

Curriculum vitae Yasushi Miyashita

Present position: Director
Institution: RIKEN Center for Brain Science
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Education:
1971 B.S. The University of Tokyo, Faculty of Science
1977 Ph.D. The University of Tokyo School of Medicine

Academic Positions:
2018-present Director, RIKEN Center for Brain Science.
2015-present Professor of Cognitive Neuroscience, Juntendo University Graduate School of Medicine.
2015-present Professor emeritus, The University of Tokyo School of Medicine.
2003-2008 Deputy Dean, The University of Tokyo School of Medicine
1996-2013 Professor of Biophysics,
The University of Tokyo, Graduate School of Science
1996-2002 Professor of Cognitive Neuroscience,
National Institute for Physiological Science
1989-2015 Professor of Physiology,
The University of Tokyo School of Medicine
1984-1985 Visiting Lecturer,
Oxford University, U.K.
1983-1989 University Lecturer,
The University of Tokyo School of Medicine
1977-1983 Assistant Professor,
The University of Tokyo School of Medicine

Non-Academic Positions:
2006- present Board of Reviewing Editors, Science
2004- present Editorial Board, J. Cognitive Neuroscience
2000-2001 Guest Editor, Current Opinion in Neurobiology
1999- present Editorial Board, Neuron
1993-1998 Editorial Board, Neuropsychologia

Honours and Awards:
1992 Tsukahara Prize, Brain Science Foundation.
2001 Presidential Lecture, Sixth International Congress of Neuroethology.
2003 Keio Medical Science Prize, Keio Medical Science Foundation.
2003 Presidential Lecture, Sixth World Congress of International Brain Research Organization.
2004 Asahi Prize, Asahi Cultural Foundation.
2004 EBBS lecture, Fourth Forum of The Federation of European Neurosciences Societies.
2004 Medal with Purple Ribbon, Cabinet Office, Government of Japan.

- 2005 Presidential Special Lecture, Thirty Fifth Annual Meeting of the North American Society for Neuroscience.
- 2007 Japan Academy Award, Japan Academy of Science
- 2013 Fujiwara Award, The Fujiwara Foundation of Science.
- 2017 Plenary Lecture, The 38th Congress of the International Union of Physiological Sciences

Academic Activities:

- 2012-2014 President, Union of Brain Science Association in Japan
- 2011-2013 President, The Japan Neuroscience Society
- 2009 President, The 36th Congress of the International Union of Physiological Sciences
- 2005-2012 Associate, Neurosciences Research Program, San Diego.
- 2002-2010 Director, The Physiological Society of Japan
- 1998-2013 Director, The Japan Neuroscience Society

Selected Publications (Corresponding Author underlined)

- (1) Miyashita, Y. and Chang, H.S. : Neuronal correlate of pictorial short-term memory in the primate temporal cortex. *Nature* 331, 68-70, 1988.
- (2) Miyashita, Y. : Neuronal correlate of visual associative long-term memory in the primate temporal cortex. *Nature* 335, 817-820, 1988.
- (3) Sakai, K. and Miyashita, Y. : Neural organization for the long-term memory of paired associates. *Nature* 354, 152-155, 1991.
- (4) Miyashita, Y. : Inferior temporal cortex: where visual perception meets memory. *Annu. Rev. Neurosci.* 16, 245-263, 1993.
- (5) Hasegawa, I., Fukushima, T., Ihara, T. and Miyashita, Y. : Callosal window between prefrontal cortices : cognitive interaction to retrieve long-term memory. *Science* 281, 814-818, 1998.
- (6) Tomita, H., Ohbayashi, M., Nakahara, K., Hasegawa, I. and Miyashita, Y. : Top-down signal originating from the prefrontal cortex for memory retrieval. *Nature* 401, 699-703, 1999.
- (7) Naya, Y., Yoshida, M. and Miyashita, Y. : Backward spreading of memory retrieval signal in the primate temporal cortex. *Science* 291, 661-664, 2001.
- (8) Nakahara, K., Hayashi, T., Konishi, S. and Miyashita, Y. : Functional MRI of macaque monkeys performing a cognitive set-shifting task. *Science* 295, 1532-1536, 2002.
- (9) Ohbayashi, M., Ohki, K. and Miyashita, Y. : Conversion of working memory to motor sequence in the monkey premotor cortex. *Science* 301, 233-236, 2003.
- (10) Miyashita, Y. : Cognitive memory: cellular and network machineries and their top-down control. *Science* 306, 435-440, 2004.
- (11) Matsui, T., Koyano, K.W., Koyama, M., Nakahara, K., Takeda, M., Ohashi, Y., Naya, Y. and Miyashita, Y. : MRI-based localization of electrophysiological recording sites within the cerebral cortex at single voxel accuracy. *Nature Methods* 4, 161-168, 2007.
- (12) Takeuchi, D., Hirabayashi, T., Tamura, K. and Miyashita, Y. : Reversal of

