

RNA Localization and local translation
June 28 – July 3, 2015 - Hersonissos, Crete

PROGRAM

Day 1

Sunday, June 28

- 15:00-18:00 Arrival & Registration
- 19:00-19:15 Opening remarks and introduction
- 19:15-20:15 **Keynote Lecture: Steve McKnight**, UT
Southwestern Medical Center, USA
*“A solid state conceptualization of
information transfer from gene to
message to protein”*

Day 2

Monday, June 29

Session I: Cell Polarity, RNA Transport and Development

Chair: Ilan Davis

- 09:00-09:30 Elizabeth Gavis, Princeton University,
USA

“Probing the composition and assembly of localizing RNPs in the *Drosophila* oocyte”

09:30-10:00 Daniel St. Johnston, The Gurdon Institute, Univ. of Cambridge, UK
*“How is the microtubule network of the *Drosophila* polarised to direct the posterior localization of Oskar mRNA?”*

10:00-10:30 Howard Lipshitz, Molecular Genetics, University of Toronto, Canada
“Systematic analysis of the role of RNA-binding proteins in post-transcriptional regulation”

10:30-11:00 Coffee break

11:00-11:30 Kim Mowry, Brown University, USA
“Local mRNA expression: Motors and messages”

11:30-12:00 Vivian Budnik, Univ. of Massachusetts Medical School, USA

“Breaking membrane barriers during synapse development”

12:00-12:30 **Short Talks:** Kirsty Gill (Davis lab),
Dept. of Biochemistry, University of
Oxford, UK

*“A structure-function dissection of the
mechanism of action of the
Gurken RNA localisation signal”*

Andres Ramos, UCL Institute of
Structural and Molecular Biology, UK

*“RNA recognition and architectural
activity of the zipcode binding protein 1”*

12:30-14:30 Lunch

Session II: Local translation and synaptic plasticity

Chair: Erin Schuman

14:30-15:00 Ken Kosik, University of California Santa
Barbara, USA

*“How local is localized RNA and
translation?”*

- 15:00-15:30 Joel Richter, University of
Massachusetts Medical School, USA
“Translational regulation”
- 15:30-16:00 **Short Talks:** Georgi Tushev (Schuman
lab), MPI for Brain Research, Germany
*“Diversity, usage and properties of
mRNA 3’UTR isoforms in neuronal
compartments”*
- Miha Modic (Ule lab and Drukker lab);
Institute of Stem Cell Research,
Helmholtz Center Munich, Germany, and
UCL, UK
*“TDP-43 safeguards pluripotency by
regulation of alternative polyadenylation”*
- 16:00-16:30 Kelsey Martin, UCLA, Biological
Chemistry, USA
*“Cytoplasmic isoforms of the RNA
binding protein Rbfox1 regulate the
neuronal expression of autism-related
genes”*

16:30-17:00 Coffee break

17:00-18:00 **Keynote Lecture: Anne Ephrussi,**
EMBL, Germany
*“Assembly and transport of RNPs in the
Drosophila oocyte”*

18:00-18:30 General Discussion

18:30-20:30 Poster Session 1

20:30 Dinner

Day 3

Tuesday, June 30

Session III: Translational mechanisms

Chair: Bill Theurkauf

09:00-09:30 Jamie Cate, University of California,
Berkeley, USA
*“eIF3 targets regulatory mRNAs for
translational activation of repression”*

09:30-10:00 Catherine Rabouille, Hubrecht Institute,
The Netherlands

*“Components of the secretory pathway
are required for starvation-induced
stress granules assembly”*

10:00-10:30 **Short talks:** Sarah Clatterbuck-Soper
(Mili lab), Center for Cancer Research,
NCI, NIH, USA

*“A distinct pathway for localization of
ribosomal protein mRNAs at cell
protrusions”*

