovery after photobleaching using correlative light and electron microscopy. *Nat Protocols* 1, 988-994.
- Tokuoka H, Goda Y. (2006) Myosin light chain kinase is not a regulator of synaptic vesicle trafficking during repetitive exocytosis in cultured hippocampal neurons. *J Neurosci* 26, 11606-11614.
- Okuda T, Yu LM, Cingolani LA, Kemler R, Goda Y. (2007)  $\beta$ -catenin regulates excitatory postsynaptic strength at hippocampal synapses. *Proc Natl Acad Sci USA* (direct submission) 104, 13479–13484.
- Cingolani LA, Goda Y. (2008) Actin in Action: The interplay of actin cytoskeleton and synaptic efficacy. *Nat Rev Neurosci* 9, 344-356.
- Cingolani LA, Thalhammer A, Yu LM, Catalano M, Ramos T, Colicos MA, Goda Y. (2008) Activity-dependent regulation of synaptic AMPA receptor composition and abundance by  $\beta$ 3 integrins. *Neuron* 58, 749-762.
- Branco T, Staras K, Darcy KJ, Goda Y. (2008) Local dendritic activity sets release probability at hippocampal synapses. *Neuron* 59, 475-485.
- Tokuoka H, Goda Y. (2008) Activity-dependent coordination of presynaptic release probability and postsynaptic GluR2 abundance at single synapses. *Proc Natl Acad Sci USA* (direct submission) 105, 14656-14661.
- Goda Y. (2008) Along memory lane. *Nature* 456, 590-591.
- Ferrari A, Goda Y. (2008) Cytoskeleton in plasticity. In Larry R. Squire, Ed., *Encyclopedia of Neuroscience* 3, 311-316, Academic Press, Oxford.
- Cingolani LA, Goda Y. (2008) Differential involvement of  $\beta$ 3 integrin in pre- and postsynaptic forms of adaptation to chronic activity deprivation. *Neuron Glia Biol* 4, 179-187.
- Yu LM, Goda Y. (2009) Dendritic signalling and homeostatic adaptation. *Curr Opin Neurobiol* 19, 327 - 335.
- Staras K, Branco T, Burden JJ, Pozo K, Darcy K, Marra V, Ratnayaka A, Goda Y. (2010) A vesicle superpool spanning multiple presynaptic terminals in hippocampal neurons. *Neuron* 66, 37-44.
- Pozo K, Goda Y. (2010) Unraveling mechanisms of homeostatic synaptic plasticity. *Neuron* 66, 337-351.
- McGeachie AB, Cingolani LA, Goda Y. (2011) A stabilising influence: Integrins in regulation of synaptic plasticity. *Neurosci Res* 70, 24-29.
- Goda Y, Sabatini BL. (2011) Synaptic function and regulation. *Curr Opin Neurobiol* 21, 205-207.
- Vitureira N, Letellier M, White IJ, Goda Y (2011) Differential control of presynaptic efficacy by postsynaptic N-cadherin and  $\beta$ -catenin. *Nat Neurosci* 15, 81-89.
- Pozo K, Cingolani LA, Bassani S, Laurent F, Passafaro M, Goda Y. (2012)  $\beta$ 3 integrin interacts directly with GluA2 AMPA receptor subunit and regulates AMPA receptor expression in hippocampal neurons. *Proc Natl Acad Sci USA* (direct submission) 109, 1323-1328.
- Bassani S, Cingolani LA, Valnegri P, Folci A, Zapata J, Gianfelice A, Sala C, Goda Y, Passafaro M. (2012) The X-Linked Intellectual Disability Protein TSPAN7 Regulates Excitatory Synapse Development and AMPAR Trafficking. *Neuron* 73, 1143-1158.
- Vitureira N, Letellier M, Goda Y. (2012) Homeostatic synaptic plasticity: from single synapses to neural circuits. *Curr Op Neurobiol* 22, 516-521.
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- Chater TE, Goda Y. (2013) CA3 Mossy Fiber Connections: Giant Synapses that Gain Control. *Neuron* 77, 4-6.
