



Genetic Recombination & Genome Rearrangements

July 16-21, 2016

STEAMBOAT SPRINGS, COLORADO

STEAMBOAT GRAND RESORT

Organizer

Dr. Tanya Paull

HHMI and Univ. of Texas

Austin, Texas

Co-Organizer

Dr. Scott Keeney

Memorial Sloan Kettering Cancer Center

New York, New York

Sunday, July 16, 2017

- 4:00PM – 9:00PM Conference Registration
- 6:00PM – 7:00PM FASEB Opening Reception
- 7:00PM – 8:30PM Dinner
- 8:45PM – 10:00PM Keynote Speaker: Maria Jasin
" Protecting the Genome by Homologous Recombination "

Monday, July 17, 2017

- 7:30AM – 9:00AM Breakfast
- Session 1: 9:00AM – 12:05PM Mechanisms of Homologous Pairing and Strand Exchange**
Session Chair: Jim Haber
- 9:00 Welcome from FASEB

- 9:05 Stephen Kowalczykowski, University of California Davis
"Helicases, topoisomerases and nucleases regulate processing of double Holliday junctions"
- 9:25 Eric Greene, Columbia Univ.
"Single molecule studies of homologous DNA recombination"
- 9:45 Mara Prentiss, Harvard University
"ATP hydrolysis provides functions that promote rejection of pairings between different copies of long repeated sequences"
- 10:05 Claire Wyman, Erasmus Univ.
"Dynamic protein interactions driving mammalian homologous recombination"
- 10:25-10:55 **Picture and FASEB Sponsored Coffee Break**
- 10:55 Patrick Sung, Yale University
"Function of the BRCA1-BARD1 complex in homology-directed DNA break repair"
- 11:15 Douglas Bishop, University of Chicago
"The mechanism of RecA-mediated strand exchange necessitates ATP hydrolysis-dependent dsDNA binding dynamics to prevent accumulation of toxic RecA complexes at undamaged chromosomal sites"
- 11:35 Chance Meers, Georgia Inst. of Technology
"A DSB in a constitutively transcribed DNA sequence is efficiently repaired by transcript-RNA in cis via a homologous recombination mechanism"
- 11:55 Doug Koshland, Univ. of California at Berkeley
"The role and regulation of R-loops in DNA damage and DNA repair"
- 12:30PM-1:30PM Lunch
- 1:30PM-3:00PM Free Time
- Session 2: 3:00PM – 6:10PM Initiation of recombination**
Session Chair: Xiaolan Zhao
- 3:00 Lorraine Symington, Columbia University
"Mechanism and Regulation of Break-Induced Replication"
- 3:20 John Petrini
"Genetic analysis of DNA damage signaling"

- 3:40 Ilya Finkelstein, Univ. of Texas at Austin
"Mre11/Rad50/Nbs1 coordination of the first steps of double-stranded break repair. "
- 4:00 Pablo Huertas (EMBO Young Investigator Talk), Univ. Sevilla/CABIMER
DNA end resection requires constitutive sumoylation of CtIP by CBX4
- 4:20-4:50 **Coffee Break**
- 4:50 Greg Ira, Baylor Univ.
"New mechanism regulating DSB ends resection"
- 5:10 Anna Malkova, Univ. of Iowa
"Genetic instability resulting from repair of DNA breaks"
- 5:30 Sue Jinks-Robertson, Duke Univ.
"Error-free and error-prone repair of a double-strand break produced by a zinc-finger nuclease in yeast"
- 5:50 Roland Kanaar, Erasmus Univ.
"Pathways of illegitimate recombination in mammalian cells"

6:15PM – 7:15PM

Dinner

Poster Session 1

8:00PM-9:00PM

Odd Posters

9:00PM-10:00PM

Even Posters

Tuesday, July 18, 2017

7:30AM – 9:00AM

Breakfast

**Session 3: 9:00AM – 12:10PM Recombination at the Replication Fork
Session Chair: Sue Jinks-Robertson**

9:00

Ken Marians, Memorial Sloan Kettering Cancer Center
"Direct Trans Lesion Synthesis by the E. coli Cellular Replicase"

