MARINE BIOLOGICAL LABORATORY

Mobile Genetic Elements
August 29 – 31, 2019
Woods Hole, MA, USA



Meeting Organizers:

Irina Arkhipova (Marine Biological Laboratory)

Cedric Feschotte (Cornell University)

William Reznikoff (Marine Biological Laboratory & U. of Wisconsin)

Fernando Rodriguez (Marine Biological Laboratory)

Mobile Genetic Elements 2019 – Conference Schedule

Talks are held in the Meigs Room, Swope Conference Center, 2nd floor. All meals are in the MBL Main Dining Hall, Swope 2nd floor.

Thursday, August 29, 2019

12:45 PM Gemma trip I (15 participants)
2:00 PM Check-in at Swope Conference Center front desk, registration
1 - 6 PM Free time, MBL tours (sign up), poster setup
6:00 PM Dinner

SESSION 1: IRINA ARKHIPOVA, CHAIR

7:00 PM Welcome: Irina Arkhipova, MBL
7:05 PM Organizer/Speaker: **Cedric Feschotte**, Cornell University
Antiviral activity of endogenous retroviral envelopes expressed in the human placenta
7:35 PM **Fred Dyda**, NIH/NIDDK
And now to something different: The molecular structure of Helraiser, a Helitron transposase
7:55 PM **ZZ Zhao Zhang**, Carnegie Institution
The arms race between hosts and their transposons
8:15 PM **Josien van Wolfswinkel**, Yale University
Tissue-specific effects of mobile elements during cell differentiation
8:35 PM **Wai Yee (Nicola) Wang**, University of Vienna
Genome evolution through transposable elements and their activity during regeneration in Hydra
8:55 PM Mixer (beer/wine/munchies) / Poster previews

Friday, August 30, 2019

7:30 AM Breakfast

SESSION 2: FERNANDO RODRIGUEZ, CHAIR

8:55 PM Invited speaker: **Molly Hammell,** Cold Spring Harbor Laboratory
Retrotransposon reactivation in ALS patient tissues
9:25 AM **Boxun Zhao**, Boston Children's Hospital
Somatic LINE-1 retrotransposition in cortical neurons and non-brain tissues of Rett patients and healthy individuals
9:45 AM **Thomas Carter**, Cornell University
Evolutionary and structural characterization of transcriptionally active human endogenous retrovirus H insertions in great ape pluripotent stem cells
10:05 AM **Kathryn O'Neill**, Cold Spring Harbor Laboratory
sRNA analysis with TEsmall: A holistic and TE-centric approach to differential expression
10:25 AM Coffee break
10:55 AM Invited speaker: **Damon Lisch**, Purdue University
Rapid, heat induced heritable reactivation of a silenced transposable element in maize

11:25 AM **Sarah Anderson**, University of Minnesota
Variable transposable element insertions contribute to maize genome dynamics

11:45 AM **Angelica Ocasio**, University of North Carolina Chapel Hill
Genes encoding the Contact-dependent Signaling (CDS) and Growth Inhibition (CDI) system of Burkholderia thailandensis are located in a mobile genetic element that defines a new class of transposon

12:05 PM Lunch

12:45 PM Gemma trip II (15 participants)

1 - 4 PM Free time; MBL tours (sign up)

4:00 PM **POSTER SESSION A:**

Dilay Ayhan, UMass Amherst: *Active transpositions of DNA transposons and their evolutionary consequences in Fusarium oxysporum f. sp. lycopersici*

Andrew Bartlett, UMass Boston: *Glucocorticoid-dependent regulation of B2 SINE expression*

Aidan Burn, Tufts University:*Characterizing the human endogenous retrovirus K (HML-2) transcriptome in non-diseased tissue*

Jingxuan Chen, U. of Georgia: *Resolving the origin of the horizontal transfer of Tsu4 into Saccharomyces paradoxus*

Kate Castellano, UConn: *Retroelement-derived small RNAs and alternating reproductive lifecycles of the Antarctic tunicate, Salpa thompsoni*

Guilherme Dias, U. of Georgia: *An unusual family of minisatellites in the euchromatin of Drosophila virilis*

Talitha Forcier, CSHL: *Locus-specific quantification of transposable element expression using TEtranscripts*

Jullien Flynn, Cornell University: *RepeatModeler2: An improved pipeline for the automated annotation of transposable element families in genome assemblies*

Gabrielle Hartley, UConn: *A novel approach to characterize the repetitive content of centromeres in gibbons*

Richard Keegan, Stony Brook University: *A CLEVR method of detecting replication and intercellular transfer of the gypsy endogenous retrovirus*

Junho Kim, Boston Children's Hospital: *Recombinant vector contamination confounds detection of processed pseudogene insertions in somatic cells*

Savannah Klein, UConn: *Retroelement transcription at neocentromeres and the recruitment of CENP-A*

