

Mechanisms of Recombination 2018

May 20-22, 2018
The Francis Crick Institute, London, UK

Conference Program

Sunday, May 20

08.00 – 09.00 Registration

09.00 – 09.05 Welcome

09.05 – 09.40 **Keynote:** Jim Haber (Brandeis University, US)
Stability and instability in the repair of a broken chromosome

Session 1 **Chair: Sue Jinks-Robertson**

09.40 – 10.05 Neil Hunter (University of California - Davis, US)
Joint molecule metabolism during meiotic recombination

10.05 – 10.30 Kathy Niakan (The Francis Crick Institute, UK)
Gene editing in human embryos

10.30 – 10.50 Francesca Cole (University of Texas, MD Anderson Cancer Centre, US)
Temporal, spatial and genetic regulation of meiotic recombination pathways

Break

11.20 – 11.45 Roland Kanaar (Erasmus University, The Netherlands)
Cellular responses to DNA double strand breaks: molecular mechanisms and clinical utility

11.45 – 12.10 Dale Wigley (Imperial College London, UK)
Structure and mechanism of the INO80 chromatin remodelling complex

12.10 – 12.35 Boris Pfander (Max Planck Institute of Biochemistry, Germany)
Cell cycle control of joint molecule resolution

12.35 – 12.55 Valerie Borde (Institute Curie, France)
Control of the extent of DNA synthesis during meiotic recombination

Lunch

14.00 – 16.30 Poster Session 1

Session 2 **Chair: Scott Keeney**

16.30 – 16.55 Michael Lichten (National Cancer Institute, US)
Meiotic recombination intermediate metabolism

16.55 – 17.20 Joao Matos (ETH Zurich, Switzerland)
Regulation of structure-selective endonucleases during meiosis: implications for crossover maturation and patterning

- 17.20 – 17.45 Dana Branzei (IFOM, Italy)
Rewiring of DNA damage tolerance mechanisms at the replication fork
- 17.45 – 18.10 Pierre-Henri Gaillard (Marseilles Cancer Research Center, France)
SLX in the City
- 18.10 – 18.30 Ralph Scully (Harvard Medical School, US)
Analysis of repair at stalled mammalian replication forks

Dinner

Monday, May 21

- 08.00 – 09.00 Open poster session

Session 3 Chair: Jim Haber

- 09.00 – 09.25 Patrick Sung (Yale University, US)
Roles of BRCA complexes in homology-directed DNA repair
- 09.25 – 09.50 Wolf-Dietrich Heyer (University of California - Davis, US)
Homologous recombination and chromosomal rearrangements
- 09.50 – 10.15 Akira Shinohara (Osaka University, Japan)
Control of Rad51-assembly and disassembly by Rad51 paralogues and anti-recombinases
- 10.15 – 10.35 Anand Jeyasekharan (National University of Singapore)
RAD51 overexpression in ovarian cancer confers poor survival
- Break
- 11.00 – 11.25 Steve Kowalczykowski (University of California - Davis, US)
Molecular functions of BRCA1 and RAD51 paralogs in homologous recombination
- 11.25 – 11.50 Susan Lovett (Brandeis University, US)
Biochemical analysis of *E. coli* gap repair proteins
- 11.50 – 12.15 Maria Spies (University of Iowa, US)
Conformational dynamics in the RAD52 function
- 12.15 – 12.40 Douglas Bishop (University of Chicago, US)
A primary function of the ATPase activity of *E. coli* RecA is to prevent accumulation of a toxic form of the protein bound to undamaged chromosomal sites
- 12.40 – 13.00 Giuseppina D'Alessandro (IFOM, Italy)
A role for RNA and DNA: RNA hybrids in the modulation of homologous recombination-mediated repair of DNA double strand breaks

