

## List of Publications in 2020

### WPI papers

#### 1. Original articles

1. Abe T, Mishima K, Kitamura S, Hida A, Inoue Y, Mizuno K, Kaida K, Nakazaki K, Motomura Y, Maruo K, Ohta T, Furukawa S, Dinges DF, Ogata K (2020) Tracking intermediate performance of vigilant attention using multiple eye metrics. *Sleep* **43**(3). Doi:10.1093/sleep/zsz219
2. Bjorness TE, Greene RW (2020) Sleep Deprivation Enhances Cocaine Conditioned Place Preference in an orexin Receptor-Modulated Manner. *Eneuro* **7**(6). Doi:10.1523/ENEURO.0283-20.2020
3. Bjorness TE, Kulkarni A, Rybalchenko V, Suzuki A, Bridges C, Harrington AJ, Cowan CW, Takahashi JS, Konopka G, Greene RW (2020) An essential role for MEF2C in the cortical response to loss of sleep in mice. *eLife* **9**. doi:10.7554/eLife.58331
4. Chang YH, Katoh MC, Abdellatif AM, Xiafukaiti G, Elzeftawy A, Ojima M, Mizuno S, Kuno A, Takahashi S (2020) Uncovering the role of MAFB in glucagon production and secretion in pancreatic alpha-cells using a new alpha-cell-specific Mafb conditional knockout mouse model. *Exp Anim Tokyo* **69**(2): 178-188. Doi:10.1538/expanim.19-0105
5. Choi D, Sato T, Ando T, Abe T, Akamatsu M, Kitazaki S (2020) Effects of cognitive and visual loads on driving performance after take-over request (TOR) in automated driving. *Appl Ergon* **85**. Doi:10.1016/j.apergo.2020.103074
6. Daida K, Ogaki K, Hayashida A, Ando M, Yokoyama K, Noda K, Kanbayashi T, Hattori N, Okuma Y (2020) Somnolence Preceded the Development of a Subthalamic Lesion in Neuromyelitis Optica Spectrum Disorder. *Internal Med* **59**(4): 577-579. Doi:10.2169/internalmedicine.2947-19
7. Deng ZB, Matsumoto Y, Kuno A, Ojima M, Xiafukaiti G, Takahashi S (2020) An Inducible Diabetes Mellitus Murine Model Based on MafB Conditional Knockout under MafA-Deficient Condition. *Int J Mol Sci* **21**(16). Doi:10.3390/ijms21165606
8. Disha SI, Furlani B, Drevensek G, Plut A, Yanagisawa M, Hudoklin S, Zitnik IP, Marc J, Drevensek M (2020) The role of endothelin B receptor in bone modelling during orthodontic tooth movement: a study on-ETB knockout rats. *Sci Rep* **10**(1). Doi:10.1038/s41598-020-71159-8
9. Enomoto M, Kitamura S, Tachimori H, Takeshima M, Mishima K (2020) Long-term use of hypnotics: Analysis of trends and risk factors. *Gen Hosp Psychiat* **62**: 49-55. Doi:10.1016/j.genhosppsy.2019.11.008
10. Fujino M, Tagami A, Ojima M, Mizuno S, Abdellatif AM, Kuno A, Takahashi S (2020) c-MAF deletion in adult C57BL/6J mice induces cataract formation and abnormal differentiation of lens fiber cells. *Exp Anim Tokyo* **69**(2): 242-249. Doi:10.1538/expanim.19-0137
11. Fukuda K, Shibata Y, Sato H, Okabe S (2020) How the large-scale blackout following the 2018 Hokkaido Eastern Iburi earthquake impacted adolescents' sleep patterns. *Sleep Biol Rhythms* **18**(4): 351-354. Doi:10.1007/s41105-020-00278-6
12. Hashimoto M, Kumabe A, Kim JD, Murata K, Sekizar S, Williams A, Lu WZ, Ishida J, Nakagawa T, Endo M, Minami Y, Fukamizu A (2020) Loss of PRMT1 in the central nervous system (CNS) induces reactive astrocytes and microglia during postnatal brain development. *J Neurochem*. Doi:10.1111/jnc.15149
