

*Mobile Genetic Elements:  
In Silico, In Vitro, In Vivo*

*September 3-5, 2015  
Woods Hole, Massachusetts*

*Organizers:*

*Phoebe Rice (University of Chicago)*

*Irina Arkhipova (Marine Biological Laboratory)*

## Mobile Genetic Elements: *In Silico, In Vitro, In Vivo*

All talks are held in the Speck Auditorium (Rowe Building).

### Thursday, September 3, 2015

**2:00 PM** Check-in at Swope Conference Center, registration

**4:30 PM** Pre-meeting tours, poster setup

**5:00 PM** Welcome mixer, posters (Meigs Room)

**6:00 PM** Dinner

Session 1: Phoebe Rice, Chair

**7:00 PM** Welcome: Phoebe Rice (U Chicago), Bill Reznikoff (MBL)

**7:05 PM** *Introns and inteins as adaptive mobile elements*  
Keynote speaker: **Marlene Belfort** (SUNY Albany)

**7:50 PM** *Diversity of structure, stability, specificity, and activity of Group I intron-encoded homing endonucleases*  
**Barry Stoddard** (Fred Hutchinson Cancer Research Center)

**8:10 PM** *Ty1 retroviruses are asymmetrically associated with spindle pole bodies*  
**Joan Curcio** (Wadsworth Center, NY State Dept. of Health)

**8:30 PM** *Transposable elements at the roots of adaptive immunity*  
Invited speaker: **Eugene Koonin** (NIH/NLM/NCBI)

**9:00 PM** Posters/Mixer (Meigs Room)

### Friday, September 4, 2015

**7:00 AM** Breakfast

Session 2: Bill Reznikoff, Chair

**8:30 AM** *The floating (pathogenicity) island: a fascinating, if unsavory, genomic dessert*  
Invited speaker: **Richard Novick** (New York University Medical Center)

- 9:00 AM** *The recombinase locus of SCCmec elements - what are those other genes for?*  
Organizer/speaker: **Phoebe Rice** (University of Chicago)
- 9:30 AM** *Understanding mobile genetic elements in human microbial ecology*  
Invited speaker: **Jack Gilbert** (University of Chicago / Argonne National Lab)
- 10:00 AM** *Conformational toggling controls target site choice for the heteromeric transposase element Tn7*  
**Joe Peters** (Cornell University)
- 10:20 AM** Coffee break
- 10:50 AM** *How to build a gene transfer agent: lessons from Rhodobacter capsulatus and RcGTA*  
Invited speaker: **Andrew Lang** (Memorial University)
- 11:20 AM** *Origin and evolution of gene transfer agents in  $\alpha$ -proteobacteria*  
**Migun Shakya** (Dartmouth College)
- 11:40 AM** *Using a conjugal system to investigate recA-independent horizontal transfer*  
**Anthony Kingston** (New England Biolabs)
- 12:00 PM** Lunch
- Free time or MBL tours:
- 12:45 PM** Marine Resources Center tour
- 1:30 PM** W. M. Keck Ecological and Evolutionary Genetics Facility tour
- Bioinformatics Workshop: Vladimir Kapitonov, Leader
- 2:00 PM** *Computational analysis of transposable elements: basic know-how and pitfalls.* Followed by Q&A session  
**Vladimir Kapitonov** (NCBI/NLM)
- 3:00 PM** *Comparing low-divergent repeats from multiple species through de novo repeat construction from short sequence reads*  
**Chong Chu** (University of Connecticut)
- 3:20 PM** *Microbial analysis options in the BaseSpace® platform*  
**Chandrasen Soans** (Illumina)

**3:40 PM** *Transposon landscapes (TL) diversity in Drosophila melanogaster cell cultures and fly strains*  
**Nelson Lau** (Brandeis University)

**4:00 PM** Cold beverages

Session 3: Eugene Koonin, Chair

**4:20 PM** *Giant reverse transcriptase-encoding transposable elements at telomeres*  
Organizer/speaker: **Irina Arkhipova** (MBL)

**4:50 PM** *Tyrososons, a novel group of gigantic DNA transposons in fungi*  
Invited speaker: **Vladimir Kapitonov** (NIH/NCBI)

**5:20 PM** *The L1 antisense promoter drives transcription of alternative transcripts in many human tissues*  
**Steven Criscione** (Brown University)

**5:40 PM** *Intein clustering suggests functional importance in different domains of life*  
**Olga Novikova** (SUNY Albany)

**6:00 PM** Dinner

Session 4: Joan Curcio, Chair

**7:00 PM** *Studies of a Human Retrotransposon*  
Invited speaker: **John Moran** (University of Michigan)

**7:30 PM** *A multi-scale genome-wide analysis of the determinants of human and mouse endogenous retrovirus distributions*  
Invited speaker: **Kateryna Makova** (Penn State University)

**8:00 PM** *Transposons regulate Wnt signaling to control germline stem cell differentiation in Drosophila*  
**Prashanth Rangan** (SUNY Albany)

**8:20 PM** Repetitive DNA dynamics and hybrid incompatibilities  
Invited speaker: **Daniel Barbash** (Cornell)

**8:50 PM** Recombination-independent recognition of DNA homology  
**Eugene Gladyshev** (Harvard)

**9:10 PM** Posters/Mixer (Meigs Room)



## Saturday, September 5, 2015

**7:00 AM** Breakfast

Session 5: Irina Arkhipova, Chair

**8:30 AM** *IntDOT: an unconventional tyrosine recombinase*  
Invited speaker: **Jeff Gardner** (University of Illinois at Urbana-Champaign)

**9:00 AM** *DNA transposition in archaea*  
Invited speaker: **Alison Hickman** (NIH/NIDDK)

**9:30 AM** *Elevated Ty1 retrotransposition in aging yeast mother cells*  
**Patrick Maxwell** (Rensselaer Polytechnic Institute)

**9:50 AM** *Amplification of LTR-retrotransposons in contagious cancers of bivalves*  
**Michael Metzger** (Columbia University)

**10:00 AM** Check-out

**10:10 AM** Coffee break

**10:30 AM** *Programmed elimination of TEs during chromatin diminution in the zooplankton *Mesocyclops edax* (Crustacea: Copepoda)*  
Invited speaker: **Grace Wyngaard** (James Madison University)

**11:00 AM** *Multiple mechanisms contribute to telomere maintenance*  
**Tammy Morrish** (University of Toledo)

**11:20 AM** *Activation of retrotransposons contributes to neurodegeneration in a *Drosophila* TDP-43 model of amyotrophic lateral sclerosis*  
**Lisa Krug** (Cold Spring Harbor Laboratory)

**11:40 AM** *A damage independent role for 53BP1 that impacts chromatin organization of *Igh* and retrotransposons*  
**Pedro Rocha** (New York University School of Medicine)

**12:00 PM** Concluding remarks: Irina Arkhipova

**12:05 PM** Lunch

**1:00 PM** End of meeting

## List of Registrants

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