

## Curriculum Vitae

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### Education

2012 PhD in Life Sciences, Kyoto University, Kyoto, Japan  
2007 MS in Physiology and Biophysics, University of Washington, Seattle, WA, USA  
2005 MS in Physics, POSTECH, Pohang, Korea  
2002 BS in Physics, Korea University, Seoul, Korea

### Positions

2019 – present Associate Professor, Graduate Institute of Mind, Brain and Consciousness (GIMBC) & PhD Program in Neuroscience of Cognition and Consciousness, Taipei Medical University, Taiwan  
2019 – present Associate Professor (joint appointment), Graduate Institute of Medical Sciences (GIMS), School of Medicine, Taipei Medical University, Taiwan  
2018 – 2019 Associate Professor, Graduate Institute of Humanities in Medicine, Taipei Medical University  
2018 – present Consultant / Principal Investigator, Shuang Ho Hospital, New Taipei City, Taiwan  
2017 – 2018 Senior Fellow / Principal investigator, Laboratory of Braintime  
Research Center of Brain and Consciousness, Shuang Ho Hospital, New Taipei City, Taiwan  
2017 – 2018 Adjunct Faculty, Graduate Institute of Humanities in Medicine, Taipei Medical University, Taiwan  
2017 – 2017 Research Fellow, Berliner Antike-Kolleg, Einstein Foundation Berlin, Germany  
2016 – 2020 Visiting Researcher, Computational Neuroscience Unit  
Okinawa Institute of Science and Technology (OIST), Okinawa, Japan  
2016 – 2017 Fellow, The College for Life Sciences  
Wissenschaftskolleg zu Berlin / Institute for Advanced Study in Berlin, Germany  
2013 – 2016 Research Scientist, Laboratory of Mental Biology  
RIKEN Brain Science Institute, Wako, Japan  
2012 – 2013 Assistant Professor (special appointment), Hiroshima University, Hiroshima, Japan

### Publications

- [1] Chrobok L, Pradel K, Janik ME, Sanetra AM, Bubka M, **Myung J**, Rahim AR, Klich JD, Jeczmiern-Lazur JS, Palus-Chramiec K, Lewandowski MH (2021). Intrinsic circadian timekeeping properties of the thalamic lateral geniculate nucleus. *J. Neurosci. Res.* **99**: 3306-3324. PMID: 34758124
- [2] Chrobok L\*, Belle MDC\*, **Myung J\*** (2021). From fast oscillations to circadian rhythms: coupling at multiscale frequency bands in the rodent subcortical visual system. *Front. Physiol.* **12**: 738229. PMID: 34899375
- [3] Chrobok L, Jeczmiern-Lazur JS, Bubka M, Pradel K, Klekocinska A, Klich JD, Rahim AR, **Myung J**, Kepczynski M, Lewandowski MH (2021). Daily coordination of orexinergic gating in the rat superior colliculus - implications for intrinsic clock activities in the visual system. *FASEB J.* **35**: e21930. PMID: 34533886
- [4] Quintela T, Furtado A, Duarte AC, Gonçalves I, **Myung J**, Santos CRA (2021). The Role of Circadian Rhythm in Choroid Plexus Functions. *Prog. Neurobiol.* **205**: 102129. PMID: 34343629
- [5] **Myung J\***, Nakamura TJ, Jones J, Silver R, Ono D\* (2021). Development of Circadian Clock Functions. *Front. Neurosci.* **15**: 957. PMID: 34434086 \*Corresponding author.
- [6] Chrobok L, Northeast R, **Myung J**, Cunningham P, Petit C, Piggins HD (2020). Timekeeping in the hindbrain: a multi-oscillatory circadian centre in the mouse dorsal vagal complex. *Commun. Biol.* **3**: 225. PMID: 32385329
- [7] Schmal C\*, Herzel H, **Myung J\*** (2020). Clocks in the wild: entrainment to natural light. *Front. Physiol.* **11**: 272. PMID: 32300307 \*Corresponding author.
- [8] Schmal C, Ono D, **Myung J**, Pett JP, Honma S, Honma KI, Herzel H, Tokuda IT (2019). Weak coupling between intracellular feedback loops explains dissociation of clock gene dynamics, *PLOS Comp. Biol.* **15**: e1007330. PMID: 31513579