13. Hirose Y, Kitazono T, Sezaki M, Abe M, Sakimura K, Funato H, Handa H, Vogt KE, Yanagisawa M (2020) Hypnotic effect of thalidomide is independent of teratogenic ubiquitin/proteasome pathway. *P Natl Acad Sci USA* **117**(37): 23106-23112. Doi:10.1073/pnas.1917701117
14. Honda T, Takata Y, Cherasse Y, Mizuno S, Sugiyama F, Takahashi S, Funato H, Yanagisawa M, Lazarus M, Oishi Y (2020) Ablation of Ventral Midbrain/Pons GABA Neurons Induces Mania-like

- Behaviors with Altered Sleep Homeostasis and Dopamine D2R-mediated Sleep Reduction. *Isience* **23**(6). Doi:10.1016/j.isci.2020.101240
15. Hori D, Sasahara S, Doki S, Oi Y, Matsuzaki I (2020) Prefrontal activation while listening to a letter of gratitude read aloud by a coworker face-to-face: A NIRS study. *Plos One* **15**(9). Doi:10.1371/journal.pone.0238715
  16. Hori D, Sasahara S, Oi Y, Doki S, Andrea CS, Takahashi T, Shiraki N, Ikeda T, Ikeda Y, Kambayashi T, Aoki E, Matsuzaki I (2020) Relationships between insomnia, long working hours, and long commuting time among public school teachers in Japan: a nationwide cross-sectional diary study. *Sleep Med* **75**: 62-72. Doi:10.1016/j.sleep.2019.09.017
  17. Ikeda T, Hori D, Ikeda Y, Takahashi T, Shiraki N, Andrea CS, Ohtaki Y, Doki S, Oi Y, Sasahara S, Saito T, Matsuzaki I (2020) School Ijime (Bullying) Experience Is a Possible Risk Factor for Current Psychological Distress among Science City Workers: A Cross-Sectional Study in Tsukuba, Japan. *Tohoku J Exp Med* **250**(4): 223-231. Doi:10.1620/tjem.250.223
  18. Imanishi A, Kawazoe T, Hamada Y, Kumagai T, Tsutsui K, Sakai N, Eto K, Noguchi A, Shimizu T, Takahashi T, Han G, Mishima K, Kanbayashi T, Kondo H (2020) Early detection of Niemann-pick disease type C with cataplexy and orexin levels: continuous observation with and without Miglustat. *Orphanet J Rare Dis* **15**(1). Doi:10.1186/s13023-020-01531-4
  19. Jia DL, Bai PY, Wan NF, Liu J, Zhu Q, He YH, Chen GL, Wang J, Chen H, Wang C, Lyu AK, Lazarus M, Su YC, Urade Y, Yu Y, Zhang J, Shen YJ (2020) Niacin Attenuates Pulmonary Hypertension Through H-PGDS in Macrophages. *Circ Res* **127**(10): 1323-1336. Doi:10.1161/CIRCRESAHA.120.316784
  20. Kaida K, Abe T, Iwaki S (2020) Counteracting effect of verbal ratings of sleepiness on dual task interference. *Ind Health* **58**(5): 443-450. Doi:10.2486/indhealth.2020-0005
  21. Kanai M, Jeon H, Ojima M, Nishino T, Usui T, Yadav MK, Kulathunga K, Morito N, Takahashi S, Hamada M (2020) Phenotypic analysis of mice carrying human-type MAFB p.Leu239Pro mutation. *Biochem Bioph Res Co* **523**(2): 452-457. Doi:10.1016/j.bbrc.2019.12.033
  22. Kashiwagi M, Kanuka M, Tatsuzawa C, Suzuki H, Morita M, Tanaka K, Kawano T, Shin JW, Suzuki H, Itohara S, Yanagisawa M, Hayashi Y (2020) Widely Distributed Neurotensinergic Neurons in the Brainstem Regulate NREM Sleep in Mice. *Curr Biol* **30**(6): 1002-1010. doi:10.1016/j.cub.2020.01.047