Lunch

- 14.00 – 16.30 Poster Session 2

Session 4

Chair: Titia de Lange

- 16.30 – 16.55 Steve West (The Francis Crick Institute, UK)
Resolution of DNA replication/recombination intermediates by MUS81 and GEN1
- 16.55 – 17.20 Kenneth Mariani (Memorial Sloan Kettering Cancer Center, US)
Replisomes and blockages to fork progression
- 17.20 – 17.45 Petr Cejka (University of Zurich, Switzerland)
Mechanisms of DNA end resection
- 17.45 – 18.10 Andrés Aguilera (CABIMER, Spain)
Role of chromatin in DSB repair via SCE
- 18.10 – 18.30 Michael Cox (University of Wisconsin, US)
Generation of post-replicative gaps on the lagging strand by the RarA protein

Conference social

Tuesday, May 22

Session 5

Chair: Xiaolan Zhao

- 09.00 – 09.25 Dan Camerini-Otero (NIH, US)
Linking meiotic replication and recombination in mice and humans
- 09.25 – 09.50 Tony Carr (University of Sussex, UK)
Mechanisms of restarted DNA replication
- 09.50 – 10.15 Rodney Rothstein (Columbia University, US)
Increased chromosome mobility after DNA damage
- 10.15 – 10.35 Matthew Neale (University of Sussex, UK)
Hyperlocalised coincident DNA breaks within meiotic recombination hotspots reveals multimeric cleavage characteristics of the Spo11 transesterase
- Break
- 11.00 – 11.25 Tanya Paull (University of Texas, US)
The MRN complex and regulation of recombination in eukaryotic cells
- 11.25 – 11.50 John Petrini (Memorial Sloan Kettering Cancer Center, US)
The Mre11–Nbs1 interface: ATM signalling and tumour suppression
- 11.50 – 12.15 Sue Jinks-Robertson (Duke University, US)
Regulation of mitotic recombination intermediates and outcomes by yeast mismatch repair proteins
- 12.15 – 12.35 Jennifer Cobb (University of Calgary, Canada)
The interplay between Nej1 and Mre11–Rad50–Xrs2 (MRX) at a DSB impacts repair pathway choice

Lunch

Session 6

Chair: Steve Kowalczykowski

- 13.30 – 13.55 Xiaolan Zhao (Memorial Sloan Kettering Cancer Center, US)
Regulation of recombinational repair
- 13.55 – 14.20 Alain Nicolas (Institut Curie, France)
Mechanisms of genetic diversification in yeasts: mutational landscapes and reversion of meiosis
- 14.20 – 14.45 Jeff Sekelsky (University of North Carolina, US)
Interactions between homologous recombination and DNA polymerase theta-mediated end joining
- 14.45 – 15.05 Sarah Lambert (Institut Curie, France)
Histone deposition coupled to recombination-driven restarted forks balances genome stability
- 15.05 – 15.25 Evi Soutoglou (IGBMC, France)
Fundamental differences in spatial regulation of double strand break repair in mouse and human pericentric chromatin
- Break
- 16.00 – 16.25 Titia de Lange (The Rockefeller University, US)
53BP1/Rif1/Rev7 counteract DSB resection through CST-dependent fill-in
- 16.25 – 16.50 Simon Boulton (The Francis Crick Institute, UK)
The SLX4-interacting protein SLX4IP limits BLM-dependent telomere instability in ALT cells
- 16.50 – 17.15 Anne Villeneuve (Stanford University, US)
Spatial and temporal organization of meiotic DSB repair
- 17.15 – 17.40 Maria Jasin (Memorial Sloan Kettering Cancer Center, US)
Protecting the genome by homologous recombination
- 17.40 – 18.05 Scott Keeney (Memorial Sloan Kettering Cancer Center, US)
Breaking PAR: Promoting sex chromosome recombination in male meiosis
- 18.05 – 18.40 **Keynote:** Bernard de Massy (CNRS, France)
Identification of key steps and factors for the programmed induction of DNA double strand breaks during meiosis
- 18.45 Closing remarks

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Meeting information

<http://www.abcam.com/Recombination2018>