

# Stanford

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## Seiji Nishino

Professor (Research) of Psychiatry & Behavioral Sciences, Emeritus  
Psychiatry and Behavioral Sciences - Sleep Medicine

### Bio

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#### ACADEMIC APPOINTMENTS

- Professor Emeritus, Psychiatry and Behavioral Sciences - Sleep Medicine

#### LINKS

- SCN lab: <http://med.stanford.edu/school/Psychiatry/scn/>

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

The research focus of the Sleep and Circadian Neurobiology (SCN) Laboratory is the study of the sleep and circadian physiology using various animal models. A portion of the research is carried out using rodent models of narcolepsy and circadian rhythm sleep disorders. The laboratory also carries out pharmacological studies aiming to develop new treatments for these sleep disorders.

### Teaching

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#### STANFORD ADVISEES

##### Postdoctoral Faculty Sponsor

Naoya Maeda-Nishino

### Publications

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#### PUBLICATIONS

- **Eurycoma longifolia (Tongkat Ali) enhances wakefulness during active periods but facilitates sleep during resting periods in C57BL/6 mice.** *The European journal of neuroscience*  
Ono, T., Nishino, N., Iwai, Y., Iwai, Y., Sakai, N., Kuroki, Y., Nishino, S.  
2023
- **BMAL1 loss in oligodendroglia contributes to abnormal myelination and sleep.** *Neuron*  
Rojo, D., Dal Cengio, L., Badner, A., Kim, S., Sakai, N., Greene, J., Dierckx, T., Mehl, L. C., Eisinger, E., Ransom, J., Arellano-Garcia, C., Gumma, M. E., Soyk, et al  
2023
- **Analysis of the Effects of Known Sleep-Support Supplements in Relation to Life Habits, Sleep Conditions, and Sleep Problems.** *Nutrients*  
Imafuku, F., Yamamoto, K., Tanaka, E., Aoki, R., Nishino, S.  
2023; 15 (10)