Yoav Arava, Israel Institute of
Technology, Israel

*“Localized translation near mitochondria:
novel factors revive old models”*

10:30-11:00 Coffee break

Session IV: New frontiers in imaging

RNA/translation

Chair: Oswald Steward

11:00-11:30 Rob Singer, Albert Einstein College of
Medicine, USA

*The Optical Biosystems Lecture:
"Imaging mRNA localization and
translation in single living neurons"*

11:30-12:30 **Short Talks:** Marc P. Beal, Optical
Biosystems, USA

*"RNA localization and elucidation using
novel next generation synthetic aperture
optic (SAO) based fluorescent
microscopy"*

Helena Jambor (Tomancak lab), MPI of
Molecular Cell Biology and Genetics,
Germany

*"Systematic imaging reveals gene
features and cell specific localization of
RNAs in Drosophila development"*

Faraz Mardakheh, Institute of Cancer
Research, Division of Cancer Biology,
UK

*“A global analysis of mRNA, translation
and protein localizations: Local
translation defines front-back polarity in
cancer cells”*

12:30-14:30 Lunch

14:30 **New Frontiers in Imaging RNA/
translation**, continued:

14:30-15:00 Simon Bullock, MRC Lab of Molecular
Biology, UK
*“Single molecule studies of dynein motor
regulation during mRNA transport”*

15:00-15:45: **Short Talks:**
James Halstead (Chao lab), Friedrich
Miescher Institute, Switzerland
*“A single molecule RNA biosensor for
imaging the first round of translation in
living cells”*

Jeffrey Moffit (Zhang lab), Dept. of
Chemistry and Chemical Biology,
Harvard, USA

*“Imaging-based approaches to single-
cell transcriptomics”*

Calvin Jan (Weissman lab), Dept. of
Cellular Molecular Pharmacology, HHMI,
UCSF, USA

*“Principles of cotranslational protein
targeting to organelles revealed by
proximity-specific ribosome profiling”*

- 15:45-16:30 Discussion
- 16:30-19:00 Poster Session 2
- 19:30 Dinner

Day 4

Wednesday, July 1

Session V: RNA processing and regulation

Chair: Ruth Lehmann

09:00-09.30 Jennifer Doudna, Univ. of California,
Berkeley, USA

*“Translational output of the human
transcriptome”*

09:30-10:00 Elena Conti, MPI Biochemistry, Germany
*“Structure and mechanisms of the
cytoplasmic poly(A)-polymerase GLD2”*

10:00-10:30 **Short talks:** Tatjana Trcek (Lehmann
lab), HHMI, Skirball Institute of Biomolec.
Medicine, USA

*“Structural and functional analysis of the
Drosophila germ granules”*

Fulvia Bono, MPI Developmental
Biology, Germany

“Exu structure reveals dimerization as a key requirement for bicoid mRNA localization in Drosophila”

10:30-11:00 Coffee break

11:00-11:30 Paul Lasko, McGill University, Canada
“Variant ribosomal proteins in germ line development”

11:30-12:00 Corinne Houart, King’s College London, U.K., *“Non-nuclear function of RNA splicing proteins in motor development and neurodegeneration”*

12:00-12:30 **Short talks:** Michael Feldbrügge, Microbiology, Dept. of Biology, Heinrich Heine University, Germany
“A FYVE zinc finger domain protein specifically links mRNA transport to endosome trafficking”

Carme Gallego, Molecular Biology
Institute of Barcelona, (IBMB-CSIC),
Spain

*“Investigating the role of intron
containing RNAs in dendrites”*

12:30-18:30 Excursion including lunch

Session VI: Non-coding RNAs and RNA regulation

Chair: Howard Lipshitz

19:00-19:30 Mitch Guttman, Division of Biology and
Biological Engineering, Caltech, USA
*“lncRNAs: Function and Mechanism in
Controlling Cellular Identity”*

19:30-20:00 Melissa Moore, HHMI/Univ. of
Massachusetts Medical School, USA
*“Translation-dependent mRNA
degradation in T cells and neurons”*

