

# Gordon Research Conference on Mutagenesis

July 20th-25th, 2008

Magdalen College, Oxford, England

Contact: Dr. Roger Woodgate, NICHD, Tel: 301-217-4040

## Agenda

### SUNDAY

2:00 pm - 11:00 pm Arrival and Check-in  
6:00 PM Dinner  
7:30 pm - 7:45 pm Welcome / Introductory Comments by GRC Site Staff and GRC Chair  
7:45 pm - 9:30 pm **Keynote Presentations: For better or worse**  
Session Chairs / Discussion Leaders: **Roger Woodgate** (NICHD, NIH, USA) & **Nancy Maizels** (University of Washington, USA)  
7:45 pm - 8:25 pm **Myron Goodman** (University of Southern California, USA)  
"Better living through hyper-mutation"  
8:25 pm - 8:35 pm Discussion  
8:35 pm - 9:15 pm **Steve Jackson** (University of Cambridge, UK)  
"Detection, signalling and repair of DNA double-strand breaks"  
9:15 pm - 9:30 pm Discussion  
9:30 PM Chair's opening reception

### MONDAY

8:00 am - 9:00 am Breakfast  
9:00 am - 12:30 pm **Mutagenesis Due to Blocked Replication and Transcription**  
Session Chair / Discussion Leader: **Sue Jinks-Robertson** (Duke University, USA)  
9:00 am - 9:30 am **Sue Jinks-Robertson** (Duke University, USA)  
"Bypassing roadblocks during DNA replication in yeast"  
9:30 am - 9:40 am Discussion  
9:40 am - 10:05 am **Robert Fuchs** (CNRS, Marseille, France)  
"Polymerase trafficking at the transiently blocked replication fork"  
10:05 am - 10:15 am Discussion  
10:15 am - 10:30 am **Julian Sale** (MRC Cambridge, UK)  
"The timing and control of translesion synthesis"  
10:30 am - 10:35 am Discussion  
10:35 am - 11:05 am Coffee Break / Group Photo  
11:05 am - 11:30 am **Graham Walker** (MIT, USA)  
"Dealing with DNA problems: Replication Blocks and Template Lesions"  
11:30am - 11:40 am Discussion  
11:40 am - 11:55 am **Dmitry Gordenin** (NIEHS, NIH, USA)  
"Damage-induced localized hypermutability"  
11:55 am - 12:00 pm Discussion  
12:00 pm - 12:25 pm **Andrés Aguilera** (Universidad de Sevilla, Spain)  
"Transcription-associated genomic instability in mRNP biogenesis and export mutants"  
12:25 pm - 12:30 pm Discussion  
12:30 PM Lunch  
1:30 pm - 4:00 pm Free Time  
4:00 pm - 6:00 pm Poster Session I  
6:00 PM Dinner

7:30 pm - 9:30 pm **Consequences of Oxidative Stress**  
 Session Chair / Discussion Leader: **Greg Verdine** (Harvard University, USA)

7:30 pm - 8:00 pm **Greg Verdine** (Harvard University, USA)  
 "Structural and Mechanistic Investigations in DNA Repair"

8:00 pm - 8:10 pm Discussion

8:10 pm - 8:25 pm **Grigory Dianov** (University of Oxford, UK)  
 "Regulation of base excision repair in response to DNA damage"

8:25 pm - 8:30 pm Discussion

8:30 pm - 8:55 pm **Ueli Hübscher** (University of Zurich, Switzerland)  
 "Faithful translesion synthesis by human DNA polymerases over 8-oxo-guanine"

8:55 pm - 9:00 pm Discussion

9:00 pm - 9:25 pm **Bruce Demple** (Harvard University, USA)  
 "Preventing Genetic Decay via BER of Oxidative Damage"

9:25 pm - 9:30 pm Discussion

## TUESDAY

8:00 am - 9:00 am Breakfast

9:00 am - 12:30 pm **Recombination Induced Genomic Instability**  
 Session Chair / Discussion Leader: **Penny Jeggo** (University of Sussex, UK)

9:00 am - 9:30 am **Penny Jeggo** (University of Sussex, UK)  
 "The impact of chromatin structure on double strand break repair and signalling"

9:30 am - 9:40 am Discussion

9:40 am - 10:05 am **Shunichi Takeda** (Kyoto University, Japan)  
 "Collaboration of BRCA1 and CtIP in cellular tolerance to topoisomerase poisons"

10:05 am - 10:15 am Discussion

10:15 am - 10:30 am **Kyungjae Myung** (NIHGR, NIH, USA)  
 "Suppression of genomic instability by RAD5-dependent PCNA polyubiquitination in mammalian cells"

10:30 am - 10:35 am Discussion

10:35 am - 11:05 am Coffee Break

11:05 am - 11:30 am **John Tainer** (The Scripps Institute, USA)  
 "Core Structures and Functions of the Mre11/Rad50/Nbs1 Complex in dsDNA End Binding and dsDNA Break Signaling and Repair"

11:30 am - 11:40 am Discussion

11:40 am - 11:55 am **Dale Ramsden** (University of North Carolina, USA)  
 "End joining, for better or diverse"

11:55 am - 12:00 pm Discussion

12:00 pm - 12:25 pm **Simon Boulton** (London Research Institute, UK)  
 "SPAR1 maintains genome stability through suppression of aberrant recombination events"