- **PARTIAL BLUE LIGHT BLOCKING GLASSES ADVANCED SLEEP PHASE BUT DID NOT ALTER SALIVARY MELATONIN SECRETION IN JAPANESE SCHOOLCHILDREN**  
Maeda-Nishino, N., Yoshimoto, R., Ono, T., Chiba, S., Nishino, S.  
OXFORD UNIV PRESS INC.2023: A138
- **Changes in sleep profile on exposure to sodium chloride and artificially carbonated springs: a pilot study.** *Journal of physical therapy science*  
Uemura, S. I., Kanbayashi, T., Ito, W., Terui, Y., Satake, M., Han, G. E., Shioya, T., Nishino, S.  
2023; 35 (5): 330-339
- **Characteristics of hypersomnia due to inflammatory demyelinating diseases of the central nervous system.** *BMJ neurology open*  
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2023; 5 (1): e000428
- **Comparison of Solriamfetol and Modafinil on Arousal and Anxiety-Related Behaviors in Narcoleptic Mice.** *Neurotherapeutics : the journal of the American Society for Experimental NeuroTherapeutics*  
Sakai, N., Nishino, S.  
2022
- **Influences of sleep and lifestyle factors on the risk for covid-19 infections, from internet survey of 10,000 Japanese business workers.** *Scientific reports*  
Nakashima, M., Amano, R., Nishino, N., Osada, Y., Watanabe, Y., Miyake, A., Chiba, S., Nishino, S.  
2022; 12 (1): 19640
- **Social stress alters sleep in FGF21-deficient mice.** *Brain research bulletin*  
Hokari, S., Chikahisa, S., Shiuchi, T., Nakayama, Y., Konishi, M., Nishino, S., Itoh, N., Séi, H.  
2022
- **Maturation and circuit integration of transplanted human cortical organoids.** *Nature*  
Revah, O., Gore, F., Kelley, K. W., Andersen, J., Sakai, N., Chen, X., Li, M. Y., Birey, F., Yang, X., Saw, N. L., Baker, S. W., Amin, N. D., Kulkarni, et al  
2022; 610 (7931): 319-326
- **Pharmacologic Management of Excessive Daytime Sleepiness.** *Sleep medicine clinics*  
Ono, T., Takenoshita, S., Nishino, S.  
2022; 17 (3): 485-503
- **Residual effects of low dose of suvorexant, zolpidem, and ramelteon in healthy elderly subjects: A randomized double-blind study.** *Neuropsychopharmacology reports*  
Uemura, S. I., Imanishi, A., Terui, Y., Park, I., Satake, M., Han, G., Shioya, T., Kanbayashi, T., Nishino, S.  
2022
- **Brain Mast Cells in Sleep and Behavioral Regulation.** *Current topics in behavioral neurosciences*  
Nishino, S., Sakai, N., Nishino, N., Ono, T.  
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- **A rare genetic variant in the cleavage site of prepro-orexin is associated with idiopathic hypersomnia.** *NPJ genomic medicine*  
Miyagawa, T., Tanaka, S., Shimada, M., Sakai, N., Tanida, K., Kotorii, N., Kotorii, T., Ariyoshi, Y., Hashizume, Y., Ogi, K., Hiejima, H., Kanbayashi, T., Imanishi, et al  
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- **"Atypical psychoses" and anti-NMDA receptor encephalitis: a review of literature in the mid-twentieth century.** *Psychiatry and clinical neurosciences*  
Komagamine, T., Kanbayashi, T., Suzuki, K., Hirata, K., Nishino, S.  
2021
- **Sake yeast induces the sleep-promoting effects under the stress-induced acute insomnia in mice.** *Scientific reports*  
Nishimon, S., Sakai, N., Nishino, S.  
2021; 11 (1): 20816
- **Altered responses of end-expiratory lung volume and upper airway patency to body posture in diet-induced obese mice.** *Physiological reports*  
Takahashi, T., Sakai, N., Nishino, S.  
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- **Genetic and demographic predisposing factors associated with pediatric sleepwalking in the Philadelphia Neurodevelopmental Cohort.** *Journal of the neurological sciences*  
Chiba, Y., Phillips, O. R., Takenoshita, S., Ollila, H. M., Hallmayer, J. F., Nishino, S., Singh, M. K.  
2021; 430: 119997
- **Advances in the pharmacological management of non-24-h sleep-wake disorder.** *Expert opinion on pharmacotherapy*  
Nishimon, S., Nishino, N., Nishino, S.  
2021: 1–11
- **Intracranial mast cells contribute to the control of social behavior in male mice.** *Behavioural brain research*  
Tanioka, D., Chikahisa, S., Shimizu, N., Shiuchi, T., Sakai, N., Nishino, S., Sei, H.  
2021: 113143
- **The anticataplectic and REM suppression effect of milnacipran, an SNRI, on human and canine narcolepsy** *SLEEP AND BIOLOGICAL RHYTHMS*  
Kaneko, Y., Inoue, Y., Fujiki, N., Han, G., Nishino, S., Shimizu, T., Kanbayashi, T., Kondo, H.  
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- **Detailed evaluation of the upper airway in the Dp(16)1Yey mouse model of Down syndrome.** *Scientific reports*  
Takahashi, T., Sakai, N., Iwasaki, T., Doyle, T. C., Mobley, W. C., Nishino, S.  
2020; 10 (1): 21323
- **Evaluations of effects of sleep surfaces on athletic performance in youth.** *Scientific reports*  
Maruyama, T., Sato, S., Matsumura, M., Ono, T., Nishida, M., Nishino, S.  
2020; 10 (1): 11805
- **Pharmacologic Management of Excessive Daytime Sleepiness.** *Sleep medicine clinics*  
Takenoshita, S., Nishino, S.  
2020; 15 (2): 177–94
- **Neuronal defects in a human cellular model of 22q11.2 deletion syndrome.** *Nature medicine*  
Khan, T. A., Revah, O. n., Gordon, A. n., Yoon, S. J., Krawisz, A. K., Goold, C. n., Sun, Y. n., Kim, C. H., Tian, Y. n., Li, M. Y., Schaepe, J. M., Ikeda, K. n., Amin, et al  
2020
- **Intraperitoneal injection of ginkgolide B, a major active compound of Ginkgo biloba, dose-dependently increases the amount of wake and decreases non-rapid eye movement sleep in C57BL/6 mice.** *Neuroscience letters*  
Nishimon, S. n., Yamaguchi, M. n., Muraki, H. n., Sakai, N. n., Nishino, S. n.  
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- **Tasimelteon for treating non-24-h sleep-wake rhythm disorder** *EXPERT OPINION ON PHARMACOTHERAPY*  
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- **Tasimelteon for treating non-24-h sleep-wake rhythm disorder.** *Expert opinion on pharmacotherapy*  
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- **BRAIN RESIDENT MAST CELLS REGULATE BRAIN HISTAMINE CONTENT AND PROMOTE WAKEFULNESS**  
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- **HPLC analysis of CSF hypocretin-1 in type 1 and 2 narcolepsy.** *Scientific reports*  
Sakai, N., Matsumura, M., Lin, L., Mignot, E., Nishino, S.  
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- **Measurement of cerebrospinal fluid orexin-A (hypocretin-1) by enzyme-linked immunosorbent assay: A comparison with radioimmunoassay** *PSYCHIATRY AND CLINICAL NEUROSCIENCES*  
Ono, T., Kanbayashi, T., Yoshizawa, K., Nishino, S., Shimizu, T.  
2018; 72 (11): 849–50