20:00-20:30 Elisa Izaurralde, MPI for Developmental
Biology, Germany

“miRISC and the CCR4-NOT complex repress and degrade in RNA targets independently of 43S ribosomal scanning”

20:30 Dinner

Day 5

Thursday, July 2

Session VII: RNA-based mechanisms in neuronal growth

Chair: Christine Holt

09:00-09:30 John Flanagan, Harvard University, USA
“Axon guidance and RNA-based regulation: Mechanisms for spatial organization”

09:30-10:00 Samie Jaffrey, Weill Cornell Medical College, USA
“Regulation of Axon guidance by local RNA degradation”

- 10:00-10:30 Michael Fainzilber, Weizmann Institute of Science, Israel
“RNA localization for cell growth regulation”
- 10:30-11:00 Coffee break
- 11:00-11:30 Antonella Riccio, Lab for Molecular Cell Biology, UCL, UK
“mRNA transport and translation in sympathetic neuron axons”
- 11:30-12:00 Yishi Jin, University California San Diego, USA
“Molecular insight to alternative polyadenylation in neuronal development”
- 12:00-12:15 **Short talk:** Jean-Michel Cioni (Holt lab), Dept. of Physiology, Development and Neuroscience, Cambridge University, UK
“CYFIP2 regulates axon-axon topographic sorting through translation-dependent and -independent pathways”

12:15-12:45 Ulrich Hengst, Taub Institute, Columbia University, USA
“Axonal translation and retrograde transport of ATF4 mediate the spread of amyloid-dependent neurodegeneration”

12:45-14:45 Lunch

15:15-16:00 Business Meeting

Session VIII: RNPs and function

Chair: Kim Mowry

16:00-16:30 Jennifer Darnell, The Rockefeller University, USA
“Translational Control by FMRP: Targets and Mechanism”

16:30-17:00 Matthias Hentze, EMBL, Germany
“RNA-binding proteins, metabolism and a new function for the genome?”

- 17:00-17:30 Michael Kiebler, Biomedical Center,
LMU, Munich
*“Understanding the double-stranded
RNA binding protein Staufen2 in
neurons”*
- 17:30-17:45 **Short talk:** Alondra Schweizer Burguete,
Dept. of Biology, University of
Pennsylvania, USA
*“Neuritic Localization of Microsatellite
Repeat RNAs and Transport Granule
Dysfunction in Neurodegenerative
Disease”*
- 17:45-18:15 Eric Lécuycy, IRCM, Canada
*“Systematically defining the cytotopic
distribution properties of human RNA
binding proteins”*
- 19:30 Banquet**

Day 6

Friday, July 3

09:00-10:00 **Keynote Lecture: David Bartel,**
HHMI/MIT/Whitehead Institute, USA
"MicroRNAs"

Session IX: RNA transport, translation and disease

Chair: Claudia Bagni

10:00-10:45 **Short talks:** Alexandros Kanellopoulos
(Bagni lab), VIB/KU Leuven, Belgium
*"The Drosophila Cytoplasmic FMRP
Interacting Protein 1 affects synaptic
plasticity, learning and social behavior"*

Matthew Klein (Castillo Lab), Albert
Einstein College of Medicine, USA
*"The RNA-binding protein SAM68 and
the proteasome coordinate synaptic
protein abundance during long term
plasticity"*

Antonis Tatarakis, Department of Cell
Biology, Harvard Medical School/HHMI,
USA

*“A transcriptionally-induced microRNA
that regulates plasticity genes and
attenuates fear memory”*

10:45-11:15 Coffee break

11:15-11:45 Gary Bassell, Emory University, USA

*“Single-molecule imaging of PsD-95
mRNA translation in dendrites and its
dysregulation in a mouse model of
fragile X syndrome”*

11:45-12:15 Mauro Costa-Mattioli, Baylor College of
Medicine, USA

*“Translational regulatory mechanisms in
synaptic plasticity and pathological
learning”*

12:15-12:30 Closing remarks

12:30-14:00 Lunch and Departure