

2015-2016 ANNUAL REPORT OF THE

# SLEEP RESEARCH SOCIETY FOUNDATION

*Supporting & Advancing Sleep & Circadian Research*



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The Sleep Research Society Foundation (SRSF) provides support for growth and development in the field of sleep research. The SRSF was established in 2005 by the Sleep Research Society Board of Directors to provide support for investigators to conduct pilot studies that would form the basis of more comprehensive applications to federal agencies, private foundations and industry partners.

Since its inception, the Sleep Research Society Foundation has awarded more than \$1.3 million in support for the research of 41 early stage scientific investigators. The SRSF has helped investigators obtain NIH and other government funding through research supported by SRSF grants.

## MISSION

The Sleep Research Society Foundation is committed to the growth and development of the field of sleep research through education and research funding opportunities.

## A MESSAGE FROM THE SRSF PRESIDENT

We are proud to share the successes of another year with you! In 2015, the SRSF announced a third solicitation for the SRSF Early Career Development Research Award and received 41 applications of very high quality. We are very grateful to the hard work of our esteemed Review Committee members, with the chairmanship of Orfeu Buxton, PhD. They followed the NIH grant review model and scored each of the submissions for scientific merit as well as mentoring environment and plan.

On February 12, the Board of Directors approved the Committee's recommendation of three proposals that will increase our awareness of the metabolic and autonomic regulation of sleep and arousal, so important for the understanding of excessive daytime sleepiness and sleep consolidation. Another proposal will address learning and memory as it pertains to sleep memory formation and retention. All of these projects will help understand the mechanisms by which sleep fosters state boundary control and consolidation of state, as well as the ways in which sleep supports consolidation of learning and memory, challenges that underlie hypersomnia, narcolepsy and other sleep disorders where consolidation of sleep and wakefulness impact daily functioning. The importance of these early career awards for the advancement of scientific careers cannot be overstated. The grants provide seed money for early career investigators to begin to plant their funding track record, so important in defining their future success as funded investigators.

In addition to the scientific advances made possible by the generous contributions of our sponsors, we are very proud of the strong tradition of Trainee Day events that are made possible by the support of the SRS membership and our industry sponsors. We are proud to share with you, the reports on foundation activities and the success stories of our early investigators, on the following pages of our annual report.



**Janet M. Mullington, PhD**  
*President, Sleep Research Society Foundation*



## GRANTS AND AWARDS

### *SRSF-Industry Partnered Early Stage Career Research Awards*

In 2015, the Sleep Research Society Foundation was again pleased to partner with industry stakeholders to offer competitive research grants for early career investigators to enable them to launch their research careers. The SRSF received generous contributions from Jazz Pharmaceuticals, Merck, Sleep Research Society individual members, and the Sleep Research Society. Together we have pledged, and are providing research support to promising early career investigators engaged in sleep and circadian rhythms research.

The SRSF received 41 applications for these awards. Over a three month period, the applications were reviewed by a committee of 24 established sleep and circadian research experts. These professionals evaluated and scored each of the applications based on the following criteria: potential for the applicant to become an independent investigator in sleep research, quality and innovation of the proposed research and appropriateness of budget, the training that the individual would be receiving and the mentor's commitment to the overall career development of the applicant. Each application was reviewed by three members of the committee and given a numeric rating between 1–9 (with 1 being the highest). These ratings were averaged for each application to yield a final score and rank. While all 41 proposals were of high quality, the three shown on the following page were felt to be outstanding.

The Sleep Research Society's Executive Committee and Board of Directors approved the committee's recommendation that the applications receive funding for their proposals.

Projects funded in 2015 are wrapping up or have been very recently completed. We are pleased to share that these early stage investigators will be presenting some of their research results from these or other projects, at the APSS 2016 meeting in Denver. These individuals have also been invited to showcase their work at the SRS opening event at that meeting, the Club Hypnos Data Blitz, on Sunday evening, June 12, 2016.

2016 EARLY STAGE CAREER RESEARCH AWARDEES



**Christopher Depner, PhD**

UNIVERSITY OF COLORADO BOULDER

*Mechanisms of insufficient sleep contributing to metabolic disease risk and impact from “weekend recovery” sleep*



**Jeffrey Donlea, PhD**

UNIVERSITY OF CALIFORNIA LOS ANGELES

*Using the fruit fly to identify consequences of sleep loss in memory-encoding circuits*



**Heather E. Gunn, PhD**

UNIVERSITY OF PITTSBURGH

*Adolescent sleep, circadian rhythmicity, and cardiovascular disease risk: a dyadic approach*

*funded by*



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The Sleep Research Society and SRSF wish to thank Jazz Pharmaceuticals for their generosity in funding these outstanding applicants with an Early Stage Career Research Award. The SRSF looks forward to continue to work with Jazz in the future, to continue to partner in fostering the next

generation of sleep researchers. We are confident that these early career stage investigators will move our understanding of sleep and sleepiness in diseases such as narcolepsy-cataplexy, forward over the next years. We are proud to partner with Jazz Pharmaceuticals to help foster these scientific careers.