  23. Kawasaki M, Kambe A, Yamamoto Y, Arulmozhiraja S, Ito S, Nakagawa Y, Tokiwa H, Nakano S, Shimano H (2020) Elucidation of Molecular Mechanism of a Selective PPAR alpha Modulator, Pemafibrate, through Combinational Approaches of X-ray Crystallography, Thermodynamic Analysis, and First-Principle Calculations. *Int J Mol Sci* **21**(1). Doi:10.3390/ijms21010361
  24. Kong DP, Wan QY, Li JJ, Zuo SK, Liu GZ, Liu Q, Wang CC, Bai PY, Duan SZ, Zhou B, Gounari F, Lyu AK, Lazarus M, Breyer RM, Yu Y (2020) DP1 Activation Reverses Age-Related Hypertension Via NEDD4L-Mediated T-Bet Degradation in T Cells. *Circulation* **141**(8): 655-666. Doi:10.1161/CIRCULATIONAHA.119.042532
  25. Kumar D, Koyanagi I, Carrier-Ruiz A, Vergara P, Srinivasan S, Sugaya Y, Kasuya M, Yu TS, Vogt KE, Muratani M, Ohnishi T, Singh S, Teixeira CM, Cherasse Y, Naoi T, Wang SH, Nondhalee P, Osman BAH, Kaneko N, Sawamoto K, Kernie SG, Sakurai T, McHugh TJ, Kano M, Yanagisawa M, Sakaguchi M (2020) Sparse Activity of Hippocampal Adult-Born Neurons during REM Sleep Is Necessary for Memory Consolidation. *Neuron* **107**(3): 552-565. Doi:10.1016/j.neuron.2020.05.008
  26. Kutsumura N, Koyama Y, Saitoh T, Yamamoto N, Nagumo Y, Miyata Y, Hokari R, Ishiyama A, Iwatsuki M, Otoguro K, Omura S, Nagase H (2020) Structure-Activity Relationship between Thiol Group-Trapping Ability of Morphinan Compounds with a Michael Acceptor and Anti-Plasmodium

- falciparum Activities. *Molecules* **25**(5). Doi:10.3390/molecules25051112
27. Li R, Wang YQ, Liu WY, Zhang MQ, Li L, Cherasse Y, Schiffmann SN, d'Exaerde AD, Lazarus M, Qu WM, Huang ZL (2020) Activation of adenosine A(2A) receptors in the olfactory tubercle promotes sleep in rodents. *Neuropharmacology* **168**. Doi:10.1016/j.neuropharm.2019.107923
  28. Li YD, Bao HC, Luo YJ, Yoan C, Sullivan HA, Quintanilla L, Wickersham I, Lazarus M, Shin YYI, Song J (2020) Supramammillary nucleus synchronizes with dentate gyrus to regulate spatial memory retrieval through glutamate release. *eLife* **9**. Doi:10.7554/eLife.53129
  29. Li YD, Ge J, Luo YJ, Xu W, Wang J, Lazarus M, Hong ZY, Qu WM, Huang ZL (2020) High cortical delta power correlates with aggravated allodynia by activating anterior cingulate cortex GABAergic neurons in neuropathic pain mice. *Pain* **161**(2): 288-299. Doi:10.1097/j.pain.0000000000001725
  30. Li YD, Luo YJ, Xu W, Ge J, Cherasse Y, Wang YQ, Lazarus M, Qu WM, Huang ZL (2020) Ventral pallidal GABAergic neurons control wakefulness associated with motivation through the ventral tegmental pathway. *Mol Psychiatr*. Doi:10.1038/s41380-020-00906-0
  31. Lou TT, Ma J, Wang ZQ, Terakoshi Y, Lee CY, Asher G, Cao LQ, Chen ZY, Sakurai K, Liu QH (2020) Hyper-Activation of mPFC Underlies Specific Traumatic Stress-Induced Sleep-Wake EEG Disturbances. *Front Neurosci* **14**. Doi:10.3389/fnins.2020.00883
  32. Maezono SEB, Kanuka M, Tatsuzawa C, Morita M, Kawano T, Kashiwagi M, Nondhalee P, Sakaguchi M, Saito T, Saido TC, Hayashi Y (2020) Progressive Changes in Sleep and Its Relations to Amyloid-beta Distribution and Learning in Single App Knock-In Mice. *eNeuro* **7**(2). Doi:10.1523/ENEURO.0093-20.2020
