Trainee Professional Development Day

Saturday, May 21, 2016

The Trainee Professional Development Day is an entire day devoted to scientific and career development activities for trainees. The day consists of a keynote address, an activity consisting of one-on-one blitz discussions, and a series of workshops on various topics. The goal of the Trainee Professional Development Day is to allow the next generation of biological rhythm researchers to learn from and interact with faculty members in a more informal and intimate setting than that allowed by the main conference.

Only those who have pre-registered will be allowed to participate. Registered trainees should attend the workshops they selected when registering. This information will be posted on the message board in the conference center prior to the first session.

9:00–9:20 am **Welcome and Orientation**
Karen Gamble, University of Alabama at Birmingham
Paul Hardin, Texas A&M University

9:20–10:00 am Keynote Address •
Joseph Takahashi, University of Texas Southwestern

10:10–11:00 am **Session 1**

Asking the Right Questions & Designing the Right Experiments in a Biological Rhythms Project

Eric Bittman, University of Massachusetts Amherst
Michael Menaker, University of Virginia

Part of the scientific pursuit is having the wisdom to ask the right questions. This workshop will focus on the process of identifying and refining a research question, and optimizing experimental design to fit a hypothesis pertinent to rhythms research. Discussion of selecting appropriate controls, lighting conditions (light-dark cycle vs. skeleton photoperiod vs constant conditions), the number of time points, and the means of measurement (behavioral vs physiological vs molecular) will also take place.

Circadian Physiological and Behavioral Methods in Rodents

Johanna Meijer, Leiden University

This workshop will describe experimental setups for the monitoring of circadian physiology in rodent models (mouse, rat, hamster, and diurnal rodents). Basic physiological and behavioral parameters and underlying protocols will be presented and discussed. At least 10 min will be saved for discussion and questions.

Smart-Technology and Circadian Rhythms?

Satchidananda Panda, Salk Institute for Biological Sciences

This workshop delves into emerging mobile technology, and presents smart mobile devices, applications, and sensors which allow collection of big data on various behaviors and physiological variables. Besides highlighting opportunities associated with those novel approaches, it will also discuss limitations, especially with regards to circadian rhythm research.

Basic Molecular Clocks (Definition and Current Theory)

Hanzpeter Herzel, Humboldt University of Berlin

For those that are new to the field, this workshop will give an overview of the up-to-date model of "transcriptional/translational feedback loops" in cellular clocks and review major discoveries that lead to the formation of this model. Focus will be placed on the mammalian system but a brief comparison with the Drosophila system will also be included. A lecture will last for ~30-40 min, followed by a discussion of ~10-20 min.

Advanced Molecular Clocks (Current Open Questions and New Technical Strategies)

Carrie Partch, University of California, Santa Cruz

This workshop will briefly review the current understanding of the molecular clock and then move to focus on open questions in the field and how they can be addressed with new techniques. It will be a mix of lecture and discussion about how to attack these new areas of research.

What Makes up the SCN?

Martha Gillette, University of Illinois at Urbana–Champaign

What are the components that make the master clock tick? This introduction is designed as a brief background before the meeting so that new trainees will better understand new findings in SCN anatomy, inputs/outputs and interconnections. A lecture will last for ~30-40 min, followed by a discussion of ~10-20 min.

11:15–12:05 pm

Session 2

Developing and Maintaining Records of Research

Horacio de la Iglesia, University of Washington

Multiple funding agencies require a plan for proper documentation of research that is not limited to the laboratory notebook. This session will stress the importance of data organization, storage, and sharing of research products; focusing on new electronic formats for record keeping. At least 10 minutes will be saved for discussion and questions.

Teaching Chronobiology

Martha Merrow, Ludwig Maximilian University of Munich

A common challenge for chronobiologists at the beginning of their careers is organising teaching. If you expect to teach chronobiology as a part of your future career, consider joining us to discuss some of the methods and models that have been developed and applied. Topics will include curricula, format and resources. If you sign up for this workshop, your 'homework' is to come with an example of a Chronobiology course curriculum that has been taught at the University or post-graduate level.

Mathematical Modeling

Daniel Forger, University of Michigan

Decades of experimental research have revealed the immense complexity of the molecular and circuit-level construction of the circadian clock system. It is now difficult to appreciate the system in full without mathematical modeling. In this 50-min workshop, we will discuss the basics of mathematical concepts and techniques relevant to various levels of physiology and molecular biology that make up the circadian clock system.

Zeitgebers: Entrainment of the Circadian Clock

Jennifer Evans, Marquette University

The internal circadian clock synchronizes with the daily environmental cycles. This 50-min workshop will introduce the basic concepts and theories of entrainment of the circadian clock as well as the common methodology that are used to study entrainment in bacteria, fungi, plants, flies, and rodents. The general principles will be the main focus but we will also cover other aspects such as photoperiodic entrainment and non-photic entrainment.

Circadian Rhythms and Disease

Florian Storch, Douglas Mental Health University Institute
Ken Wright, University of Colorado

The interplay between circadian rhythms and disease states is becoming more evident thanks to both animal and human research. This workshop is geared towards beginners in the field of chronobiology and will provide a brief background of recent findings from both the animal and human literature to help prepare the trainee for the meeting. At least 10 min will be saved for discussion and questions.