Oluchi Oyekwe, Auburn University: *LTR retrotransposons in the non-model marine invertebrate Lamellibrachia luymesi (Annelida)*

5:00 PM **POSTER SESSION B:**

Marlene Abouaassi, UConn: *Study of putative niche adapting operon in microbes inhabiting the gut or blood*

Sean Beckwith, U. of Georgia: *Structure-function analysis of a retrotransposon restriction factor*
Joanne Griffin, U. of Liverpool: *Rapid evolution of compatibility to novel heritable microbes in the melanogaster subgroup of drosophilids*
Shunhua Han, U. of Georgia: *Predicting P element target site preferences using machine learning*
Adam Hannon-Hatfield, U. of Georgia: *Evolution of Ty1 retrotransposition control in Saccharomyces*
Qicheng Ma, Boston U: *Integrated small RNA genomics of mosquito cells: a resource for understanding transposon and virus regulation by endogenous mosquito siRNAs and piRNAs*
Nachen Yang, Brandeis University: *The moving target of transposon landscape changes in aging Drosophila*
Dalibor Kosek, NIH/NIDDK: *Structural bases of "copy-out/paste-in" transposition mechanism in ISCth4 transposon, a member of IS256 family*
Alison Hickman, NIH/NIDDK: *Casposases and their structural and mechanistic relationship to CRISPR-Cas integrases*
Elisabeth Raleigh, NEB: *Restriction-modification systems and horizontal gene transfer*
Michael Evgen'ev, Engelhardt Institute of Molecular Biology (presented by Irina Arkhipova): *Heterochromatic "junk yard" containing essential genes in Drosophila virilis*
Bryce Santinello, UConn: *Identification of a non-LTR retrotransposon at Drosophila centromeres*
Andrei Seluanov, University of Rochester: *Activation of transposons confers cancer resistance to a long-lived rodent, the blind mole rat*
Acacia Alcivar-Warren, Environmental Genomics: *An endogenous White Spot Syndrome Virus (WSSW)-like element, DNAV-1_Lva, in the genome of the original specific pathogen-free (SPF) shrimp, Penaeus (Litopenaeus) vannamei*

6:00 PM Dinner

SESSION 3: CEDRIC FESCHOTTE, CHAIR

7:00 PM Invited speaker: **Andrew Clark**, Cornell University
An evolutionary arms race between transposable elements and piRNAs in Drosophila

7:30 PM **Nelson Lau**, Boston University
Har-P, a short P-element variant, weaponizes P-transposase to severely impair Drosophila development

7:50 PM **Christopher Ellison**, Rutgers University
Gene capture by the TART-A transposable element in Drosophila melanogaster

8:10 PM Invited speaker: **Vera Gorbunova**, University of Rochester
The bad and the good of transposons: drivers of aging and tumor suppression

8:40 PM **Astrid Haase**, NIH/NIDDK
Exploring patterns of piRNA-guided transposon restriction

9:00 PM Free evening (at a local establishment)

Saturday, August 31, 2019

7:30 AM Breakfast; Pick up box lunches if ordered

SESSION 4: BILL REZNIKOFF, CHAIR

8:45 AM Invited speaker: **Michael Chandler**, Georgetown University
TnCentral: Building a knowledgebase to understand transposable element-driven genome assembly and evolution

9:15 AM **Paul Roy**, Université Laval
Insights into the recruitment of AMR genes into integron cassettes

9:35 AM **Justin Waldern**, SUNY at Albany
Regulation of group II intron retrotransposition by a ribosomal RNA methyltransferase

9:55 AM **Yutian Feng**, University of Connecticut
Distribution and characterization of inteins in hypersaline environments

10:00 AM Check-out

10:15 AM Coffee break

10:45 AM **Olga Novikova**, SUNY at Albany
Genomic neighborhood of bacterial group II introns

11:05 AM **Fernando Rodriguez**, MBL
Transposon silencing and non-canonical base modifications of bacterial origin in eukaryotes

11:20 AM **Irina Yushenova**, MBL
Reverse transcriptase-related genes and transition metal stress response

11:35 AM **Isa Schön**, Royal Belgian Institute of Natural Sciences
The transposable landscape of the putative ancient asexual Darwinula stevensoni (Crustacea: Ostracoda)

11:50 AM **Acacia Alcivar-Warren**, Environmental Genomics Inc.
Transposable elements, simple sequence repeats and integrated viruses in the genome of the first specific pathogen-free (SPF) shrimp, Penaeus (Litopenaeus) vannamei

12:00 AM Award ceremony and concluding remarks: Irina Arkhipova

12:05 PM Lunch (if no box lunch selected)

1:00 PM End of meeting

List of Registrants

Last Name	First Name	Company Name	E-Mail Address	Position
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