- **High rebound mattress toppers facilitate core body temperature drop and enhance deep sleep in the initial phase of nocturnal sleep** *PLOS ONE*  
Chiba, S., Yagi, T., Ozone, M., Matsumura, M., Sekiguchi, H., Ganeko, M., Uchida, S., Nishino, S.  
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- **An overview of hypocretin based therapy in narcolepsy** *EXPERT OPINION ON INVESTIGATIONAL DRUGS*  
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- **Advances in pharmaceutical treatment options for narcolepsy** *EXPERT OPINION ON ORPHAN DRUGS*  
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- **Low dose of aripiprazole advanced sleep rhythm and reduced nocturnal sleep time in the patients with delayed sleep phase syndrome: an open-labeled clinical observation** *NEUROPSYCHIATRIC DISEASE AND TREATMENT*  
Omori, Y., Kanbayashi, T., Sagawa, Y., Imanishi, A., Tsutsui, K., Takahashi, Y., Takeshima, M., Takaki, M., Nishino, S., Shimizu, T.  
2018; 14: 1281–86
- **Mast cell involvement in glucose tolerance impairment caused by chronic mild stress with sleep disturbance** *SCIENTIFIC REPORTS*  
Chikahisa, S., Harada, S., Shimizu, N., Shiuchi, T., Otsuka, A., Nishino, S., Sei, H.  
2017; 7: 13640
- **Pharmacologic Management of Excessive Daytime Sleepiness.** *Sleep medicine clinics*  
Takenoshita, S., Nishino, S.  
2017; 12 (3): 461-478
- **N-Methyl-D-aspartate receptor antibody could be a cause of catatonic symptoms in psychiatric patients: case reports and methods for detection** *NEUROPSYCHIATRIC DISEASE AND TREATMENT*  
Tsutsui, K., Kanbayashi, T., Takaki, M., Omori, Y., Imai, Y., Nishino, S., Tanaka, K., Shimizu, T.  
2017; 13: 339-345
- **Wake-promoting effects of ONO-4127Na, a prostaglandin DP1 receptor antagonist, in hypocretin/orexin deficient narcoleptic mice.** *Neuropharmacology*  
Sagawa, Y., Sato, M., Sakai, N., Chikahisa, S., Chiba, S., Maruyama, T., Yamamoto, J., Nishino, S.  
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- **Decline of CSF orexin (hypocretin) levels in Prader-Willi syndrome.** *American journal of medical genetics. Part A*  
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- **Decline of CSF orexin (hypocretin) levels in Prader-Willi syndrome.** *American journal of medical genetics. Part A*  
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- **A PERIOD3 variant causes a circadian phenotype and is associated with a seasonal mood trait** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
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- **A PERIOD3 variant causes a circadian phenotype and is associated with a seasonal mood trait.** *Proceedings of the National Academy of Sciences of the United States of America*  
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- **Residual effects of zolpidem, triazolam, rilmazafone and placebo in healthy elderly subjects: a randomized double-blind study.** *Sleep medicine*  
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2015; 16 (11): 1395-1402
- **Relationship of orexin (hypocretin) system and astrocyte activation in Parkinson's disease with hypersomnolence** *SLEEP AND BIOLOGICAL RHYTHMS*  
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- **The Sleep-Promoting and Hypothermic Effects of Glycine are Mediated by NMDA Receptors in the Suprachiasmatic Nucleus** *NEUROPSYCHOPHARMACOLOGY*  
Kawai, N., Sakai, N., Okuro, M., Karakawa, S., Tsuneyoshi, Y., Kawasaki, N., Takeda, T., Bannai, M., Nishino, S.  
2015; 40 (6): 1405-1416
- **Apnea during Cheyne-Stokes-like breathing detected by a piezoelectric sensor for screening of sleep disordered breathing** *SLEEP AND BIOLOGICAL RHYTHMS*  
Koyama, T., Sato, S., Kanbayashi, T., Kondo, H., Watanabe, H., Nishino, S., Shimizu, T., Ito, H., Ono, K.  
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- **Noninvasive detection of sleep/wake changes and cataplexy-like behaviors in orexin/ataxin-3 transgenic narcoleptic mice across the disease onset** *EXPERIMENTAL NEUROLOGY*  
