

WORKSHOPS

● Wednesday, March 30, 12:00 pm – 6:00 pm

ECDYSONE

Room: Pacific Salon 1

Organizers: **Andrew J. Andres**, University of Nevada, Las Vegas and **Lucy F. Cherbas**, Indiana University, Bloomington

Summary: The workshop will focus on the role of ecdysteroids in development. Topics to be covered include molecular analysis of transcriptional regulators in the ecdysone response, interactions between the ecdysone and patterning gene hierarchies, tissue-specific responses to ecdysone, regulation of ecdysteroid biosynthesis, and technical advances of interest to researchers in the field.

● Friday, April 1, 2:00 pm – 4:00 pm

CELL CYCLE CHECKPOINTS

Room: Golden West Room

Organizers: **Claudio Sunkel**, Universidade do Porto, Portugal and **Tin Tin Su**, University of Colorado at Boulder

Summary: We will cover DNA structure and spindle checkpoints and how these interact with cell cycle, cell death and repair pathways to ensure genomic integrity.

Speakers:

1. **Ody Sibon**, University of Groningen "Grp/DChk1 is required for G2/M checkpoint activation in *Drosophila* S2 cells whereas Dmnk/DChk2 is dispensable"
2. **S.D. Hatfield**, H.R. Shcherbata, K.A. Fischer, K. Nakahara*, R.W. Carthew*, H. Ruohola-Baker. University of Washington & *Northwestern University. "Stem cell division is regulated by the microRNA pathway"
3. **Claudio Sunkel**, Universidade do Porto, Portugal "The role of BubR1 in the mitotic checkpoint and chromosome segregation"
4. **Burnley Jaklevic** & Tin Tin Su, University of Colorado at Boulder "Recovering from checkpoint arrest"
5. **Bethany Redding**, Nishit Shah, Janet Jang and Kim McKim, Waksman Institute, Rutgers University "Subito in mitotic cells: survival of sub mutants due to the mitotic checkpoint?"
6. **Irena Ivanovska**, Tulasi Khandan and Terry Orr-Weaver, Whitehead Institute and MIT "Regulation of meiotic cell division arrests"
7. **Vitor Barbosa** & Ruth Lehmann, HHMI and Skirball Institute "Dpds5: a possible link between chromatid cohesion and the prophase meiotic checkpoint"
8. **Bill Sullivan**, UC Santa Cruz "Cytological and functional characterization of anti-cancer drugs in *Drosophila*"

GENETICS OF LIFE SPAN

Room: Royal Palm 3/4

Organizer: **Lawrence Harshman**, University of Nebraska – Lincoln and **John Tower**, University of Southern California

Summary: The goal of this workshop is to represent some of the main thrusts of research on the genetic basis of longevity and highlight recent advances using *Drosophila melanogaster*. The workshop consists of presentations on immune function, oxidative stress, caspases, a transcription factor (dFOXO) that mediates insulin signaling and caloric restriction. Altered expression of single genes as well as microarray experiments and systems biology indicate the repertoire of approaches used to study the genetic basis of longevity in flies.

Speakers:

John Tower, University of Southern California
Lawrence Harshman, University of Nebraska – Lincoln

Scott Pletcher, Baylor College of Medicine
Daniel Promislow, University of Georgia – Athens
Laurent Seroude, Queens University
Marc Tatar, Brown University

RNAi TECHNOLOGIES AND HIGH THROUGHPUT SCREENS

Room: California Room

Organizers: **Norbert Perrimon**, HHMI/Harvard Medical School & **Bernard Mathey-Prevot**, Harvard Medical School

Summary: The goal of the workshop is to discuss recent advances in RNAi technology that allow gene function analyses both in tissue culture and in vivo. In addition, technical aspects of high-throughput screens in tissue culture will be discussed as well as ways to integrate the large information generated from these approaches with other data sets.