- [9] **Myung J<sup>†\*</sup>**, Wu MY<sup>†</sup>, Lee CY<sup>†</sup>, Rahim AR, Truong VH, Wu D, Piggins HD, Wu MS\* (2019). The kidney clock contributes to timekeeping by the master circadian clock. *Int. J. Mol. Sci.* **20**: 2765. PMID: 31195684  
<sup>†</sup>Equal contribution; \*Corresponding author.
- [10] **Myung J\***, Wu D, Simonneaux V, Lane TJ (2018). Strong circadian rhythms in the choroid plexus: implications for sleep-independent brain metabolite clearance. *J. Exp. Neurosci.* **12**: 1-4. PMID: 30013386 \*Corresponding.
- [11] **Myung J<sup>†\*</sup>**, Schmal C<sup>†</sup>, Hong S<sup>†</sup>, Tsukizawa Y, Rose P, Zhang Y, Holtzman MJ, De Schutter E, Herzog H\*, Bordyugov G, Takumi T\* (2018). The choroid plexus is an important circadian clock component. *Nat. Commun.* **9**: 1062. PMID: 29540683 <sup>†</sup>Equal contribution; \*Corresponding author. (Recommended in *F1000Prime*, 4/2018)
- [12] **Myung J\*** & Pauls SD\* (2018). Encoding seasonal information in a two-oscillator model of the multi-oscillator circadian clock. *Eur. J. Neurosci.* **48**: 2718-2727. PMID: 28921823 \*Corresponding author.
- [13] Lane T, Tseng P, Wu C, Hsu T, **Myung J**, Duncan N (2018). 意識測量儀初登場 (Metering consciousness). *科學人 (Scientific American Taiwan)*, **193**: 38 (May). in Chinese.
- [14] Schmal C, **Myung J**, Herzog H, Bordyugov G (2017). Moran's *I* quantifies spatio-temporal pattern formation in neural imaging data. *Bioinformatics.* **33**: 3072-3079. PMID: 28575207
- [15] Azzi A, Evans JA, Leise T, **Myung J**, Takumi T, Davidson AJ, Brown SA (2017). Network dynamics mediate circadian clock plasticity. *Neuron.* **93**:441-450. PMID: 28065650
- [16] **Myung J**, Hong S, DeWoskin D, De Schutter E, Forger DB, Takumi T (2015). GABA-mediated repulsive coupling between circadian clock neurons in the SCN encodes seasonal time. *Proc. Natl. Acad. Sci. USA.* **112**: E3920-E3929. PMID: 26130804 (Featured in "In This Issue," *PNAS.* **112**: 8799–8800, 7/2015; "Editor's Choice," *Sci. Signal.*, **8**: ec213, 8/2015)
- [17] DeWoskin D, **Myung J**, Belle MDC, Piggins HD, Takumi T, Forger DB (2015). Distinct roles for GABA across multiple timescales in mammalian circadian timekeeping. *PNAS.* **112**: E3911-E3919. PMID: 26130805 ("Editor's Choice," *Sci. Signal.*, **8**: ec213, 8/2015)
- [18] Hughes ATL, Croft CL, Samuels RE, **Myung J**, Takumi T, Piggins HD (2015). Constant light enhances synchrony among circadian clock cells and promotes behavioral rhythms in VPAC2-signaling deficient mice. *Sci. Rep.* **5**: 14044. PMID: 26370467
- [19] Nakai N, Otsuka S, **Myung J**, Takumi T (2015). Autism spectrum disorder model mice: focus on copy number variation and epigenetics. *Sci. China Life Sci.* **58**: 976-984. PMID: 26335737
- [20] Tanoue S, Fujimoto K, **Myung J**, Hatanaka F, Kato Y, Takumi T (2015). DEC2-E4BP4 Heterodimer represses the Per2 EE element-driven promoter activities to modulate phase of circadian oscillation. *Front Neurol.* **6**: 166. PMID: 26257703
- [21] Schmal C, **Myung J**, Herzog H, Bordyugov G (2015). A theoretical study on seasonality. *Front. Neurol.* **6**: 94. PMID: 25999912
- [22] Goriki A, Hatanaka F, **Myung J**, Kim JK, Yoritaka T, Tanoue S, Abe T, Kiyonari H, Fujimoto K, Kato Y, Todo T, Matsubara A, Forger D, Takumi T (2014). A Novel protein, CHRONO, functions as a core component of the mammalian circadian clock. *PLoS Biol.* **12**: e1001839. PMID: 24736997
- [23] **Myung J**, Hong S, Hatanaka F, Nakajima Y, De Schutter E, Takumi T (2012). Period coding of *Bmal1* oscillators in the suprachiasmatic nucleus. *J. Neurosci.* **32**: 8900-8918. PMID: 22745491
- [24] Hatanaka F, Matsubara C, **Myung J**, Yoritaka T, Kamimura N, Tsutsumi S, Kanai A, Suzuki Y, Sassone-Corsi P, Aburatani H, Sugano S, Takumi T (2010). Genome-wide profiling of the core clock protein BMAL1 targets reveals a strict relationship with metabolism. *Mol. Cell Biol.* **30**: 5636-48. PMID: 20937769
- [25] Kim TD, Kim JS, Kim JH, **Myung J**, Chae HD, Woo KC, Jang SK, Koh DS, Kim KT (2005). Rhythmic serotonin N-acetyltransferase mRNA degradation is essential for the maintenance of its circadian oscillation. *Mol. Cell Biol.* **25**: 3232-46. PMID: 15798208