  33. Matsumoto S, Ohyama K, Diaz J, Yanagisawa M, Greene RW, Vogt KE (2020) Enhanced cortical responsiveness during natural sleep in freely behaving mice. *Sci Rep* **10**(1). Doi:10.1038/s41598-020-59151-8
  34. Matsuura Y, Ishikawa Y, Murayama Y, Yokoyama T, Somerville RA, Kitamoto T, Mohri S (2020) Eliminating transmissibility of bovine spongiform encephalopathy by dry-heat treatment. *J Gen Virol* **101**(1): 136-142. Doi:10.1099/jgv.0.001335
  35. Matsuzaka T, Kuba M, Koyasu S, Yamamoto Y, Motomura K, Arulmozhiraja S, Ohno H, Sharma R, Shimura T, Okajima Y, Han SI, Aita Y, Mizunoe Y, Osaki Y, Iwasaki H, Yatoh S, Suzuki H, Sone H, Takeuchi Y, Yahagi N, Miyamoto T, Sekiya M, Nakagawa Y, Ema M, Takahashi S, Tokiwa H, Shimano H (2020) Hepatocyte ELOVL Fatty Acid Elongase 6 Determines Ceramide Acyl-Chain Length and Hepatic Insulin Sensitivity in Mice. *Hepatology* **71**(5): 1609-1625. Doi:10.1002/hep.30953
  36. Miidera H, Enomoto M, Kitamura S, Tachimori H, Mishima K (2020) Association Between the Use of Antidepressants and the Risk of Type 2 Diabetes: A Large, Population-Based Cohort Study in Japan. *Diabetes Care* **43**(4): 885-893. Doi:10.2337/dc19-1175
  37. Miyazaki S, Leproux P, Couderc V, Hayashi Y, Kano H (2020) Multimodal nonlinear optical imaging of *Caenorhabditis elegans* with multiplex coherent anti-Stokes Raman scattering, third-harmonic generation, second-harmonic generation, and two-photon excitation fluorescence. *App Phys Express* **13**(7). Doi:10.35848/1882-0786/ab9711
  38. Miyazaki T, Kanda T, Tsujino N, Ishii R, Nakatsuka D, Kizuka M, Kasagi Y, Hino H, Yanagisawa M (2020) Dynamics of Cortical Local Connectivity during Sleep-Wake States and the Homeostatic Process. *Cereb Cortex* **30**(7): 3977-3990. Doi:10.1093/cercor/bhaa012
  39. Mizunoe Y, Kobayashi M, Hoshino S, Tagawa R, Itagawa R, Hoshino A, Okita N, Sudo Y, Nakagawa Y, Shimano H, Higami Y (2020) Cathepsin B overexpression induces degradation of perilipin 1 to cause lipid metabolism dysfunction in adipocytes. *Sci Rep* **10**(1). Doi:10.1038/s41598-020-57428-

40. Morita E, Yanagisawa M, Ishihara A, Matsumoto S, Suzuki C, Ikeda Y, Ishitsuka M, Hori D, Doki S, Oi Y, Sasahara S, Matsuzaki I, Satoh M (2020) Association of wood use in bedrooms with comfort and sleep among workers in Japan: a cross-sectional analysis of the SLEep Epidemiology Project at the University of Tsukuba (SLEPT) study. *J Wood Sci* **66**(1). Doi:10.1186/s10086-020-1852-y
41. Nagaura Y, Kondo H, Nagayoshi M, Maeda T (2020) Sarcopenia is associated with insomnia in Japanese older adults: a cross-sectional study of data from the Nagasaki Islands study. *BMC Geriatrics* **20**(1). Doi:10.1186/s12877-020-01658-w
42. Nagumo Y, Katoh K, Iio K, Saitoh T, Kutsumura N, Yamamoto N, Ishikawa Y, Irukayama-Tomobe Y, Ogawa Y, Baba T, Tanimura R, Yanagisawa M, Nagase H (2020) Discovery of attenuation effect of orexin 1 receptor to aversion of nalfurafine: Synthesis and evaluation of D-nor-nalfurafine derivatives and analyses of the three active conformations of nalfurafine. *Bioorg Med Chem Lett* **30**(17). Doi:10.1016/j.bmcl.2020.127360
