Society for Research on Biological Rhythms

Newsletter

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In This Issue –

The 2014 SRBR Meeting is headed for the Rockies on June 14-18, 2014!

As mentioned at the banquet of the SRBR 2012 meeting, your Board of Directors has been busy trying to find a new site for the 2014 meeting to give us a fresh environment in which to discuss chronobiology. I am happy to announce that we have found an exciting site for the 2014 meeting that will indeed be a change of scenery. The site for the 2014 meeting will be at Big Sky, Montana, near Yellowstone National Park in the Rocky Mountains (http://www.bigskyresort.com/). You'll fly into Bozeman, Montana, home of: (1) Montana State University, where one of Chronobiology's founding parents, Colin Pittendrigh, was an adjunct Professor after retiring from Stanford University, and (2) the Museum of the Rockies, featuring one of the largest and most important dinosaur collections in the world (especially of *T. rex*). You'll drive or ride the SRBR conference bus from the Bozeman airport to Big Sky along the gorgeous Gallatin River (site of filming of many of the scenes in the movie, "A River Runs Through It"). You'll be close to one of the most interesting natural phenomenon of the world, Yellowstone National Park, and I encourage you to consider visiting the park either before or after the meeting (http://www.yellowstonenationalparklodges.com/).

IMPORTANTLY, please note that the dates of the 2014 meeting will be June 14-18, 2014. This will be about a month later than we've usually had our meeting in Florida, and is similar in timing to the SRBR meeting in 2004 at Whistler, British Columbia. We're meeting in June because May is cool in Montana, but June is beautiful. Make your plans now!

See you in the mountains!
Carl Johnson

Transitions, transitions: JBR has a new Editor-in-Chief!

After 14 years of exemplary service, Marty Zatz has decided to retire from the post of JBR Editor-in-Chief. We all appreciate Marty's insightful and pithy Commentaries and value his unique talents. He will be sorely missed. A heartfelt thanks and bravo to Marty!!

A committee chaired by Terry Page and composed of Rae Silver, Paul Hardin, Stacy Harmer, and Ken Wright has met and considered who might be able to fill Marty's "very big shoes" as JBR Editor. After considering many candidates and personally interviewing several finalists, the committee nominated Bill Schwartz, who was also acclaimed as a terrific choice by the SRBR Board of Directors. Thankfully, Bill accepted the nomination to serve as JBR's next Editor-in-Chief.

So, please thank Marty the next time you see him for all he has done for the JBR (and the SRBR) and also thank Bill for taking up the baton! I also want to express my gratitude to Terry Page and his hard-working committee who did such an excellent job of assessing/interviewing candidates and ultimately identifying Bill Schwartz for the JBR Editorship.

Respectfully, Carl Johnson

Soliciting suggestions for SRBR 2014

The SRBR Program Committee is in the process of planning the 2014 Meeting, which will be held in Big Sky Resort, Montana on June 14-18. The Committee wants to ensure that a broad cross-section of subdisciplines within the field of Biological Rhythms is represented in the program. Several broad topics are already chosen for the symposia; however, to accomplish this goal, we have left several slots “open” or “flexible” so that you can have significant input into the intellectual content of the meeting.

For those of you who wish make suggestions for symposia topics, please email me at herzog@wustl.edu with the following information:

1) a title for the proposed symposium
2) a short (about three sentence) description of the proposed symposium
3) and, an illustrative list of 4 potential speakers who might be suitable, were the symposium to be selected.

It is inevitable that many of you will recommend topics that are of broad interest, and already being considered as symposia topics. Likewise, suggestions may be deemed too specialized by the Program Committee. In such cases, the Committee may wish to modify or broaden such topics, or to reserve the topic for a slide session. Finally, because of the limited number of symposia, we will likely not be able to include all of the proposed topics.

Your participation in this process is greatly appreciated. On behalf of the Program Committee, I thank you and look forward to your suggestions.

Erik Herzog

Chronobiology Research Spotlight

ST: Where did you grow up? Tell me about your family.
Koji Ode (KO): I was born in Nagano, Japan and moved to Hyogo, Japan when I was 5. Hyogo is located in southwestern Japan where people love joking and have commercial spirit. Many of my family are craftsmen: my grandfather was an engineer, my grandmother is a Japanese calligrapher, my uncle makes microscopes as an optical physicist and my mother is a koto (Japanese traditional instrument) player.

ST: How did you get interested in Chronobiology?
KO: During my PhD, I studied DNA replication using *Xenopus* frog eggs, with a focus on a protein called geminin. I used mathematical modeling together with biochemical analysis to studying the mechanism of all-or-none inhibition. As the biochemical oscillations including cell cycle (in *Xenopu)* and circadian cycle are mathematically modeled in a somewhat similar way, I became familiar with circadian field. I discussed my research on DNA replication with Hiro Ueda and joined his lab meeting several times. Circadian oscillation study attracted me, and I decided switch cell cycle to circadian field in my Post-doc research.