Questions and Controversies in Chronobiology

Till Roenneberg, Ludwig Maximilian University of Munich
Carl Johnson, Vanderbilt University

Despite the apparent simplicity of the circadian phenomena, their interpretations at different levels of analysis are not yet congruous. At a molecular level, does the post-translational oscillator (PTO) make a fundamental circadian oscillator even in eukaryotes? Is the entire expression of circadian transcripts driven by the transcription-translation feedback loop (TTFL) of the core clock genes? In oscillatory transcription, is the source of ultrasensitivity cooperative binding or protein sequestration? How does circadian organization in individuals emerge into circadian organization of groups? And do models add predictive power and explanatory value to our understanding of rhythmicity? These are a small sample of questions we will discuss in this 50-min workshop. Attending this workshop will make you rethink your "givens" and hopefully take your thinking outside the box - if successful, this workshop will make you leave with more questions than you had before.

12:15–1:15 pm **Lunch**

1:15–2:15 pm **“Positive Feedback Looping”**
This activity will consist of random one-on-one blitz discussions. Participants are asked to pair randomly and discuss for 7 minutes, after which they are asked to pair with another participant, and so on, for ~50 min. The aim of this

activity is to stimulate interaction and exchanges, to allow participants to meet new people, and to "break the ice" before the SRBR conference starts.

2:25–3:55 pm

Session 3

Statistical Methods for Time Series Analysis of Rhythms

Tanya Leise, Amherst College
John Hogenesch, University of Cincinnati

Analyses of time-series data sets, as frequently required in chronobiological research, can be challenging. This 90 minute workshop will cover various statistical methods that can be used to analyze periodic patterns in biological time-series data (e.g. rhythmicity, period, amplitude, phase, phase shifts). The respective strengths and limitations of each approach will also be discussed, including an overview of statistical software used for such analyses.

Publish or Perish: A Guide to When, Where, and How to Publish Your Work

Bill Schwartz, University of Massachusetts Medical School

This 90-min workshop will be run by the Editor-in-Chief of the *Journal of Biological Rhythms*, Bill Schwartz, to discuss a range of topics with workshop participants about to publish their work, whether senior graduate students or junior post-docs. Topics include authorship; deciding when and what to write; writing review articles; how to organize your writing; choosing a journal; engaging the attention of the editor; review, revision, and rejection; and serving as a journal referee. Come prepared with questions and problems!

Grantsmanship: General Principles

Doug McMahon, Vanderbilt University
Eva Schernhammer, Harvard University

Learn the ropes of how to write a competitive grant. This 90-min session will cover general Do's and Don'ts applicable to all grant writing, independent of the funding mechanism and country of application. Special emphasis is paid to the description of biological rhythms research for a wide audience of potential reviewers.

Interview Skills & Preparing for the Transition from Postdoc to Independent Research

Rae Silver, Columbia University
Lance Kriegsfeld, University of California, Berkeley
Céline Feillet, University of Nice Sophia Antipolis

This 90-minute workshop will discuss how to prepare for independent research positions. We will outline a) how to keep a strong CV, track academic performance and outreach activities, and use professional social media to maximize your marketability, b) how to prepare for a successful job interview, and c) how to initiate and prepare for an independent project. It will also address how the change in roles may affect mentoring relationships and how to handle them. This session will also comprise a mock interview situation and will allow for ample discussion time.

4:10–5:00 pm

Session 4

Best Practices for Mentors and Mentees

Eric Mintz, Kent State University, Kent, OH

This session will address how creating a mentoring strategy can help you effectively choose the right mentor and approach mentoring others. As a discussion based session, trainees will learn how to identify multiple mentors that they can include in their mentoring network and learn how each mentor/mentee relationship is different.

Transitioning to Non-academic Careers

Chris Winrow, Merck Research Laboratories, West Point, PA
Eric Mabery, Reset Therapeutics Inc**.,** South San Francisco, CA

This workshop will provide an overview of working in the industry following completion of your graduate/postdoc work, and a comparison of research in an industry situation vs. an academic setting. It will also cover where and how to find jobs outside of academia. In addition, insights into the work in a non-profit research institute will be provided in contrast to the industry and academia background. At least 10 min will be saved for a discussion.

STAR-PROM-and RT-Biolumicording: New technologies to find transcriptional regulators and to study circadian gene expression in vivo

Ueli Schibler, University of Geneva

In this workshop, Dr. Schibler will discuss two novel technologies developed during the past few years in his laboratory: STAR-PROM and RT-Biolumicording. These techniques identify transcription factors with unknown DNA-binding specificities and record circadian gene expression in peripheral organs of freely moving mice, respectively. This will be an interactive, 50-minute workshop that encourages open discussion among trainees and Dr. Schibler.

History of Chronobiology

Jay Dunlap, Dartmouth Medical School

This workshop will provide a brief sketch that describes the first observations and studies that pioneered the field of chronobiology. This session is tailored to introduce trainees to the people and key experiments that paved the way for research in circadian rhythms. A lecture will last for ~30-40 min, followed by a discussion of ~10-20 min.

Translational Chronobiology in Humans

Steven Brown, University of Zurich
Phyllis Zee, Northwestern University

Translational research has been an area of emphasis, particularly given the funding climate. However, the nature and process of conducting translational research is often amorphous. This workshop will be led by both a clinical and basic science researchers in order to provide a collaborative discourse around the models and practices of translational chronobiology research. The workshop will provide a real world behind-the-scenes perspective of translational chronobiology research, and help trainees explore ways of engaging in translations research.

Clocks and Mental Health (Rhythms & Blues)

Samer Hattar, Johns Hopkins University
Colleen McClung, University of Pittsburgh

We tend to get moody at night. We associate spring with excitement and autumn with contemplations. But it is still unclear how the rhythms of days and seasons modulate our mood states. In this 50-min workshop, we walk through evidence for "rhythms and blues" at brain-circuit, molecular, and genetic levels. Emphasis will be placed on molecular approaches and behavioral assay methods in the rodent system.

5:00 pm **Conclusion of Trainee Professional Development Day**
(Trainee Committee members wrap-up in each workshop)