- interlaminar signal between sensory and memory processing in monkey temporal cortex. *Science* 331, 1443-1447, 2011.
- (13) Hirabayashi, T., Takeuchi, D., Tamura, K. and Miyahsita, Y. : Microcircuits for hierarchical elaboration of object coding across primate temporal areas. *Science* 341, 191-195, 2013.
- (14) Miyamoto, K., Osada, T., Setsuie, R., Takeda, M., Tamura, K., Adachi, Y., and Miyashita, Y. : Causal neural network of metamemory for retrospection in primates. *Science* 355, 188-193, 2017.
- (15) Tamura, K., Takeda, M., Setsuie, R., Tsubota, T., Hirabayashi, T., Miyamoto, K. and Miyashita, Y. : Conversion of object identity to object-general semantic value in the primate temporal cortex. *Science* 357, 687-692, 2017.
- (16) Miyashita, Y. : Perirhinal circuit for memory processing. *Nature Reviews Neurosci.* in press, 2019.

Publications (As of 2019.6.29)

1. Miyashita, Y. : Perirhinal circuit for memory processing. *Nature Reviews Neurosci.* in press, 2019.
2. Miyamoto, K., Setsuie, R., Osada, T., and Miyashita, Y. : Reversible silencing of the frontopolar cortex selectively impairs metacognitive judgment on non-experience in primates. *Neuron* 97, 980-989, 2018.
3. Takeda, M., Hirabayashi, T., Adachi, Y. and Miyashita, Y. : Dynamic laminar rerouting of inter-areal mnemonic signal by cognitive operations in primate temporal cortex. *Nat Commun.* 6;9: 4629, 2018.
4. Tamura, K., Takeda, M., Setsuie, R., Tsubota, T., Hirabayashi, T., Miyamoto, K. and Miyashita, Y. : Conversion of object identity to object-general semantic value in the primate temporal cortex. *Science* 357, 687-692, 2017.
5. Miyamoto, K., Osada, T., Setsuie, R., Takeda, M., Tamura, K., Adachi, Y., and Miyashita, Y. : Causal neural network of metamemory for retrospection in primates. *Science* 355, 188-193, 2017.
6. Koyano, K. W., Takeda, M., Matsui, T., Hirabayashi, T., Ohashi, Y. and Miyashita, Y. : Laminar module cascade from layer 5 to 6 implementing cue-to-target conversion for object memory retrieval in the primate temporal cortex. *Neuron* 92, 518–529, 2016.
7. Takeda, M., Koyano, W.K., Hirabayashi, T., Adachi, Y. and Miyashita, Y. : Top-down regulation of laminar circuit via inter-area signal for successful object memory recall in monkey temporal cortex. *Neuron*, 86,840-852, 2015.
8. Osada, T., Adachi, Y., Miyamoto, K., Jimura, K., Setsuie, R. and Miyashita, Y. : Dynamically allocated hub in task-evoked network predicts the vulnerable prefrontal locus for contextual memory retrieval in macaques. *PLoS Biol.*, 13:6, e1002177, 2015.
9. Matsuyama, M., Ohashi, Y., Tsubota, T., Yaguchi, M., Kato, S., Kobayashi, K. and Miyashita, Y. : Avian sarcoma leukemia virus receptor-envelope system for simultaneous dissection of multiple neural circuits in mammalian brain. *Proc. Natl. Acad. Sci. U.S.A.* 112, 2947-2956, 2015.