ST: What are your hobbies?
I played high school tennis, and then worked in tennis academy for several years. After my PhD, I rarely play tennis (last time was in SRBR 2012 meeting!). I often go bouldering with my PhD supervisor who is a good climber who asks lab members to go climbing. Bouldering is interesting because it is an excellent exercise not only for my body but also for my mind: to be a good climber, you need calm mind and logical thinking.

ST: Do you have any pets?
KO: I had a Java sparrow for ten years. Her name was *Copy*. My family did not use a birdcage but allowed her to fly freely inside my home. She woke up 11:00 AM and go to sleep at 11:00 PM - her circadian time should be shifted. She ate almost same cooked food for us (tofu, miso soup etc…), so you can understand that Japanese food is good even for Java sparrow's health!

ST: What is your favorite book?
KO: Momo by Michael Ende, a fantasy story about time-stealer, is my favorite one. I read this book when I was an elementary school student. …This might be my "true" first time to get interested in Chronobiology. Also, I remember that the atmosphere and phrasing of The Dark is Rising by Susan Cooper inspired me in elementary school.

ST: What kind of music do you like?
KO: I like rock music. I firstly started listening European and USA rock in junior high school. Since then, I always enjoy listening to from 1980' to recent rock music.

ST: Tell me about your research
KO: I am working in Laboratory of Synthetic Biology (Hiro Ueda's lab) in Quantitative Biology Center, RIKEN, Japan as a Post-doc. This center launched in 2011 focuses on quantitative understanding and modeling of biological dynamics. My interest is how the dynamics of elementary reactions such as phosphorylation kinetics or protein turnover rate define the overall dynamics of circadian oscillation.

It is well understood that nonlinear process is important for creating complex dynamics such as all-or-none response and stable oscillation. Phosphorylation at multiple sites on one substrate has been proposed to be one of the biochemical mechanisms underlying nonlinear phosphorylation kinetics. CKI is a conserved factor that regulates circadian period. Interestingly, circadian substrates of CKI (PERs and FRQ) are less conserved across phyla but share a similar property – they are phosphorylated at multiple sites. This suggests that multi-site phosphorylation is *seriously* important for oscillatory behavior. Thus, I decided to start my research by thinking theoretical model to abstract

the importance of multi-site phosphorylation in the context of biochemical oscillation.

I began by considering the biochemically simplest condition possible for oscillations: a reversible phosphorylation process of one substrate driven by one kinase and one phosphatase. I found that if those enzymes catalyze the phosphorylation at multiple (two or more) sites of the substrate, the phosphorylation level could show stable oscillation under certain parameter combinations. To identify typical conditions for the oscillation, I collaborated with a physicist Dr. Craig Jolley, who carried out clever massive parameter search and classification of oscillatory parameter sets. The results clearly show that the underlying oscillation mechanism is compatible with that proposed in KaiABC model based on careful biochemical investigation. It is quite striking that our approach began with no constraining assumptions about what kind of oscillatory mechanism should appear and assumed very simple enzyme-substrate system with no exotic property, should reach similar oscillatory mechanism.

The next challenge then is to find a phosphorylation oscillator or make one. Being an experimental biologist, I am trying to set up an in vitro system that satisfies the simple reversible phosphorylation condition. I also investigate how phosphorylation status of the major circadian factors changes during circadian cycle. Exploring post-translational regulation of circadian cycle is an interesting topic, because post-translational modifications can be the interface between core circadian clock network and cellular signals.

The Ueda Lab.

Looking for a Job?

Check out the SRBR website at www.srbr.org for more details about job openings.

Post-Doctoral Position

Position Filled

A post-doctoral research position is available in the laboratory of Professor Michael A. Henson in the Chemical Engineering Department at the University of Massachusetts. The research involves the development of molecular and multicellular models of intercellular synchronization and rhythm generation in the mammalian circadian system. This interdisciplinary systems biology project is funded by the National Institute of General Medical Sciences. Close interactions with circadian biologists, bioengineers, computer scientists and applied mathematicians will be required. Candidates with a Ph.D. in biology, engineering, or a related field and the following background are sought: (1) circadian biology; (2) biological systems modeling; and (3) complex systems dynamics.

The position is available starting September 1, 2013 for a period of one year. A six to twelve month extension is possible with satisfactory progress and availability of funds. The stipend and benefits are competitive. Please send a letter of application, a curriculum vitae and three letters of recommendation to:

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Postdoctoral fellowship opportunity

Circadian control of cardiovascular function

A postdoctoral fellow position is immediately available for an ongoing project to define the impact of the circadian system and sleep on cardiovascular function in humans. The successful applicant will be expected to complete this ongoing project and develop new research initiatives. The selected candidate will work under the co-supervision of Dr. Frank Scheer and Dr. Steven Shea, at the Medical Chronobiology Program (MCP), at Brigham and Women's Hospital and Harvard Medical School. The MCP investigates the mechanisms underlying the daily variation in disease severity, including the morning peak in heart attacks, and investigates the consequences of circadian disturbances, such as in shift work. We primarily study humans. More information about the MCP can be found at: https://sleep.med.harvard.edu/research/labs/54.

