

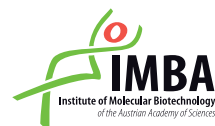


# Microsymposium on small RNAs

Vienna Biocenter, May 26<sup>th</sup> - 28<sup>th</sup> 2017



***Thanks to the generosity of these sponsors, the Microsymposium is a free-attendance meeting***



*Ameres, Cochella, Brennecke, Nodine & Martinez Laboratories*

# 12<sup>th</sup> MICROSYMPOSIUM<sub>on</sub> SMALL RNAs

**Note: The Meeting will take place at the new IMP building just behind the IMBA building.**

Address: Campus-Vienna-Biocenter 1, 1030 Vienna, Austria

FRIDAY MAY 26<sup>th</sup>

**09.00 – 11.00 Registration / Snacks**

**11.00 – 11.10 Welcome and Introduction**

## **Small RNAs in transposon defense**

Chair: Julius Brennecke

11.10 – 11.40 **Mikiko Siomi** – piRNA biogenesis in *Drosophila* and *Bombyx* germlines

11.40 – 12.10 **Severine Chambeyron** – Piwi defines the identity of piRNA clusters during a specific embryonic development window

12.10 – 12.30 **Martin Kreutz** – Identification of Circulating Biomarkers for Colorectal Cancer: An NGS Approach (Qiagen sponsored talk)

12.30 – 13.00 **Peter Andersen** (Brennecke Lab) – A heterochromatin-dependent transcription machinery drives piRNA expression

13.00 – 14.00 Lunch (IMP Cafeteria) / Poster Setup

14.00 – 14.30 **Katalin Fejes-Toth** – New insights into Piwi-mediated transcriptional silencing and primary piRNA biogenesis

14.30 – 15.00 **Nelson Lau** – Piwi target silencing is impacted by RNA elongation

## **PhD Workshop – Part 1**

Chair: Madalena Reimão-Pinto

15.00 – 16.00 **Kim Baekgyu** (Seoul National University) Genome-wide mapping of DROSHA cleavage sites on primary microRNAs and novel substrates

**Sean McGeary** (HHMI, MIT, and Whitehead Institute) Biochemical analyses of millions of possible miRNA–target site interactions

**Chiara Alberti** (IMP, Vienna) A novel small RNA labeling approach uncovers the tissue- and cell-specific microRNomes of *C. elegans*

16.00 – 16.30 Coffee Break (IMP Foyer)

## Regulation of gene expression

Chair: Andrea Pauli

16.30 – 17.00      **Mihaela Zavolan** – Splicing factors enhance the transcription factor-mediated cell reprogramming

17.00 – 17.30      **Veronika Herzog** (Ameres Lab) – Thiol-linked alkylation for the metabolic sequencing of RNA

17.30 – 18.00      **Juanma Vaquerizas** – Emergence of chromatin architecture during early embryogenesis

18.30                      *Dinner at the IMP cafeteria*

SATURDAY MAY 27<sup>th</sup>

## RNA in immune defense

Chair: Javier Martinez

- 09.00 – 09.30      **Judy Lieberman** – Shooting the Messenger: Rapid and Global mRNA Decay in Apoptosis
- 09.30 – 10.00      **Blake Wiedenheft** – A CRISPR immune response to viruses that infect bacteria
- 10.00 – 10.30      **Hailing Jin** – Small RNAs and cross-Kingdom RNAi in Plant-Pathogen Interaction

10.30 – 11.00      Coffee Break (IMP Foyer)

## PhD Workshop – Part 2

Chair: Jakob Schnabl

- 11.00 – 12.00      **Antoni Beltran** (MRC London Institute of Medical Sciences, ICL) Evolutionary analysis of piRNA genomic organisation reveals two fundamental modes of piRNA biogenesis in nematodes
- Florian Dunker** (University of Munich, LMU) The role of small RNAs in pathogenic oomycete-plant interactions
- Stefan Oberlin** (ETH Zürich) A genome-wide transcriptome and translome analysis of Arabidopsis transposons identifies a unique and conserved genome expression strategy for Ty1/Copia retroelements