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- Chater TE, Goda Y. (2014) The role of AMPA receptors in postsynaptic mechanisms of synaptic plasticity. *Front Cell Neurosci* 8,401.
- Shinoe T, Goda Y. (2015) Tuning synapses by proteolytic remodeling of the adhesive surface. *Curr Op Neurobiol* 35, 148-155.

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- Chipman P, Goda Y. (2016) Adhesion molecules in synapse assembly and function. In *Dendrites: development and disease*, K Emoto, R Wong, E Huang, C Hoogenraad, ed. (Springer SBM).
- Park YK, Goda Y. Integrins in Synapse Regulation. (2016) *Nat Rev Neurosci* *17*, 745-756.
- Thalhammer A, Contestabile A, Ermolyuk YS, Ng T, Volynski KE, Soong TW, Goda Y, Cingolani LA. (2017) Alternative splicing of P/Q-type Ca channels shapes presynaptic plasticity. *Cell Rep* *20*, 333-343.
- Hui KK, Takashima N, Watanabe A, Chater TE, Matsukawa H, Nekooki-Machida Y, Nilsson P, Endo R, Goda Y, Saido TC, Yoshikawa T, Tanaka M. (2019) GABARAPs dysfunction by autophagy deficiency in adolescent brain impairs GABA<sub>A</sub> receptor trafficking and social behavior. *Sci Adv* *5*, eaau8237.
- Letellier M, Levet F, Thoumine O, Goda Y. (2019) Differential role of pre and postsynaptic neurons in the activity-dependent control of synaptic strengths across dendrites. *PLoS Biol* *17*, e2006223.
- Sawada T, Chater TE, Sasagawa Y, Yoshimura M, Fujimori-Tonou N, Tanaka K, Benjamin KJM, Paquola ACM, Erwin JA, Goda Y, Nikaido I, Kato T. (2020) Developmental excitation-inhibition imbalance underlying psychoses revealed by single-cell analyses of discordant twins-derived cerebral organoids. *Mol Psychiatry* *25*, 2695-2711.
- Bassett DS, Cullen KE, Eickhoff SB, Farah MJ, Goda Y et al. (2020) Reflections on the past two decades of neuroscience. *Nat Rev Neurosci* *21*, 524-534.
- Chater TE, Goda Y. (2020) My Neighbour Hetero - deconstructing the mechanisms underlying heterosynaptic plasticity. *Curr Op Neurobiol* *67*, 106-114. doi: 10.1016.
- Tong R, Chater TE, Emptage NJ, Goda Y. (2021) Heterosynaptic crosstalk of pre- and postsynaptic strengths along segments of dendrites. *Cell Rep* *34*, 108693. doi: 10.1016.
- Bradke F, Goda Y. (2021) Molecular neuroscience. *Curr Opin Neurobiol* *69*, iii-v. doi: 10.1016.
- Chipman PH, Fung CCA, Fernandez A, Sawant A, Tedoldi A, Kawai A, Gautam SG, Kurosawa M, Abe M, Sakimura K, Fukai T, Goda Y. (2021) Astrocyte GluN2C NMDA receptors control basal synaptic strengths of hippocampal CA1 pyramidal neurons in the *stratum radiatum*. *eLife* *10*, e70818. doi: 10.7554/eLife.70818.
- Chater TE, Goda Y. (2022) The shaping of AMPA surface distribution by neuronal activity. *Front Synaptic Neurosci* *14*, 833782. doi: 10.3389/fnsyn.2022.833782.
- Saint-Martin M, Goda Y. (2022) Astrocyte-synapse interactions and cell adhesion molecules. *FEBS J* doi: 10.1111/febs.16540.
- Hui KK, Chater TE, Goda Y, Tanaka M. (2022) How staying negative is good for the (adult) brain: Maintaining Cl<sup>-</sup> homeostasis and the GABA shift in neurological disorders. *Front Mol Neurosci* *15*, 893111. doi: 10.3389/fnmol.2022.893111.