## Research Grants

- [1] 110-2311-B-038 -003. Ministry of Science and Technology (MOST) General Research Project, PI, FY2021
- [2] DP3-110-22122-07. SATU Joint Research Scheme, PI, FY2021
- [3] 109-2320-B-038-020. MOST Research Project for Newly-recruited Personnel, PI, FY2020
- [4] 109-2314-B-038-071. MOST Integrated Research, subproject PI, FY2020-2023 (of total 3 years)
- [5] 109-2314-B-038-106-MY3. MOST General Research Project, co-PI (PI: Mei-Yi Wu), FY2020- 2023
- [6] DP2-109-21121-01-N-01 & DP2-110-21121-01-N-01. Ministry of Education (MOE) "Higher Education Sprout" Innovative Translational Medicine Research Project, Lead PI, FY2020-2021
- [7] 108-3805-006-110. Taipei Medical University (TMU) Office of Global Engagement, Grant for Collaborative International Research Project Seed Fund, FY2020
- [8] 108-2321-B-006-023-MY2. MOST Brain Project, Co-I (PI: Chao-Ching Huang, NCKU), FY2019- 2020
- [9] 108-2410-H-038-008-MY2. MOST Research Project for Newly-recruited Personnel, Co-PI (PI: Niall Duncan), FY2019- 2020

- [10] 107-3805-003-110. TMU OGE, International collaboration supplement, PI, FY2019
- [11] Research Award, Nakayama Foundation for Human Science, Japan, FY2018
- [12] TMU107-AE1-B15. TMU Start-up grant, PI, FY2018
- [13] 107-2410-H-038-004-MY2. MOST General Research Project, PI, FY2018- 2019
- [14] 107-2311-B-038-001-MY2. MOST Research Project for Newly-recruited Personnel, PI, FY2018- 2019
- [15] 107TMU-SHH-03. Taipei Medical University-Shuang Ho Hospital Collaboration Grant, PI (Co-PI: Dean Wu), FY2018
- [16] BAK-F1-2017. Einstein Center Chronoi & Einstein Foundation Berlin, Germany, Berliner Antike-Kolleg, PI, FY2017
- [17] 16H01652. Japan Society for the Promotion of Science (JSPS) & Japan Aerospace Exploration Agency (JAXA), Grant-in-Aid for Scientific Research on Innovative Area, Living in Spac, PI, FY2016 - 2017 (interrupted in 2017 due to relocation)
- [18] 16K08538. JSPS, Grant-in-Aid for Scientific Research, Scientific Research (C), PI, FY2016 - 2018 (interrupted in 2017 due to relocation)
- [19] GIE-54500. RIKEN Incentive Research Project, RIKEN, Japan, PI, FY2014
- [20] RIKEN BSI Director's Grant, RIKEN BSI, Japan, Co-I (PI: Toru Takumi), FY2013
- [21] BO 3612/2-1. Japan Science and Technology Agency (JST) & Deutsche Forschungsgemeinschaft (DFG), Co-investigator (German partner: Grigory Bordyugov and Hanspeter Herzel), FY2013-2015
- [22] RPG 24/2012. Human Frontier Science Program (HFSP) Research Grant, Collaborator (PI: Daniel Forger, Hugh Piggins and Toru Takumi), FY2012- 2015