12.00 – 14.30      Lunch and Poster Viewing (IMP Lecture Hall and Aula)

## Long non-coding RNAs and circular RNAs

Chair: Luisa Cochella

- 14.30 – 15.00      **Igor Ulitsky** – Sequence elements driving nuclear localization of long RNAs in mammalian cells
- 15.00 – 15.30      **Monika Piwecka** (Rajwesky Lab) – Loss of Cdr1as, a conserved mammalian circular RNA, causes miRNA deregulation and a neuropsychiatric phenotype

15.30 – 16.00      Coffee break (IMP Foyer)

## The Epitranscriptome: Emerging function of RNA Modifications

Chair: Michael Jantsch

- 16.00 – 16.30      **Jean-Yves Roignant** – Insights into the roles and mechanisms of the m6A mRNA pathway in Drosophila
- 16.30 – 17.00      **Dan Dominissini** – Epitranscriptome – beyond base methylation

17.15      Tour and Dinner for academic speakers / Bar for PhD Workshop speakers

SUNDAY MAY 28<sup>th</sup>

## Epigenetic gene regulation

Chair: Oliver Bell

- 09.00 – 09.30      **Rob Martienssen** – Germline reprogramming and transposon control with small RNA
- 09.30 – 10.00      **Keith Slotkin** – Establishment of Heterochromatin: Initiation of Transposable Element Recognition and Targeting
- 10.00 – 10.30      **Marc Bühler** – Protecting active chromatin from RNAi-directed epigenetic gene silencing
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- 10.30 – 11.00      Coffee Break (IMP Foyer)*
- 11.00 – 11.30      **Daniel Zilberman** – Epigenetic inheritance of DNA methylation patterns

## PhD Workshop – Part 3

Chair: Julia Batki

- 11.30 – 12.30      **Kazuhiro Sakakibara** (The University of Tokyo) The role of Zucchini in 3' end processing of the piRNA intermediate within the Siwi-pre-piRISC in silkworm germ cells
- Alicia Rogers** (California Institute of Technology) Primary piRNA processing is triggered by sequestration of RNA to nuage
- Alexandra Dallaire** (Laval University Cancer Research Center) An unexpected function for germline microRNAs
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- 12.30 – 14.30      Lunch and Poster Viewing (IMP Lecture Hall and Aula)*

## RNA in development and differentiation

Chair: Michael Nodine

- 14.30 – 15.00      **Nick Sokol** – The LIN-28/let-7 pathway in Drosophila stem cells and differentiation
- 15.00 – 15.30      **Peter Brodersen** – New insights into the requirement for 2'-O-methylation of plant miRNAs
- 15.30 – 16.00      **Luisa Cochella** – Two classes of miRNAs are required for animal development
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- 16.00                      Awards and closing of the meeting*
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- 16.30                      Light bites and socializing (IMP Foyer)*