Speakers:

- 1) **A phospho-specific based RNAi screen for the Insulin pathway**. Lutz Kockel and Norbert Perrimon, Harvard Medical School, Boston, MA (15 min)
- 2) **dsRNAi-based whole genome screen for modifiers of Tor inhibitor RAD001**. Q. Wang, X. Shi, D. Garza, and H. Li, Novartis Institute for Biomedical Research, Inc., Cambridge, MA (15 min)
- 3) **Functional genomic analysis of *Drosophila* immune response**, Mika Rämetsä Tampere, University Hospital, Finland (15 min)
- 4) **Functional Genomic Analysis of the Wnt/Wingless Signaling Pathway**. Ram Dasgupta and Norbert Perrimon, Harvard Medical School (15 min)
- 5) **Identification of novel clock genes involved in the circadian light-entrainment pathway**. Sriram Sathyanarayanan, University of Pennsylvania, Philadelphia, and Amita Sehgal, University of Pennsylvania, Philadelphia (15 min)

6) A genome-wide RNAi screen to identify factors involved in CID/CENP-A assembly at centromeres. Sylvia Erhardt, Barbara Mellone (presenting), Aaron Straight, Craig Betts and Gary Karpen, Lawrence Berkeley National Laboratory, CA (15 min)

7) The Implementation of LSGraph, a scientific literature text-mining tool, in Drosophila biology. Pavel Hradecky, IT.Omics Parc Eurasanté, Lille Métropole, France (10 min)

8) Establishing knock-down of gene expression in *D.melanogaster* by feeding dsRNA, Svetlana N. Radyuk, Southern Methodist University, Dallas, TX, Rajindar S. Sohal, University of Southern California, Los Angeles, William C. Orr, Southern Methodist University, Dallas, TX (10 min)

● Saturday, April 2, 7:00 pm – 9:00 pm

RECENT ADVANCES IN THE DROSOPHILA/WOLBACHIA SYMBIOSIS SYSTEM

Room: Pacific Salon 4/5

Organizer: **Tim Karr**, University of Bath

Summary: The growth of interest in Wolbachia symbiosis in Drosophila has grown dramatically over the past few years. This has been due to the recent realization of extensive Wolbachia infection in the Bloomington Drosophila Stock Center, and that in some instances, Wolbachia can have profound influences on the phenotypic analysis of Drosophila mutants. This is a relatively unexplored area of Drosophila biology that the Workshop will address with the goals of disseminating new information on the basic biology of Wolbachia/Drosophila symbiosis and highlighting new results relevant to Wolbachia growth, tissue tropism and impact on host genetics during sexual development.

Speakers:

Wolbachia proliferation during spermatogenesis and the expression of cytoplasmic incompatibility. Michael E. Clark University of Rochester

Wolbachia Require Host Microtubules and Dynein for Anterior Localization in the *Drosophila*

Oocyte. Patrick M. Ferree¹, Horacio M. Frydman², Jennifer M. Li², Jian Cao¹, Eric Wieschaus², William Sullivan¹ ¹ University of California, Santa Cruz; ² Princeton University

Cellular mechanisms for *Wolbachia* horizontal transmission. Horacio M. Frydman, Jennifer M. Li and Eric F. Wieschaus. Princeton University

Life and Death in *Drosophila*: *Wolbachia* throws the switch. H. L. Harris¹, Z. Veneti², G. D. D. Hurst² and H.R. Braig³ ¹ University of Alberta; ² University College London; ³ University of Wales.

Overexpression of *lethal(2) giant larvae* and *zipper* induce a paternal-effect similar to *Wolbachia*-induced cytoplasmic incompatibility. Benjamin Heath¹, Michael Clark² and Timothy L. Karr¹ ¹ University of Bath; ² University of Rochester

Molecular population genetics of *Wolbachia wsp* and mtDNA in *D. melanogaster*. David Rand, Adam Fry, Celine Becquet, Molly Przeworski. Brown University, Department of Ecology and Evolution, Providence, RI USA

RNA BIOLOGY

Room: Golden West Room

Organizer: **Susan Haynes**, Uniformed Services University of the Health Sciences

Summary: The goal of this workshop is to bring together Drosophilists who work on all aspects of RNA biology for informal discussions of common interests. Topics include RNA-protein interactions, the regulation and mechanisms of RNA splicing, polyadenylation, localization, stability, and export, and micro-RNAs and other non-coding RNAs.