9:20

Sue Lovett, Brandeis Univ.
"The Fe-S helicase YoaA participates in DNA repair in E. coli through interactions with the clamp loader accessory complex"

9:40

Tony Carr, Univ. of Sussex
"Mechanisms of replication-associated genome rearrangement"

10:00

Dana Branzei, IFOM Milan
"Molecular Studies of DDX11/Chl1 Helicase Implicated in the Warsaw Breakage Syndrome"

10:20-10:50

FASEB Sponsored Coffee Break

- 10:50 Agata Smogorzewska, Rockefeller Univ.
"Removal of RTFDC1 from stalled replisomes promotes maintenance of genome integrity"
- 11:10 Xiaolan Zhao, Memorial Sloan Kettering Cancer Center
"Smc5/6-Mediated Control of Recombinational Repair is Critical for Genome Duplication"
- 11:30 Sarah Lambert, CNRS
"The non-homologous end joining factor Ku orchestrates replication fork resection and fine-tunes Rad51-mediated fork restart"
- 11:50 Mitch McVey, Tufts Univ.
"Drosophila REV1 coordinates translesion synthesis and template switching in response to MMS-induced DNA damage"
- 12:30PM-1:30PM Lunch and **Meet the Experts Session**
- 1:30PM-3:00PM **Meet the Experts Session continues**
(concurrent with free time)
- Session 4: 3:00PM – 6:10PM Regulation of DNA exchange events**
Session Chair: Rodney Rothstein
- 3:00 David Leach, Univ. of Edinburgh
"DNA Double-Strand Break Repair in E. coli"
- 3:20 Steve West, Francis Crick Inst.
"Unresolved recombination intermediates as a source of DNA breaks and chromosome aberrations"
- 3:40 Jeff Sekelsky, Univ. of North Carolina at Chapel Hill
"Double-strand break repair by synthesis-dependent strand annealing"
- 4:00 Simon Boulton, Francis Crick Institute
"Mechanistic insights into telomere dysfunction disorders resulting from RTEL1 inactivation"
- 4:20-4:50 **Coffee Break**
- 4:50 Jim Haber, Brandeis University
" Rad51-mediated strand invasion and mismatch correction"
- 5:10 Catherine Freudenreich, Tufts Univ.
"Role of sister chromatid recombination in generating CAG repeat expansions"

5:30	Jeremy Stark, City of Hope "Defining the influence of distinct chromosomal break repair pathways on chromosomal rearrangement formation"
5:50	Markus Smolka, Cornell Univ. "Positive and Negative Control of Homologous Recombination via TOPBP1 Shapes Genome Stability in S-phase"
6:15PM – 7:15PM	Dinner
Poster Session 2	8:00PM-9:00PM Odd Posters 9:00PM-10:00PM Even Posters

Wednesday, July 19, 2017

7:30AM – 9:00AM Breakfast

**Session 5: 9:00AM – 12:10PM Mechanisms of Meiotic Recombination
Session Chair: Doug Bishop**

9:00	Michael Lichten, NIH "Interplay between chromosome structure and meiotic recombination biochemistry"
9:20	Francesca Cole, MD Anderson "Temporally and spatially distinct meiotic recombination pathways in mouse spermatocytes"
9:40	Akira Shinohara, Osaka Univ., Japan "Control of meiotic recombination by Rad51/Dmc1 mediators and DNA helicases"
10:00	Anne Villeneuve, Stanford University " Formation and protection of meiotic recombination intermediates"
10:20-10:50	FASEB Sponsored Coffee Break
10:50	Neil Hunter, University of California, Davis "Regulation of Crossing Over by a Phospho-Deactivated Degron"
11:10	Bernard de Massy, CNRS Montpellier, France "The role of PRDM9 for meiotic DNA double strand break formation"
11:30	Dan Camerini-Otero, NIH "Linking meiotic replication and recombination in mice and humans"