## Posters 2017:

1. Natalia Akulenko, *Institute of Molecular Genetics, Moscow*; **Characterization of chromatin structure and transcription of transgene-associated piRNA clusters in the Drosophila germ line**
2. Mahek Anand, *Szent Istvan University, Godollo*; **Investigation the heat shock related and pluripotency associated miRNAs in chicken primordial germ cells**
3. Margarita Angelova, *Institut de Biologie Paris Seine, Paris*; **Crosstalk between tRFs and sncRNA pathways in an RNA methylase mutant**
4. Laura Arribas-Hernandez, *University of Copenhagen*; **Physical proximity of the exosome cofactors HEN2 and SKI2 to RISC revealed by facilitated degradation of ARGONAUTE1-bound small RNAs**
5. Kyungmin Baeg, *The University of Tokyo*; **The poly(A) tail blocks RDR6 from converting self mRNAs into the substrates for gene silencing**
6. Julia Batki, *IMBA, Vienna*; **A nuclear export factor (Nxf) variant is required for small RNA-guided transcriptional silencing of transposable elements in Drosophila melanogaster**
7. Heinrich Bente, *Gregor Mendel Institute, Vienna*; **Characterization of a paramutation-like phenomenon in Arabidopsis thaliana**
8. Suvendra, Bhattacharyya, *CSIR-Indian Institute of Chemical Biology, Kolkata*; **Importance of cellular organelles in controlling the miRNA-mediated gene expression in mammalian cells**
9. Martina Billmeier, *University of East Anglia, Norwich*; **Establishing sequence and structural requirements for human Y5 RNA cleavage**
10. Nicolas Bologna, *ETH Zuerich*; **A revised view of the nuclear export and loading of plant miRNAs**
11. Nicolas Butel, *INRA, Versailles*; **sgs1: a neomorphic nac52 allele impairing PTGS through SGS3 down-regulation**
12. Alex Canto-Pastor, *Department of Plant Sciences, Cambridge*; **A sRNA cascade regulating the immune system of tomato**
13. Elliott Chapman, *University of Edinburgh*; **Investigating the role of RNA interference in the fission yeast Schizosaccharomyces japonica**
14. Mohit Chawla, *KAUST, Saudi Arabia*; **Base-Ribose Stacking interactions in RNA: Bioinformatics and Quantum Mechanics Analysis**
15. Venkata Suresh Babu Chinni, *Aimst University, Bedong*; **Identification and Characterization of Novel non coding RNAs (ncRNAs) associated with Global Transcriptional Regulator Hfq in Pathogenic Bacteria Proteus mirabilis**
16. Jose Anselmo Coelho Lima Junior, *Institute of Genetic Medicine, Newcastle University*; **Circulating miR-133b levels correlate with infarct size and predict 3-month left ventricular dysfunction in stemi patients**
17. Laura Dijkhuizen, *Utrecht University*; **Small RNAs from the floating fern Azolla and their control of symbiont Nostoc azollae**
18. Mohamed El-Brolosy, *Max-Planck Institute for Heart and Lung Research, Bad Nauheim*; **Investigating the role of mutant mRNA degradation in triggering the transcriptional adaptation response to mutations**
19. Christina Ernst, *University of Cambridge*; **Species-specific piRNA response in a trans-chromosomal mouse**

20. Maïna Floris, *Copenhagen University*; **Requirement of an O-glycosyltransferase-like protein for miRNA function in plants**
21. Ábel Fóthi, *Institute of Enzymology, RCNS, HAS, Budapest*; **IsomiRs with long 3' non-templated additions are putative degradation intermediates**
22. Arire Fridrich, *The Hebrew University of Jerusalem*; **The role of an ancient and well-conserved cnidarian microRNA**
23. Jorrit Hegge, *Wageningen University (WUR)*; **Exploring the mechanism, function and possible applications of prokaryotic Argonaute proteins**
24. Fatima Heinicke, *Oslo University Hospital/University of Oslo*; **MicroRNA signature differences in newly diagnosed and long-term Norwegian rheumatoid arthritis patients**
25. Ana Hernández de Sande, *University of Eastern Finland*; **Analysis of primary microRNA loci from nascent transcriptomes reveals regulatory domains governed by chromatin architecture.**
26. Dorota Hudy, *Silesian University of Technology, Gliwice*; **Let-7 family interactions with reporter transcripts in different cell lines**
27. Hiro-oki Iwakawa, *IMCB, The University of Tokyo*; **Plant ARGONAUTE4 family proteins prefer to bind to DNA targets in vitro**
28. Shantanu Iyer, *Max Planck Institute of Immunobiology and Epigenetics, Freiburg*; **The Role of the NSL complex in the piRNA pathway in D. melanogaster**
29. Ferenc Jankovics, *Institute of Genetics, Hungarian Academy of Science*; **Analysis of a novel gene required for piRNA-mediated transposon silencing in Drosophila**
30. Luis Jimenez, *University of California, Riverside*; **Microfluidic-Based Distribution Profiling of Circulation MiRNAs and Its Potential in Cancer Diagnosis**
31. Jingmin Jin, *New England Biolabs, Ipswich*; **Sensitive and specific detection of miRNAs using SplintR DNA ligase**
32. Pauline Jullien, *IRD-UNIBE, Montpellier*; **Cell-specific functional characterization of Arabidopsis ARGONAUTE 3**
33. Anna Kasprzyk-Pawelec, *Institute of Cardiology, Warsaw*; **The role of microRNA-155 in thoracic aortic aneurysm**
34. Shubhangini Kataruka, *Institute of Molecular genetics of the ASCR, Prague*; **miRNA pathway functionality in the mouse female germline**
35. Maja Križnik, *National Institute of Biology, Ljubljana*; **sRNA regulatory networks - linking developmental and immune signaling in potato**
36. Shameem Sultanali Ladak, *Newcastle University*; **Unlocking the hidden therapeutic potential of miRNA-200b in the prevention of lung fibrosis**
37. Patricia Lang, *Max Planck Institute for Developmental Biology, Tuebingen*; **A role for the F-box protein HAWAIIAN SKIRT in plant miRNA function**
38. Yan Lee, *University of Edinburgh*; **Non coding RNAs in the post-transcriptional regulation of the oxidative stress response**
39. Chao-Po Lin, *University of California at Berkeley*; **Deficiency of microRNA miR-34a expands cell fate potential in pluripotent stem cells**