### *Scientific Review Committee 2015–2016*

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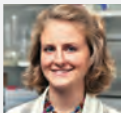







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*Past Early Stage Career Research Awards*

Since 2008, the SRSF has partnered with industry in efforts to widen the reach of our Foundation support for early stage career researchers. In 2014, the SRSF received generous contributions from Jazz Pharmaceuticals, Merck, Sleep Research Society individual members and the Sleep Research Society to award 4 out of 43 competitively reviewed research grants. In 2013, through a very generous donation from Jazz Pharmaceuticals, the SRSF was able to award 3 out of 27 competitively reviewed research grants. In 2010, through a generous contribution from Sanofi-Aventis, the SRSF gave a competitive award to Dr. Monika Haack, and in 2008, the SRSF was able to provide a competitive grant to Dr. Tulina, though a generous contribution from Takeda. These researchers are listed on the following page.

Years	Early Stage Career Researcher	Institution	Project Title	Funding Source
2014-2015	 Josiane Broussard, PhD	University of Colorado Boulder	Influence of physical activity status on the effects of insufficient sleep on metabolism	Merck & SRSF
2014-2015	 Sara Biggs, PhD	Monash University	Identifying pathways for new treatment strategies for children with primary snoring	Jazz & SRSF
2014-2015	 Michael Scullin, PhD	Baylor University	Slow-wave sleep and prospective memory consolidation in aging adults	Jazz & SRSF
2014-2015	 Jon T. Willie, MD, PhD	Emory University	Reflex and murine cataplexy: proof of concept for novel therapy for narcolepsy type 1	Jazz & SRSF
2013-2014	 Joseph Dzierzewski, PhD	University of California Los Angeles	Long-term clinical outcome of hypersomnia in at-risk older adults	Jazz
2013-2014	 Jimmy Fraigne, PhD	University of Toronto	Optogenetic probing of narcolepsy/cataplexy dopamine circuitry	Jazz
2013-2014	 See Wan Tham, PhD	Seattle Children's Hospital	Sleep-wake disturbances and pain responsivity in adolescents	Jazz
2010-2011	 Monika Haack, PhD	Beth Israel Deaconess Medical Centre & Harvard Medical School	Does sleep maintenance insomnia lead to stronger activation of stress response systems then sleep onset insomnia?	Sanofi-Aventis
2008-2010	Natalia Tulina, PhD	University of Pennsylvania	Function of sleep in the regulation of stem cell activity	Takeda Pharmaceutical Company



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## *J Christian Gillin, MD, Research Grant*

The Sleep Research Society Foundation's J. Christian Gillin, MD, Research Grant supports early career investigators in sleep research with the purpose of collecting pilot data to be used for future grant applications. The grant is intended for junior faculty investigators who do not already have substantial independent research funding.

The SRSF has funded 31 Gillin awards since 2005, and the recipients of those awards are listed below. These awardees are publishing their sleep and circadian research findings and >60% of the awardees in US institutions have gone on to receive NIH research grants.

<i>Year</i>	<i>Gillin Grant Recipient</i>	<i>Institution</i>	<i>Project Title</i>
2014	Nicholas Stavropoulos, PhD	NYU Neuroscience Institute	Interrogation of protein degradation pathways regulating sleep
2014	Jon T. Willie, MD, PhD	Emory University School of Medicine	Investigation of the effects of deep brain stimulation of amygdala upon laughter-induced changes in Hoffman reflex, a surrogate for cataplexy
2013	Thien Thanh Dang-Vu, MD, PhD	Concordia University	Pathophysiology of idiopathic hypersomnia: a multimodal neuroimaging study
2013	Aric Prather, PhD	University of California San Francisco	The effects of race-based social stress on objectively measured sleep and nocturnal autonomic functioning
2013	Irma Rukhadze, PhD	Harvard Medical School	The role of medullary A1/C1 neurons in control of state-dependent activity of genioglossus muscle in behaving mice
2012	Sudha Arunachalam, PhD	Boston University	Effects of sleep on word learning in preschoolers
2012	Jamie Cvengros, PhD	Rush University Medical Center	Changes in eating behavior following initiation of CPAP
2012	Olga Dergacheva, PhD	George Washington University	Chronic intermittent hypoxia alters a REM sleep pathway to parasympathetic cardiac neurons in the brainstem
2012	Michelle Garrison, PhD	Seattle Children's Hospital Foundation	Sleep health in preschoolers (SHIP)
2011	Joanna MacLean, MD, PhD	University of Alberta	A follow-up study of infants at high risk of sleep disordered breathing
2011	Subhabrata Sanyal, PhD	Emory University	Genetic modeling of restless legs syndrome in <i>Drosophila</i>
2011	Christi S. Ulmer, PhD	Durham VA Medical Center, Duke University	Is reduced blood pressure a consequence of improved sleep following a behavioral sleep intervention for adults with PTSD?