We seek a post-doctoral fellow (MD or PhD) who has a strong background in human physiology, ideally in cardiovascular function and/or exercise physiology. Expected start date: immediate, or soon thereafter.

To apply for a position, the following documents should be sent by email to Dr. Frank Scheer (fscheer@rics.bwh.harvard.edu) and Dr. Steven Shea (sheast@ohsu.edu):

- Cover letter including motivation
- CV including contact information for three references
- Although this is not a condition of employment, please indicate whether or not you would be eligible for an NIH training fellowship (US citizen or permanent resident).

2013 Chronobiology Gordon Research Conference

We invite you to attend the 2013 Chronobiology Gordon Research Conference (GRC), on July 14-19 at Salve Regina University, Newport, RI. The Conference will also be preceded by the Chronobiology Gordon Research Seminar (GRS), a one-day event for students and post-doctoral fellows. GRS oral presentations will be selected from submitted abstracts. At least 2-3 presentations will be selected at the end of the GRS for a full presentation at the GRC. Because space is limited, early registration is advisable. More information, including GRC and GRS programs, can be found at:
http://www.grc.org/programs.aspx?year=2013&program=chrono
http://www.grc.org/programs.aspx?year=2013&program=grs_chrono

Michael Rosbash, Chair of the GRC
Jerome Menet, Chair of the GRS

XIII Congress of the EBRS

I would like to invite you to the XIII Congress of the European Biological Rhythms Society from 18 – 22 August 2013 (see: www.ebrs-online.org/ebrs2013.html; the preliminary programme can be seen at: www.ebrs-online.org/ebrs2013_programme). Please take advantage of the reduced conference fees and register at your earliest convenience.
A timely overview of participants would help us greatly in our organisation. For any questions concerning the conference, please write to ebrs2013@ebrs-online.org.

Hoping to see you in Munich

Till Roenneberg, EBRS President

Congratulations!!!! Recently Funded Grants

This segment highlights recent grant awardees. The information was gathered by searching publicly available databases (for the period from early November 2012 to early March 2013).

National Institutes of Health, USA

R01

PI: Callahan, Leigh A
University of Kentucky
Title: Effects of sleep deprivation on infection induced organ failure
Agency/PO: NHLBI/ Laposky, Aaron D
Review Cmte: Surgery, Anesthesiology and Trauma Study Section (SAT)

PI: Herzog, Erik
Washington University
Title: Neuronal excitability in the regulation of circadian rhythms
Agency/PO: NIGMS/ Sesma, Michael A.
Review Cmte: Special Emphasis Panel (ZRG1-MDCN-N (02))

PI: Lang, Richard A
Children's Hospital Medical Center Cinci
Title: Light regulated vascular development of the eye
Agency/PO: NEI/ Shen, Grace L
Review Cmte: Special Emphasis Panel (ZRG1-CB-G (02))

PI: Park, Kevin Kyung
University of Miami School of Medicine
Title: Regeneration and reconnection of damaged optic nerve
Agency/PO: NEI/ Agarwal, Neeraj
Review Cmte: Special Emphasis Panel (DPVS)

PI: Stone, Richard Alan
University of Pennsylvania
Title: Retinal circadian rhythms and refractive development
Agency/PO: NEI/ Wujek, Jerome R
Review Cmte: Special Emphasis Panel (BVS)

R21

PI: Burris, Thomas
Scripps Florida
Title: treatment of alcohol induced hepatic injury with rev-erb ligands
Agency/PO: NIAAA/ Radaeva, Svetlana
Review Cmte: Health Services Research Review Subcommittee (AA)

PI: Dennery, Phyllis A.
Childrens Hospital of Philadelphia
Title: Regulation of the lung circadian clock by heme oxygenase-1
Agency/PO: NHLBI/Laposky, Aaron D
Review Cmte: Lung Injury, Repair, and Remodeling Study Section (LIRR)

National Science Foundation, USA

PI: Chen, Z. Jeffrey
University of Texas At Austin
Co-Pi: Frank G. Harmon
University of California - Berkeley/USDA-ARS
Title: Genomic and functional analysis of circadian rhythms and growth vigor in maize
Agency/PO: IOS/Diane Jofuku Okamuro
Review Cmte: Plant Genome Research Project

PI: Stan, Mircea
University of Virginia
Title: Clash - cross-layer accelerated self-healing: circadian rhythms for resilient electronic systems
Agency/PO: CCF/Sankar Basu
Review Cmte: Failure Resistant Systems (FRS)

Canadian Institutes of Health Research

PI: Cheng, Hai-Ying M
University of Toronto
Title: Translational and post-translational control of the mammalian circadian clock
Agency/PO: CIHR, Institute of Neurosciences, Mental Health and Addiction (INMHA)
Review Cmte: BSA Behavioural Sciences - A

PI: Lim, Andrew S
Sunnybrook Research Institute (Toronto)
Title: Identifying genetic determinants of human sleep and circadian rhythms
Agency/PO: CIHR, Institute of Neurosciences, Mental Health and Addiction (INMHA)
Review Cmte: BSA Behavioural Sciences - B

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