40. Paula Lopez, *Institut de Biologie Cellulaire et Moléculaire, Strasbourg*; **The neuron specific miR-124 is a positive regulator of Alphavirus infection**
41. Zuzana Loubalova, *Institute of Molecular Genetics of the ASCR, Prague*; **RNA adenylation during oocyte-to-embryo transition in mice**
42. Matije Lucic, *ETH Zürich*, **Quantification of modified oligonucleotides in vitro and in vivo**
43. Shawn Lyons, *Brigham and Women's Hospital/Harvard Medical School, Boston*; **5'-TOG containing tiRNAs assemble into G-quadruplexes to promote translation repression**
44. Bogdan Mateescu, *Swiss Federal Institute of Technology Zürich*; **Milk as paradigm to study extracellular RNAs biogenesis and functions**
45. Thomas Montavon, *Institut de Biologie Moléculaire des Plantes, Strasbourg*; **A specific dsRNA-binding protein complex selectively sequesters endogenous inverted-repeat siRNA precursors and inhibits their processing**
46. Kamalika Mukherjee, *CSIR-Indian Institute of Chemical Biology, Kolkata*; **HuR driven extracellular export of miRNA in mammalian cells**
47. Siranjeevi Nagaraj, *Nencki Institute of Experimental Biology, Warsaw*; **Differentially expressed plasma microRNAs in Mild Cognitive Impairment patients with early Alzheimer's disease (AD)**
48. Ursula Nosi, *University of Toronto*; **MicroRNAs promote trophoblast fate in embryonic stem cells via repression of pluripotency-associated gene regulatory networks**
49. Josef Pasulka, *IMG Prague*; **Evolution of maternal transcriptomes in rodents through retrotransposons**
50. Giulia Pianigiani, *ICGEB, Trieste*; **Competition between microprocessor complex and spliceosome on Splice site Overlapping microRNAs promotes transcriptional termination**
51. Aleksandra Plotnikova, *GMI, Vienna*; **Profiling microRNA-mediated cleavage products in Arabidopsis embryos at cellular resolution**
52. Daniela Praher, *University of Vienna*; **Characterization of the piRNA pathway during development of the sea anemone *Nematostella vectensis***
53. Muthukumar Ramanathan, *Stanford University*; **RaPID RNA-Protein Interaction Detection in Living Cells**
54. Om Rathore, *Centre for Biomedical Research, Faro*; **NTC subunit Salsa is required for splicing of gurken transcript**
55. Madalena Reimão Pinto, *IMBA, Vienna*; **Molecular basis for cytoplasmic RNA surveillance by uridylation-triggered decay in *Drosophila***
56. Matthew Reyer, *University of Chicago*; **An Automated Image Analysis Method for Segmenting Fluorescent Bacteria in 3D**
57. David Rosenkranz, *Johannes Gutenberg University Mainz*; **unitas: the universal tool for annotation of small RNAs**
58. Sergei Ryazansky, *Institute of Molecular Genetics, Moscow*; **Natural variation of piRNA expression affects immunity to transposable elements**
59. Afaf Saaidi, *Laboratoire Informatique LIX, Palaiseau*; **An integrative approach for predicting the RNA secondary structure for the HIV-1 Gag UTR using probing data**