10. Watanabe, T., Hanajima, R., Shirota, Y., Tsutsumi, R., Shimizu, T., Hayashi, T., Terao, Y., Ugawa, Y., Katsura, M., Kunimatsu, A., Ohtomo, K., Hirose, S., Miyashita, Y. and Konishi, S.: Effects of rTMS of pre-supplementary motor area on fronto-basal-ganglia network activity during stop-signal task. *J. Neurosci.* 35, 4813-4823, 2015.
11. Tsubota, T., Okubo, S., R., Ohashi, Y., Tamura, k., Ogata, K., Yaguchi, M., Matsuyama, M., Inokuchi, K., and Miyashita, Y. : Cofilin1 Controls Transcolumnar Plasticity in Dendritic Spines in Adult Barrel Cortex. *PLoS Biol.* 13:2, e1002070, 2015.
12. Hirabayashi, T., Tamura, K., Takeuchi, D., Takeda, M., Koyano, W.,K., and Miyashita, Y.: Distinct Neuronal Interactions in Anterior Inferotemporal Areas of Macaque Monkeys during Retrieval of Object Association Memory. *J. Neurosci.* 34, 9377-9388, 2014.
13. Watanabe, T., Takezawa, M., Nakawake, Y., Kunimatsu, A., Yamasue, H., Nakamura, M., Miyashita, Y. and Masuda N. : Two distinct neural mechanisms underlying indirect reciprocity. *Proc. Natl. Acad. Sci. U.S.A.* 111, 3990-3995, 2014.
14. Hirabayashi, T. and Miyashita, Y.: Computational principles of microcircuits for visual object processing in the macaque temporal cortex. *Trends in Neurosci.* 37, 178-187, 2014.
15. Miyamoto, K., Adachi, Y., Osada, T., Watanabe, T., Kimura, H.M., Setsuie, R. and Miyashita, Y.: Dissociable memory traces within the macaque medial temporal lobe predict subsequent recognition performance. *J. Neurosci.* 34, 1988-1997, 2014.
16. Watanabe, T., Abe, O., Kuwabara, H., Yahata, N., Takano, Y., Iwashiro, N., Natsubori, T., Aoki, Y., Takao, H., Kawakubo, Y., Kamio, Y., Kato, N., Miyashita, Y., Kasai, K. and Yamasue, H. : Mitigation of sociocommunicational deficits of autism through oxytocin-induced recovery of medial prefrontal activity : a randomized trial. *JAMA Psychiatry* 71, 166-175, 2014.
17. Watanabe, T. Hirose, S., Wada, H., Imai, Y., Machida, T., Shirouzu, I., Konishi, S., Miyashita, Y. and Masuda, N. : A pairwise maximum entropy model accurately describes resting-state human brain networks. *Nat. Commun.* 4, 1370, 2013.
18. Miyamoto, K., Osada, T., Adachi, Y., Matsui, T., Kimura, H.M. and Miyashita, Y. : Functional differentiation of memory retrieval network in macaque posterior parietal cortex. *Neuron* 77, 787-799, 2013.

19. Hirabayashi, T., Takeuchi, D. and Tamura, K. and Miyashita, Y. : Functional micro-circuit recruited during retrieval of object association memory in monkey perirhinal cortex. *Neuron* 77, 192–203, 2013.
20. Hirabayashi, T., Takeuchi, D., Tamura, K. and Miyahsita, Y. : Microcircuits for hierarchical elaboration of object coding across primate temporal areas. *Science* 341, 191-195, 2013.
21. Hirose, S., Chikazoe, J., Watanabe, T., Jimura, K., Kunitatsu, A., Abe, O., Ohtomo, K., Miyashita, Y. and Konishi, S. : Efficiency of go/no-go task performance implemented in the left hemisphere. *J. Neurosci.*, 32, 9059-9065, 2012.
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25. Miyamoto, K., Hirabayashi, T. and Miyashita, Y. : To bet, or not to bet: that is the question of SEF spikes. *Neuron* 75, 358 - 360, 2012
26. Takeuchi, D., Hirabayashi, T., Tamura, K. and Miyashita, Y. : Reversal of interlaminar signal between sensory and memory processing in monkey temporal cortex. *Science* 331, 1443-1447, 2011.
27. Hirabayashi, T., Takeuchi, D., Tamura, T. and Miyashita, Y. : Triphasic dynamics of stimulus-dependent information flow between single neurons in macaque inferior temporal cortex. *J. Neurosci.* 30, 10407-10421, 2010.
28. Chikazoe, J., Jimura, K., Hirose, S., Yamashita, K-I., Miyashita, Y. and Konishi, S. : Preparation to inhibit a response complements response inhibition during performance of a stop-signal task. *J. Neurosci.* 29, 15870-15877, 2009.
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30. Chikazoe, J., Jimura, K., Asari, T., Yamashita, K., Morimoto, H., Hirose, S., Miyashita, Y. and Konishi, S. : Functional dissociation in right inferior frontal cortex during performance of go/no-go task. *Cereb. Cortex* 19, 146-152, 2009.
31. Kamigaki, T., Fukushima, T., and Miyashita, Y. : Cognitive set reconfiguration signaled by macaque posterior parietal neurons. *Neuron* 61, 941-951, 2009.
32. Nakahara, K., Adachi, Y., Osada, T. and Miyashita Y : Exploring the neural basis of cognition: multi-modal links between human fMRI and macaque neurophysiology. *Trend Cogn. Science* 11, 84-92, 2007.
33. Matsui, T., Koyano, K.W., Koyama, M., Nakahara, K., Takeda, M., Ohashi, Y., Naya, Y. and Miyashita, Y. : MRI-based localization of electrophysiological recording sites within the cerebral cortex at single voxel accuracy. *Nature methods* 4, 161-168, 2007.
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37. Konishi, S., Chikazoe, J., Jimura, K., Asari, T. and Miyashita, Y. : Neural mechanism in anterior prefrontal cortex for inhibition of prolonged set interference. *Proc. Natl. Acad. Sci. USA* 102, 12584-12588, 2005.
38. Nakahara, K. and Miyashita, Y. : Understanding intentions: through the looking glass. *Science* 308, 644-645, 2005.
39. Miyashita, Y. : Cognitive memory: cellular and network machineries and their top-down control. *Science* 306, 435-440, 2004.
40. Koyama, M., Hasegawa, I., Osada, T., Adachi, Y., Nakahara, K. and Miyashita, Y. : Functional magnetic resonance imaging of macaque monkeys performing visually guided saccade tasks: comparison of cortical eye fields with humans. *Neuron* 41, 795-807, 2004.
41. Konishi, S., Jimura, K., Asari, T. and Miyashita, Y.: Transient activation of superior prefrontal cortex during inhibition of cognitive set. *J. Neurosci.* 23, 7776-7782, 2003.