43. Nagumo Y, Ueta Y, Nakayama H, Osaki H, Takeuchi Y, Uesaka N, Kano M, Miyata M (2020) Tonic GABAergic Inhibition Is Essential for Nerve Injury-Induced Afferent Remodeling in the Somatosensory Thalamus and Ectopic Sensations. *Cell Rep* **31**(12). Doi:10.1016/j.celrep.2020.107797
44. Nakai A, Fujiyama T, Nagata N, Kashiwagi M, Ikkyu A, Takagi M, Tatsuzawa C, Tanaka K, Kakizaki M, Kanuka M, Kawano T, Mizuno S, Sugiyama F, Takahashi S, Funato H, Sakurai T, Yanagisawa M, Hayashi Y (2020) Sleep Architecture in Mice Is Shaped by the Transcription Factor AP-2 beta. *Genetics* **216**(3): 753-764. Doi:10.1534/genetics.120.303435
45. Natori Y, Sasaki E, Soeda S, Furukawa S, Azami Y, Tokuda E, Kanbayashi T, Saji S (2020) Risk of immunotherapy-related narcolepsy in genetically predisposed patients: a case report of narcolepsy after administration of pembrolizumab. *J Immunother Cancer* **8**(2). Doi:10.1136/jitc-2020-001164
46. Noguchi K, Ishida J, Kim JD, Muromachi N, Kako K, Mizukami H, Lu WZ, Ishimaru T, Kawasaki S, Kaneko S, Usui J, Ohtsu H, Yamagata K, Fukamizu A (2020) Histamine receptor agonist alleviates severe cardiorenal damages by eliciting anti-inflammatory programming. *P Natl Acad Sci USA* **117**(6): 3150-3156. Doi:10.1073/pnas.1909124117
47. Ogata H, Horie M, Kayaba M, Tanaka Y, Ando A, Park I, Zhang SM, Yajima K, Shoda J, Omi N, Kaneko M, Kiyono K, Satoh M, Tokuyama K (2020) Skipping Breakfast for 6 Days Delayed the Circadian Rhythm of the Body Temperature without Altering Clock Gene Expression in Human Leukocytes. *Nutrients* **12**(9). Doi:10.3390/nu12092797
48. Ogawa Y, Miyoshi C, Obana N, Yajima K, Hotta-Hirashima N, Ikkyu A, Kanno S, Soga T, Fukuda S, Yanagisawa M (2020) Gut microbiota depletion by chronic antibiotic treatment alters the sleep/wake architecture and sleep EEG power spectra in mice. *Sci Rep* **10**(1). Doi:10.1038/s41598-020-76562-9
49. Ohyama K, Kanda T, Miyazaki T, Tsujino N, Ishii R, Ishikawa Y, Muramoto H, Grenier F, Makino Y, McHugh TJ, Yanagisawa M, Greene RW, Vogt KE (2020) Structure of cortical network activity across natural wake and sleep states in mice. *Plos One* **15**(5). Doi:10.1371/journal.pone.0233561
50. Okabe S, Hayashi M, Abe T, Fukuda K (2020) Presentation of familiar odor induces negative dream emotions during rapid eye movement (REM) sleep in healthy adolescents. *Sleep Med* **66**: 227-232. Doi:10.1016/j.sleep.2019.11.1260
51. Omori S, Wang TW, Johmura Y, Kanai T, Nakano Y, Kido T, Susaki EA, Nakajima T, Shichino S, Ueha S, Ozawa M, Yokote K, Kumamoto S, Nishiyama A, Sakamoto T, Yamaguchi K, Hatakeyama S, Shimizu E, Katayama K, Yamada Y, Yamazaki S, Iwasaki K, Miyoshi C, Funato H, Yanagisawa M, Ueno H, Imoto S, Furukawa Y, Yoshida N, Matsushima K, Ueda HR, Miyajima A, Nakanishi M (2020)

Generation of a p16 Reporter Mouse and Its Use to Characterize and Target p16(high) Cells In Vivo. *Cell Metab* **32**(5): 814-828. Doi:10.1016/j.cmet.2020.09.006

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53. Park M, Miyoshi C, Fujiyama T, Kakizaki M, Ikkyu A, Honda T, Choi J, Asano F, Mizuno S, Takahashi S, Yanagisawa M, Funato H (2020) Loss of the conserved PKA sites of SIK1 and SIK2 increases sleep need. *Sci Rep* **10**(1). Doi:10.1038/s41598-020-65647-0