60. Vidyand Sasidharan, *InStem, Bangalore*; **no title available**
61. Kaoru Sato, *The University of Tokyo*; **Analyses of Maelstrom and H1 in the nuclear Piwi-piRNA complex in *Drosophila* ovarian somatic cells**
62. Henriette Schluempmann, *Utrecht University*; **Small RNAs from the floating fern *Azolla* and their control of symbiont *Nostoc azollae***
63. Jakob Schnabl, *IMBA, Vienna*; **Genetic and Mechanistic Diversity of piRNA 3' end formation**
64. Eva Schöller, *Universität Regensburg*; **Investigation of a related group of putative RNA methyltransferases**
65. Amar Deep Sharma, *Hannover Medical School*; **Targeting liver diseases by microRNAs**
66. Suganya Sivagurunathan, *Vision Research Foundation, Chennai*; **HIWI2 affects proliferation of retinoblastoma cells by altering the expression of OTX2**
67. Izabella Slezak-Prochazka, *Silesian University of Technology, Gliwice*; **Identification of miRNAs with regulated processing in B-cell lymphoma**
68. Martin Smith, *Garvan Institute, RNA Biology and Plasticity Lab, Darlinghurst*; **Mapping recurring RNA structures to navigate the uncharted genome**
69. Olesya Sokolova, *IMG RAS, Moscow*; **Positioning of flamenco transcripts relative to Yb-bodies is strictly defined**
70. Chidambaram Subbulakshmi, *Pondicherry Central University*; **HIWI2 regulates tight junction proteins in retinal pigment epithelium by modulating Akt/GSK3 pathway**
71. Eliska Svobodova, *Institute of Molecular Genetics, Prague*; **EndoRNAi and piRNA pathways in mouse oocytes**
72. Thomas Montavon, *Institut de Biologie Moléculaire des Plantes, Strasbourg*; **A specific dsRNA-binding protein complex selectively sequesters endogenous inverted-repeat siRNA precursors and inhibits their processing**
73. Reginald van der Kwast, *Leiden University Medical Center*; **Post-ischemic A-to-I editing of the angiomiR MicroRNA-487b alters Target Gene Selection during Vascular Remodeling**
74. Daniël van Leeuwen, *ETH Zürich*; **Deciphering the role of PACT and TRBP in mammalian RNA interference**
75. Sophie Juliane Veigl, *University of Vienna*; **An empirical case for scientific pluralism in small RNA biology**
76. Olivier Voinnet, *ETH, Zuerich*; **Non-invasive single-cell resolution of the loading, activity and movement of the root tip miRNAome of *Arabidopsis***
77. Laura White, *University of Colorado, Englewood*; **Genetic bypass of RNA repair enzymes in *S. cerevisiae***
78. Anna Wojciechowska, *Institute of Cardiology, Warsaw*; **The miRNA expression profile in human smooth muscle cells isolated from thoracic aortic aneurysms**
79. Anna Wójcik, *University of Silesia, Katowice*; **MicroRNA166 contributes to the induction of somatic embryogenesis in *Arabidopsis* via regulation of the PHABULOSA gene**

Notes

## **The 12<sup>th</sup> MICROSYMPOSIUM on SMALL RNAs**

### **Our special thanks to:**

Tibor Kulcsar, Denise Langer, IMBA PR Department, IMBA/IMP Facility Management  
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