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- **Noninvasive detection of sleep/wake changes and cataplexy-like behaviors in orexin/ataxin-3 transgenic narcoleptic mice across the disease onset.** *Experimental neurology*  
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2014; 37 (1): 187-194
- **[Anti-NMDA encephalitis in psychiatry; malignant catatonia, atypical psychosis and ECT].** *Rinsho shinkeigaku = Clinical neurology*  
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- **Wake-promoting effects of ONO-4127, a prostaglandin DP1 receptor antagonist, in hypocretin deficient narcoleptic mice** *21st Congress of the European-Sleep-Research-Society*  
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Tsutsui, K., Kanbayashi, T., Tanaka, K., Boku, S., Ito, W., Tokunaga, J., Mori, A., Hishikawa, Y., Shimizu, T., Nishino, S.  
2012; 12
- **Time-course of cerebrospinal fluid histamine in the wake-consolidated squirrel monkey** *JOURNAL OF SLEEP RESEARCH*  
Zeitzer, J. M., Kodama, T., Buckmaster, C. L., Honda, Y., Lyons, D. M., Nishino, S., Mignot, E.  
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- **Familial narcolepsy in the Lipizzaner horse: a report of three fillies born to the same sire** *VETERINARY QUARTERLY*  
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- **SUPRACHIASMATIC NUCLEUS IS ESSENTIAL FOR SLEEP-IMPROVING EFFECTS OF GLYCINE** *26th Annual Meeting of the Association-of-Professional-Sleep-Societies (APSS)*  
Sakai, N., Deguzman, C., Bannai, M., Nishino, S.  
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- **Using iPSC-derived neurons to uncover cellular phenotypes associated with Timothy syndrome** *NATURE MEDICINE*  
Pasca, S. P., Portmann, T., Voineagu, I., Yazawa, M., Shcheglovitov, A., Pasca, A. M., Cord, B., Palmer, T. D., Chikahisa, S., Nishino, S., Bernstein, J. A., Hallmayer, J., Geschwind, et al  
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- **Recent Advances in the Treatment of Narcolepsy** *CURRENT TREATMENT OPTIONS IN NEUROLOGY*  
Hirai, N., Nishino, S.  
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- **Refeeding after a 24-hour fasting deepens NREM sleep in a time-dependent manner** *PHYSIOLOGY & BEHAVIOR*  
Shimizu, N., Chikahisa, S., Kitaoka, K., Nishino, S., Sei, H.  
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- **The Pathophysiologic Basis of Secondary Narcolepsy and Hypersomnia** *CURRENT NEUROLOGY AND NEUROSCIENCE REPORTS*  
Kanbayashi, T., Sagawa, Y., Takemura, F., Ito, S., Tsutsui, K., Hishikawa, Y., Nishino, S.  
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Nishino, S., Mignot, E.  
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- **CHANGES IN BLOOD AMINO ACID LEVEL ASSOCIATED WITH SLEEP DEPRIVATION IN RATS** *25th Anniversary Meeting of the Associated-Professional-Sleep-Societies (APSS)*  
Sakai, N., Bannai, M., Nishino, S.  
AMER ACAD SLEEP MEDICINE.2011: A107-A107
- **BRAIN RESIDENT MAST CELLS AFFECT SLEEP/WAKE PHYSIOLOGY AND PHARMACOLOGY** *25th Anniversary Meeting of the Associated-Professional-Sleep-Societies (APSS)*  
Chikahisa, S., Sagawa, Y., ISHIMARU, Y., Sakai, N., Okuro, M., Nishino, S.  
AMER ACAD SLEEP MEDICINE.2011: A45-A45
- **Hypothalamus, hypocretins/orexin, and vigilance control.** *Handbook of clinical neurology*  
Nishino, S.  
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- **Tuning arousal with optogenetic modulation of locus coeruleus neurons** *NATURE NEUROSCIENCE*  
Carter, M. E., Yizhar, O., Chikahisa, S., Nguyen, H., Adamantidis, A., Nishino, S., Deisseroth, K., de Lecea, L.  
2010; 13 (12): 1526-U117
- **Clinical and Therapeutic Aspects of Childhood Narcolepsy-Cataplexy: A Retrospective Study of 51 Children** *SLEEP*  
Aran, A., Einen, M., Lin, L., Plazzi, G., Nishino, S., Mignot, E.  
2010; 33 (11): 1457-1464