7:00 **Ulrike Gaul** Study of miRNA function by injection of antisense 2'O-methyl oligoribonucleotides into early embryos

7:17 **Hila Toledano-Katchalski** Identification of novel HOW mRNA targets in the mesoderm

7:34 **A. Javier Lopez** Feedback regulation of Rbp1 generates isoforms with functional replacement of the RS domain and complex roles in homeostasis.

7:51 **Bianca J. Lam** The order of intron excisions determines the efficiency of mRNA production

8:08 **Junlin Qi** The effect of position on the Transformer2 intronic splicing silencer

8:25 **Kristi Fox-Walsh** Genome-wide Analysis of Intron and Exon Definition

8:42 **Brent Graveley** Alternative splicing of *Dscam*

DROSOPHILA RESEARCH AND PEDAGOGY AT PRIMARILY UNDERGRADUATE INSTITUTIONS

Room: Pacific Salon 6/7

Organizers: **Susan Halsell**, James Madison University; **James Fabrizio**, College of Mount Saint Vincent/Manhattan College; **Karen Hales**, Davidson College; **Chris Korey**, College of Charleston

Summary: This workshop focuses on increasing visibility of research performed at primarily undergraduate institutions and to facilitate faculty and students in their endeavors. The goals include:

1) encouraging undergraduate research by providing a forum in which undergraduate students make oral presentations; 2) connecting people interested in this career path with people already in primarily undergraduate institution (PUI) faculty positions; 3) connecting PUI faculty for discussions and support on professional issues that differ from those at large institutions; and 4) sharing ideas for using Drosophila as teaching tools in the classroom and laboratory. This workshop is designed for both undergraduate faculty and students, as well as anyone considering pursuing a career in undergraduate education

● **Saturday, April 2, 7:00 pm – 10:00 pm**

IMMUNITY, PATHOGENESIS AND HEMATOPOIESIS

Room: California Room

Organizer: **Neal Silverman**, University of Massachusetts Medical School, Worcester, MA
Summary: This Workshop will focus on the cell types and molecules which control humoral and cellular immune responses in *Drosophila*. Topics covered will include the molecular and genetic analysis of microbial pathogenesis, recognition of microbial pathogens, hemocyte functions, and the control of immunity by Rel-family transcription factors.

Speakers:

1. **Hervé Agaisse**, Yale University School of Medicine - 'A genome-wide RNAi screen for host factors in *Listeria intracellular* development'
 2. **Lin Pham**, Stanford University - "Pathogenesis of *Streptococcus pneumoniae* infections in the fly."
 3. **Michael J. Galko**, Stanford University School of Medicine/HHMI- 'Cellular and Genetic Dissection of Wound Healing in *Drosophila* larvae
 4. **Marie Meister**, IBMC, Strasbourg, France- 'Drosophila cellular immune response to parasitization'
 5. **Subhamoy Pal**, Center for Biosystems Research, University of Maryland Biotechnology Institute- 'The role of Rel transcription factors in immune response specificity
 6. **Hanna Uvell**, Department of Molecular Biology and Functional Genomics, Stockholm University, Sweden – 'A novel promoter element required for the innate immune response in *Drosophila*'
- BREAK
7. **Petros Ligoxygakis**, University of Oxford – 'Requirements of peptidoglycan structure allowing detection by the *Drosophila* Toll pathway'
 8. **Alex Weber**, Cambridge University, - 'Structure - function relationships in Toll signaling'
 9. **Joe Delany**, Mt. Sinai School of Medicine – 'Role of JNK signaling in the immune response'
 10. **Julien Royet**, University of Strasbourg, IMBC Strasbourg France - 'Negative regulation of the Imd pathway by PGRP protein'
 11. **Patrick H. O'Farrell**, Pascale Dijkers, and Renny Feldman. Department of Biochem. and Biophys., UCSF- 'Relish cleavage: a curious interface between the innate immune response and hypoxia.'