42. Ohbayashi, M., Ohki, K. and Miyashita, Y.: Conversion of working memory to motor sequence in the monkey premotor cortex. *Science* 301, 233-236, 2003.
43. Yoshida, M., Naya, Y. and Miyashita, M. : Anatomical organization of forward fiber projections from area TE to perirhinal neurons representing visual long-term memory in monkeys. *Proc. Natl. Acad. Sci. USA* 100, 4257-4262, 2003.
44. Naya, Y., Yoshida, M. and Miyashita, Y.: Forward processing of long-term associative memory in monkey inferotemporal cortex. *J. Neurosci.* 23, 2861-2871, 2003.
45. Homae, F., Hashimoto, R., Nakajima, K., Miyashita, Y. and Sakai, K.L. : From perception to sentence comprehension: the convergence of auditory and visual information of language in the left inferior frontal cortex. *NeuroImage* 16, 883-900, 2002.
46. Konishi, S., Uchida, I., Okuaki, T., Machida, T., Shirouzu, I. and Miyashita, Y. : Neural correlates of recency judgment. *J. Neurosci.* 22, 9549-9555, 2002.
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48. Sekihara, K., Nagarajan, S.S., Poeppel, D., Marantz, A. and Miyashita, Y. : Application of an MEG Eigenscape Beamformer to Reconstructing Spatio-Temporal Activities of Neural Sources. *Human Brain Mapping* 15, 199-215, 2002.
49. Nakahara, K., Hayashi, T., Konishi, S. and Miyashita, Y. : Functional MRI of macaque monkeys performing a cognitive set-shifting task. *Science* 295, 1532-1536, 2002.
50. Hasegawa, I. and Miyashita, Y. : Categorizing the world: expert neurons look into key features. *Nature neuroscience* 5, 90-91, 2002.
51. Konishi, S., Hayashi, T., Uchida, I., Kikyo, H. Takahashi, E. and Miyashita, Y. : Hemispheric asymmetry in human lateral prefrontal cortex during cognitive set shifting. *Proc. Natl. Acad. Sci. USA* 99, 7803-7808, 2002.
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54. Miyashita, Y. and Farah, M.J. : Cognitive neuroscience at the turn of the millennium. *Current Opinion in Neurobiology* 11, 147-149, 2001.
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63. Konishi, S., Kawazu, M., Uchida, I., Kikyo, H., Asakura, I. and Miyashita, Y. : Contribution of working memory to transient activation in human inferior prefrontal cortex during performance of Wisconsin card sorting test. *Cerebral Cortex* 9, 745-753, 1999.
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68. Hasegawa, I., Fukushima, T., Ihara, T. and Miyashita, Y. : Callosal window between prefrontal cortices : cognitive interaction to retrieve long-term memory. *Science* 281, 814-818, 1998.
69. Konishi, S., Nakajima, K., Uchida, I., Kameyama, M., Nakahara, K., Sekihara K. and Miyashita, Y. : Transient activation of inferior prefrontal cortex during cognitive set shifting. *Nature neuroscience* 1, 80-84, 1998.
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89. Miyashita, Y. : Inferior temporal cortex: where visual perception meets memory. *Annu. Rev. Neurosci.* 16, 245-263, 1993.
90. Sakai, K. and Miyashita, Y. : Neural organization for the long-term memory of paired associates. *Nature*, 354, 152-155, 1991.

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