- **Effects of sleep on the cardiovascular and thermoregulatory systems: a possible role for hypocretins** *JOURNAL OF APPLIED PHYSIOLOGY*  
Schwimmer, H., Stauss, H. M., Abboud, F., Nishino, S., Mignot, E., Zeitzer, J. M.  
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- **Effects of Paraxanthine and Caffeine on Sleep, Locomotor Activity, and Body Temperature in Orexin/Ataxin-3 Transgenic Narcoleptic Mice** *SLEEP*  
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2010; 33 (7): 930-942
- **Loss of polyubiquitin gene Ubb leads to metabolic and sleep abnormalities in mice** *NEUROPATHOLOGY AND APPLIED NEUROBIOLOGY*  
Ryu, K., Fujiki, N., Kazantzis, M., Garza, J. C., Bouley, D. M., Stahl, A., Lu, X., Nishino, S., Kopito, R. R.  
2010; 36 (4): 285-299
- **Hypocretin Ligand Deficiency in Narcolepsy: Recent Basic and Clinical Insights** *CURRENT NEUROLOGY AND NEUROSCIENCE REPORTS*  
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2010; 10 (3): 180-189
- **Emerging treatments for narcolepsy and its related disorders** *EXPERT OPINION ON EMERGING DRUGS*  
Nishino, S., Okuro, M.  
2010; 15 (1): 139-158
- **Hypocretin/orexin and narcolepsy: new basic and clinical insights** *ACTA PHYSIOLOGICA*  
Nishino, S., Okuro, M., Kotorii, N., Anegawa, E., ISHIMARU, Y., Matsumura, M., Kanbayashi, T.  
2010; 198 (3): 209-222
- **THE NEUROCHEMISTRY OF AWAKENING: FINDINGS FROM SLEEP DISORDER NARCOLEPSY** *SCIENCE OF AWAKENING*  
Nishino, S., Sagawa, Y.  
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- **WAKE PROMOTING EFFECTS OF SELECTIVE ADENOSINE RECEPTOR ANTAGONISTS IN OREXIN/ATAXIN-3 NARCOLEPTIC MICE**  
Song, Y., Soya, A., Okuro, M., Nishino, S.  
AMER ACAD SLEEP MEDICINE.2010: A54-A54
- **Symptomatic Narcolepsy in Patients With Neuromyelitis Optica and Multiple Sclerosis New Neurochemical and Immunological Implications** *ARCHIVES OF NEUROLOGY*  
Kanbayashi, T., Shimohata, T., Nakashima, I., Yaguchi, H., Yabe, I., Nishizawa, M., Shimizu, T., Nishino, S.  
2009; 66 (12): 1563-1566
- **Amyloid-beta Dynamics Are Regulated by Orexin and the Sleep-Wake Cycle** *SCIENCE*  
Kang, J., Lim, M. M., Bateman, R. J., Lee, J. J., Smyth, L. P., Cirrito, J. R., Fujiki, N., Nishino, S., Holtzman, D. M.  
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- **Rebound Hypersomnolence, Stimulant Abuse, and DAT-Mediated Dopamine Release** *SLEEP*  
Nishino, S.  
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- **Orexin Neurons Are Necessary for the Circadian Control of REM Sleep** *SLEEP*  
Kantor, S., Mochizuki, T., Janisiewicz, A. M., Clark, E., Nishino, S., Scammell, T. E.  
2009; 32 (9): 1127-1134
- **The Transcriptional Repressor DEC2 Regulates Sleep Length in Mammals** *SCIENCE*  
He, Y., Jones, C. R., Fujiki, N., Xu, Y., Guo, B., Holder, J. L., Rossner, M. J., Nishino, S., Fu, Y.  
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