### Selected Invited Talks

- 05/2022 2022 Biennial Society for Research on Biological Rhythms (SRBR) Meeting, FL, USA
- 05/2021 *Synchronization and Asynchronization in the Brain Circadian Oscillators*. Society for Industrial and Applied Mathematics (SIAM) Conference on Applications of Dynamical Systems (DS21), OR, USA  
<https://www.siam.org/conferences/cm/conference/ds21>
- 11/2019 *Synchronization and de-synchronization in the society of clocks*. Organizer, *Rhythms of Life, Brain, and Mind*, International Conference in Celebration of Taipei Medical University's 60<sup>th</sup> Anniversary, Taipei Medical University, Taiwan
- 05/2019 *Two-process model of brain metabolite clearance: sleep vs circadian clock*. International Taiwanese Congress of Neurology (ITCN), Taipei, Taiwan
- 11/2018 *Brain homeostasis, and hidden order in the system of circadian oscillators*, TMU/University of Lille Joint Symposium on Neurosciences, Taipei Medical University. Taiwan
- 05/2018 *The Choroid Plexus Circadian Clock: Mechanism of Synchronization, Retrograde Feedback to the SCN, and other Implications*, Society for Research on Biological Rhythms Meeting, FL, USA (declined)
- 03/2018 *Sleep-dependent and independent brain clearance and the choroid plexus circadian rhythm*, 16th Annual meeting of Taiwan Society of Sleep Medicine (TSSM), Taipei, Taiwan
- 10/2017 *Encoding information beyond the circadian timescale in the multi-oscillator circadian clock*, Institute of Physics Workshop on "Principles in Complex Biophysical Systems and Beyond", Academia Sinica, Taipei, Taiwan
- 10/2017 *Encoding information beyond the circadian timescale in the multi-oscillator circadian clock*, 4th East Asia Joint Seminars on Statistical Physics, National Sun-Yet-Sen University, Taiwan
- 07/2017 15th European Biological Rhythms Society Congress, Amsterdam, Netherlands (declined)
- 04/2016 *Circadian clock neurons in the SCN encode seasonal time*, 64th National Institute for Basic Biology (NIBB) Conference on Evolution of Seasonal Timers, Okazaki, Japan
- 07/2015 *Plasticity of the circadian clock network enables a seasonal clock*, Co-organizer, 38th Annual Meeting of the Japan Neuroscience Society, Kobe, Japan (chair)
- 09/2014 *Plasticity in the suprachiasmatic nucleus lies in individual neurons*, 37th Annual Meeting of the Japan Neuroscience Society, Yokohama, Japan
- 07/2014 *Plasticity in spatial patterning of clock phases in the neurons of the mammalian circadian center*, Co-organizer, Joint Annual Meeting of the Japanese Society for Mathematical Biology and the Society for Mathematical Biology, Osaka, Japan (chair)
- 07/2013 *A negative force of interaction within society of clocks*, Gordon Research Seminar on Chronobiology, Newport, RI, USA
- 09/2012 *Heterogeneity of intrinsic period as a basis of coding in the suprachiasmatic nucleus*, 19th Annual Meeting of Japanese Society for Chronobiology, Sapporo, Japan
- 05/2012 *Heterogeneity of intrinsic period as a basis of coding in the suprachiasmatic nucleus*, 12th Experimental Chaos and Complexity Conference, Ann Arbor, MI, USA