<i>Year</i>	<i>Gillin Grant Recipient</i>	<i>Institution</i>	<i>Project Title</i>
2010	Stephanie J. Crowley, PhD	Rush University Medical Center	A light phase response curve to treat delayed sleep in adolescents
2010	Katherine Sharkey, MD, PhD	Brown University, EP Bradley Sleep Lab	Sleep and circadian phase disruption in postpartum depression
2009	Jun Cai, MD, PhD	University of Louisville, Kosair Children's Hospital	Vulnerability of defective myelin to intermittent hypoxia during sleep
2009	Giancarlo Vannini, MD	University of Michigan	Modulation of sleep and wakefulness by extrasynaptic $\gamma$ -aminobutyric acid (GABA) receptors
2008	Nancy Johnston	Southern Illinois University	Sleep fragmentation, the metabolic syndrome, and diabetes in mice
2008	Anna Kalinchuk	Harvard (BVARI)	Nitric oxide-mediated mechanisms of sleep regulation: spatial and temporal aspects
2008	Mirjam Munch	Harvard (BWH)	Circadian light effects and fMRI - a pilot study
2008	Yuka Sasaki	Harvard Medical School/Mass General	MRI-constrained spectral imaging of spontaneous neuromagnetic activity during sleep in human cortex associated with visual learning
2007	Christoph Nissen	University of Freiburg (Germany) Medical Center	Sleep-related neuroplasticity in depression
2007	Robyn Stremler	University of Toronto	Sleep disturbances in hospitalized children
2007	Xiangdong Tang	Eastern Virginia Medical School	Baseline sleep and effects of social stress on sleep in tree shrews ( <i>Tupaia belangeri</i> )
2006	Camellia Clark	University of California San Diego	Sleep deprivation, polysomnography and functional MRI in minor depression
2006	Jonathan Emens	Oregon Health & Science University	Determination of intrinsic circadian period in blind individuals with non-entrained circadian rhythm sleep disorders
2006	Fernando Louzada	Federal University of Parana, Brazil	Home electric lighting effects on circadian rhythms
2006	Jonathan Wisor	SRI International	Gamma-hydroxybutyrate for narcolepsy: role of the locus coeruleus
2005	Dmitry Gerashchenko	SRI International	Identification of neurons in the lateral hypothalamus playing critical role in arousal
2005	Lisa Meltzer	Children's Hospital of Philadelphia	Sleep patterns in children with autism and their caregivers
2005	Natalia Suntsova	UCLA/VA/Sepulveda Research Corporation	Absence epilepsy and the hypothalamic/basal forebrain sleep-promoting and arousal systems
2005	Kenneth P. Wright	University of Colorado	The metabolic cost of extended wakefulness

## SRS 20<sup>TH</sup> ANNUAL TRAINEE SYMPOSIA SERIES

In addition to Early Career Investigator Awards, the SRSF is very proud to report that generous contributions from Jazz, the SRS and individual donors, has meant that for the twentieth consecutive year, a variety of trainee opportunities were offered during the SLEEP 2015 meeting in Seattle. On Saturday afternoon over 50 early career researchers participated in a leadership workshop, facilitated by noted sleep researchers, covering key topics designed to help cultivate the development of our field's future leaders. Saturday evening events were kicked off with an inspiring keynote by SRS President-Elect Sean Drummond, followed by a trainee datablitz, career fair and networking reception. Then, on Sunday morning, more than 300 early career investigators attended four workshops out of thirty-two offered, which spanned the spectrum of sleep and circadian research. Throughout the annual meeting, trainees participated in a variety of social opportunities, and met and shared ideas with sleep and circadian research colleagues from around the world. The support garnered from members and industry partners helps these important events continue and blossom as we move into 2016.

## DONORS

The Sleep Research Society Foundation wishes to acknowledge and thank the following organizations and individual sponsors for their contributions.

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