● **Saturday, April 2, 9:30 pm – 11:30 pm**

EXTRACELLULAR MATRIX INTERACTIONS AND SIGNALING

Room: Pacific Salon 4/5

Organizer: **Rolf Bodmer**, The Burnham Institute, La Jolla, CA; **Hannele Ruohola-Baker**, University of Washington, Seattle

Summary: Until recently, the extracellular matrix (ECM) was thought to act only as a stabilizing scaffold. Recent findings, discussed in this workshop

will bring through the point that ECM has a more active, regulatory role in processes such as cellular migration, polarity, morphogenesis, signaling and development.

Guy Tanentzapf "Specific interactions between integrin and talin mediate different functions during attachment to the ECM and connection to the cytoskeleton." Guy Tanentzapf and Nicholas H. Brown. University of Cambridge.

Brian James "Integrins and nuclear import of activated ERK" Brian James and Danny Brower. University of Arizona

John Poulton "The role of Dystroglycan in cell-cell communication and anterior-posterior axis formation of the *Drosophila* oocyte" John Poulton and Wu-Min Deng, Florida State University

Betsy Gray "Drosophila model for Muscular Dystrophy: Dystroglycan in signaling" Elizabeth Gray, Andriy Yatsenko, Halyna Shcherbata, Larissa Patterson and Hannele Ruohola-Baker. University of Washington.

Debbie Andrew "Transcriptional regulation of secretory function in the *Drosophila* salivary gland" Elliott W. Abrams, Whitney K. Mihoulides and Deborah J. Andrew, Johns Hopkins University School of Medicine

Bing Ye "Dissecting the Differential Development of Dendrite and Axon: from *Drosophila* to Mammals" Bing Ye and Yuh Nung Jan, UCSF

John Fessler "ADAMTS Metalloproteases and ECM in *Drosophila*". John Fessler, Ryusuke Momota, Irina Kramerova and Lisa Fessler. UCLA

Margarete Heck "Invadolysin, a novel metalloprotease linking mitosis with cell migration" Univ Edinburgh

D. YAKUBA AND D. SIMULANS GENOMES

Room: Pacific Salon 6/7

Organizers: **Dave Begun & Chuck Langley**, University of California, Davis

Summary: Discussion of the status of the genome sequencing projects. Presentation of early analyses based on these genomes.

Michael Ashburner, Jose Ranz & Casey Bergman: 'Comparative analysis of gene organization in *D. melanogaster* & *D. yakuba*.'

Bernardo Carvalho and Andy Clark : "The yakuba Y"
Dan Halligan and Peter Keightley : "Constraints and divergence in *Drosophila* coding, intronic and intergenic DNA"

Manyuan Long : "Origin of male genes in *Drosophila*: Inference from *Drosophila* genome sequences"

Corbin Jones : "Lineage specific genes in *D. melanogaster* and *D. yakuba*"

John Speith : "The assembly and annotation of the *D. yakuba* genome"

Kristian Stevens, David Begun and C.H. Langley : "The syntenic assembly and annotation of simulans genomes"

ENDOCRINE REGULATION OF GROWTH AND METABOLISM

Room: Pacific Golden West Room

Organizers: **Seung K. Kim**, Stanford University, Stanford, CA; **Eric Rulifson**, University of Pennsylvania, Philadelphia.

In this workshop, guest speakers from several fields, including developmental biology, signal transduction and behavioral research, will highlight recent advances in our understanding of endocrine regulation of growth and metabolism. Discussions will emphasize emerging parallels between *Drosophila* endocrine models and their potential significance to human endocrine biology and related diseases. One goal of this session is to show how areas of endocrine research dominated by studies of mammalian models are increasingly available for study in *Drosophila*. Areas of research to be covered include development of cells producing insulin, differentiation of cells that sense and regulate glucose and other metabolites, neuropeptide signals that regulate response to environmental stress, and discovery of signaling pathways that mediate responses to these endocrine signals.

Confirmed Speakers include **Seung Kim** (Stanford University), **Ping Shen** (Univ. of Georgia, Athens), **Volker Hartenstein** (UCLA), **Eric Rulifson** (Univ. Pennsylvania), **R.J.Wessels** (Burnham Institute, La Jolla), **Pierre Léopold** (CNRS, Nice), **R.J. and Sean Oldham** (Burnham Institute).