54. Saitoh T, Seki K, Nakajima R, Yamamoto N, Kutsumura N, Nagumo Y, Irukayama-Tomobe Y, Ogawa Y, Ishikawa Y, Yanagisawa M, Nagase H (2020) Essential structure of orexin 1 receptor antagonist YNT-707, part V: Structure-activity relationship study of the substituents on the 17-amino group. *Bioorg Med Chem Lett* **30**(3). Doi:10.1016/j.bmcl.2019.126893
55. Sasahara S, Andrea CS, Suzuki G, Oi Y, Doki S, Hori D, Ohira T, Matsuda C, Inoue N, Takahashi T, Ohtaki Y, Saito T, Furukawa S, Ogata K, Matsuzaki I (2020) Effect of exercise on brain function as assessed by functional near-infrared spectroscopy during a verbal fluency test in a simulated International Space Station environment: A single-case, experimental ABA study in Japan. *Acta Astronauti* **166**: 238-242. Doi:10.1016/j.actaastro.2019.10.013
56. Satoh A, Han S, Araki M, Nakagawa Y, Ohno H, Mizunoe Y, Kumagai K, Murayama Y, Osaki Y, Iwasaki H, Sekiya M, Konishi M, Itoh N, Matsuzaka T, Sone H, Shimano H (2020) CREBH Improves Diet-Induced Obesity, Insulin Resistance, and Metabolic Disturbances by FGF21-Dependent and FGF21-Independent Mechanisms. *Iscience* **23**(3). Doi:10.1016/j.isci.2020.100930
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59. Suzuki A, Yanagisawa M, Greene RW (2020) Loss of Arc attenuates the behavioral and molecular responses for sleep homeostasis in mice. *P Natl Acad Sci USA* **117**(19): 10547-10553. Doi:10.1073/pnas.1906840117
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65. Umeno S, Kato C, Nagaura Y, Kondo H, Eto H (2020) Characteristics of sleep/wake problems and delivery outcomes among pregnant Japanese women without gestational complications. *BMC Preg Childbirth* **20**(1). Doi:10.1186/s12884-020-02868-1
66. Urashima K, Ichinose K, Kondo H, Maeda T, Kawakami A, Ozawa H (2020) The prevalence of insomnia and restless legs syndrome among Japanese outpatients with rheumatic disease: A cross-sectional study. *Plos One* **15**(3). Doi:10.1371/journal.pone.0230273
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68. Yadav MK, Inoue Y, Nakane-Otani A, Tsunakawa Y, Jeon H, Samir O, Teramoto A, Kulathunga K, Kusakabe M, Nakamura M, Kudo T, Takahashi S, Hamada M (2020) Transcription factor MafB is a marker of tumor-associated macrophages in both mouse and humans. *Biochem Bioph Res Co* **521**(3): 590-595. Doi:10.1016/j.bbrc.2019.10.125
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70. Zavjalov E, Zaboronok A, Kanygin V, Kasatova A, Kichigin A, Mukhamadiyarov R, Razumov I, Sycheva T, Mathis BJ, Maezono SEB, Matsumura A, Taskaev S (2020) Accelerator-based boron neutron capture therapy for malignant glioma: a pilot neutron irradiation study using boron phenylalanine, sodium borocaptate and liposomal borocaptate with a heterotopic U87 glioblastoma model in SCID mice. *Int J Radiat Biol* **96**(7): 868-878. Doi:10.1080/09553002.2020.1761039
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## 2. Review articles

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