- 11/2009 *Functional anatomy of suprachiasmatic nucleus*, 114th Annual Meeting of the Japanese Association of Anatomists, Okayama, Japan
- 07/2009 *Circadian biology of SCN: Clocks within clocks*, 36th International Congress of Physiological Sciences (IUPS), Kyoto, Japan

### Other Academic Duties and Services

#### Editorial Board

- 10/2021-present Board Member, *Chronobiology in Medicine*, the official journal of the Korean Academy of Sleep Medicine (KASMED)
- 04/2021-present Review Editor, Chronobiology, *Frontiers in Physiology*
- 12/2020-present Topic Editor, “Coupling in Biological Systems: Definitions, Mechanisms, and Implications”, with Christoph Schmal, Sungho Hong, and Isao T. Tokuda, *Frontiers in Network Physiology*
- 12/2020-present Guest Associate Editor, Systems Biology, *Frontiers in Physiology*
- 07/2020-present Topic Editor, “Development of Circadian Clock Functions”, with Daisuke Ono, Rae Silver, Takahiro J. Nakamura, and Jeff Jones, *Frontiers in Neuroscience*
- 07/2020-present Guest Associate Editor, Sleep and Circadian Rhythms, *Frontiers in Neuroscience*
- 10/2020-present Review Editor, Molecular Signaling and Pathways, *Frontiers in Neuroscience*
- 05/2020-present Review Editor, Molecular Neuroscience, *Frontiers in Molecular Neuroscience*
- 09/2015–present Review Editor, Computational Physiology and Medicine, *Frontiers in Physiology*

#### Journal Article Reviews

*Nutrients (1), Molecular Brain (1), Toxins (1), PLOS Computational Biology (3), Cells (1), Journal of the Royal Society Interface (2), Molecular Medicine (1), eNeuro (1), Journal of Endocrinology (1), Journal of the Formosan Medical Association (1), Chronobiology International (1), Cellular and Molecular Life Sciences (1), Network Neuroscience (1), European Journal of Neuroscience (5), Scientific Reports (2), Frontiers in Physiology (9), PLOS ONE (1)*

#### Grant Reviews / Grant Committee

- 07/2020 Czech Science Foundation, Czech Republic
- 01/2020 Biotechnology and Biological Sciences Research Council (BBSRC), UK
- 08/2019 Economic & Social Research Council (ESRC), UK
- 11/2017, 10/2017 Biotechnology and Biological Sciences Research Council (BBSRC), UK
- 10/2017 Artificial Intelligence Research Committee, Shuang Ho Hospital, New Taipei City, Taiwan
- 09/2016 Economic & Social Research Council (ESRC), UK
- 05/2016 Incentive Research Projects Selection Committee, RIKEN, Japan
- 04/2016–2017 Review Committee, Japan Society for the Promotion of Science (JSPS), Japan
- 02/2016 Biotechnology and Biological Sciences Research Council (BBSRC), UK
- 05/2015 Incentive Research Projects Selection Committee, RIKEN, Japan

#### Conference Organization

- 11/2019 Organizer, International Conference in Celebration of Taipei Medical University’s 60<sup>th</sup> Anniversary, College of Humanities and Social Sciences, Taipei Medical University
- 2019-present Library Committee, Taipei Medical University
- 08/2015 Professional Development Committee, Society for Research on Biological Rhythms (SRBR), USA
- 2015–2016 Committee, BSI Postdoctoral Fellow Association (PDFA), RIKEN BSI, Japan
- 07/2015 Co-organizer (with Daisuke Ono), Mini-symposium, 38th Annual Meeting of the Japan Neuroscience Society, Kobe, Japan
- 07/2014 Co-organizer (with Prof. Casey O. Diekman), Mini-symposium, Joint Annual Meeting of the Japanese Society for Mathematical Biology and the Society for Mathematical Biology, Osaka, Japan

#### Thesis Committee

Chieh Wen Ho (National Taiwan University, 2021); Amalia Ridla Rahim (Taipei Medical University, 2020); Vuong Hung Truong, 2019)

### Academic Memberships

Society for Research on Biological Rhythms (USA), Japanese Society for Chronobiology (Japan), Taiwan Society of Sleep Medicine (Taiwan), European Biological Rhythms Society (EU)