- 11:50 Galina Petukhova, USUHS
"Extensive sex differences at the initiation of meiotic recombination"
- 12:30PM-1:30PM Lunch
- 1:30PM-4:30PM Free time
- Poster session 3 Catch-Up Poster Session**
- 6:30PM-7:30PM Dinner
- Session 6: 7:30PM – 10:00PM Genome rearrangements and Recombination at Telomeres
Session Chair: Lorraine Symington**
- 7:30 Scott Keeney, Memorial Sloan-Kettering Cancer Center
"Genome rearrangements from non-allelic homologous recombination in the germline"
- 7:50 Gerry Smith, Fred Hutchinson Cancer Research Center
"Physical basis for long-distance communication along meiotic chromosomes"
- 8:10 Wolf Heyer, Univ. of California at Davis
"Multi-invasions Are Recombination Byproducts That Induce Chromosomal Rearrangements"
- 8:30-9:00 **Coffee Break**
- 9:00 Ginger Zakian, Princeton Univ.
"Stressing at the ends in *S. pombe*"
- 9:20 Titia deLange, Rockefeller Univ.
TBA
- 9:40 Roger Greenberg, Univ. Penn.
"Mechanisms of Alternative Telomere Lengthening"

Thursday, July 20, 2015

- 7:30AM – 9:00AM Breakfast
- Session 7: 9:00AM – 11:55PM Global patterns of genome rearrangement and genome evolution
Session Chair: Titia deLange**
- 9:00 Michael Cox, Univ. of Wisconsin
"Ionizing Radiation Resistance in Experimentally Evolved *Escherichia coli* Populations "
- 9:20 Alain Nicolas, Institut Curie, France
"Role of G-quadruplexes in replication-dependent genome instability"

9:40 Chris Putnam, UCSD
"Identification of Genes and Pathways that Prevent Genome Instability"

10:00 Tom Petes, Duke Univ.
"Global analysis of mitotic recombination events in a diploid lacking the canonical mismatch repair protein Mlh1"

10:20-10:50 **FASEB Sponsored Coffee Break**

10:50 Jason Sheltzer, Cold Spring Harbor Laboratory
"Single-chromosome aneuploidy suppresses tumorigenesis but can trigger genome evolution"

11:10 Peter Campbell, Sanger Institute
" Interrogating the Architecture of Cancer Genomes"

11:30 Sunney Xie, Harvard Univ.
"Single Cell Genomics: When Stochasticity Meets Precision"

11:50 Business Meeting

12:30PM-1:30PM Lunch

1:30PM-2:30PM **Career Workshop**

Session 8: 3:00PM – 6:10PM Nuclear dynamics and chromatin regulation of recombination
Session Chair: Claire Wyman

3:00 Susan Gasser, Univ. of Basel
"Histone degradation in response to DNA damage enhances chromatin dynamics and recombination rates"

3:20 Andres Aguilera, Universidad de Sevilla
"Interplay between R loops and chromatin modifications as a source of genome instability"

3:40 Nancy Kleckner, Harvard University
"Sister chromatids in mitotic cells"

4:00 Rodney Rothstein, Columbia University
"Poetry in motion: Increased chromosomal mobility after DNA damage"

4:20 -4:50 **Coffee Break**

4:50 Evi Soutoglou, IGBMC, France
"Temporal and spatial uncoupling of DNA Double Strand Break repair pathways within mammalian heterochromatin"

5:10 Marco Foiani, IFOM Milan
"An integrated ATR, ATM and mTOR-mechanical network controlling nuclear plasticity and cell migration"

5:30 Jean Gautier, Columbia Univ.
"Regulation of DNA double-strand breaks mobility for homology-directed repair"

5:50 Irene Chiolo, Univ. of Southern California
"Highways for repair: nuclear actin filaments and myosins relocalize heterochromatic DNA breaks to the nuclear periphery. "

6:15PM – 7:15PM Dinner

8:00PM – 12:00AM Entertainment

Friday, July 21, 2013

7:30AM – 8:30AM Breakfast

Departures

END OF CONFERENCE

For additional information contact:
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