12:25 pm - 12:30 pm Discussion

12:30 PM Lunch

1:30 pm - 4:00 pm Free Time

4:00 pm - 6:00 pm Poster Session II

6:00 PM Dinner

- 7:30 pm - 9:30 pm **Physiological Mutagenesis in the Immune Response**  
Session Chair / Discussion Leader: **Nancy Maizels** (University of Washington, USA)
- 7:30 pm - 8:00 pm **Nancy Maizels** (University of Washington, USA)  
"Targeting immunoglobulin gene diversification"
- 8:00 pm - 8:10 pm Discussion
- 8:10 pm - 8:25 pm **Heinz Jacobs** (Netherlands Cancer Institute, The Netherlands)  
"Role of PCNA modification in somatic hypermutation"
- 8:25 pm - 8:30 pm Discussion
- 8:30 pm - 8:55 pm **Pat Gearhart** (NIA, NIH, USA)  
"Hypermutation in immunoglobulin variable and switch regions"
- 8:55 pm - 9:00 pm Discussion
- 9:00 pm - 9:25 pm **Michael Neuberger** (MRC Cambridge, USA)  
"Antibody gene diversification through DNA deamination"
- 9:25 pm - 9:30 pm Discussion

### WEDNESDAY

- 8:00 am - 9:00 am Breakfast
- 9:00 am - 12:30 pm **Rare Human Diseases Associated with Genomic Instability, Neurodegeneration and Premature Aging**  
Session Chair / Discussion Leader: **Keith Caldecott** (University of Sussex, UK)
- 9:00 am - 9:30 am **Keith Caldecott** (University of Sussex, UK)  
"Mammalian single-strand break repair and human disease"
- 9:30 am - 9:40 am Discussion
- 9:40 am - 10:05 am **Björn Schumacher** (Erasmus University, The Netherlands)  
"DNA damage and the paradoxical link with longevity"
- 10:05 am - 10:15 am Discussion
- 10:15 am - 10:30 am **Sergei Mirkin** (Tufts University, USA)  
"Large-scale expansions of triplet repeats: mechanisms and implications"
- 10:35 am - 10:35 am Discussion
- 10:35 am - 11:05 am Coffee Break
- 11:05 am - 11:30 am **Cynthia McMurray** (Mayo Clinic, USA)  
"MSH2/MSH3: a damage sensor"
- 11:30am - 11:40 am Discussion
- 11:40 am - 11:55 am **Kevin Hiom** (MRC Cambridge, UK)  
"BRCA1, its interactions and the maintenance of genome stability"
- 11:55 am - 12:00 pm Discussion
- 12:00 pm - 12:25 pm **Wim Vermeulen** (Erasmus University, The Netherlands)  
"Mouse models of mutant transcription/repair factor TFIIH"
- 12:25 pm - 12:30 pm Discussion
- 12:30 PM Lunch
- 1:30 pm - 6:00 pm Free Time / Optional Excursion: Broughton Castle
- 6:00 PM Dinner
- 7:00 pm - 7:30 pm Business Meeting  
(Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site & Scheduling preferences; Election of the next Vice Chair)
- 7:30 pm - 9:30 pm **Low-fidelity Replication and Cancer**

Session Chair / Discussion Leader: **Larry Loeb** (University of Washington, USA)

- 7:30 pm - 8:00 pm **Larry Loeb** (University of Washington, USA)  
"The presence and significance of random mutations in human cancers"
- 8:00 pm - 8:10 pm Discussion
- 8:10 pm - 8:25 pm **Zvi Livneh** (Weizmann Institute, Israel)  
"Cancer risk assessment using DNA repair enzymatic activity assays: A tool for lung cancer prevention"
- 8:25 pm - 8:30 pm Discussion
- 8:30 pm - 8:55 pm **Fumio Hanaoka** (Gakushuin University, Japan)  
"*In vivo* and *in vitro* studies on DNA polymerase  $\eta$ "
- 8:55 pm - 9:00 pm Discussion
- 9:00 pm - 9:25 pm **Errol Friedberg** (University of Southwestern Texas, USA)  
"Lessons Learned From the *Polk* Mouse"
- 9:25 pm - 9:30 pm Discussion

#### THURSDAY

- 8:00 am - 9:00 am Breakfast
- 9:00 am - 12:30 pm **Mechanisms of Mutagenesis**  
Session Chair / Discussion Leader: **Tom Kunkel** (NIEHS, NIH, USA)
- 9:00 am - 9:30 am **Tom Kunkel** (NIEHS, NIH, USA)  
"Dissecting the fidelity of leading and lagging strand replication fidelity in yeast"
- 9:30 am - 9:40 am Discussion
- 9:40 am - 10:05 am **Floyd Romesberg** (The Scripps Institute, USA)  
"Mechanisms of induced mutation in *E. coli* and *S. cerevisiae*"
- 10:05 am - 10:15 am Discussion
- 10:15 am - 10:30 am **Pat Foster** (Indiana University, USA)  
"Stress-induced mutagenesis in *E. coli*"
- 10:30 am - 10:35am Discussion
- 10:35 am - 11:05 am Coffee Break
- 11:05 am - 11:30 am **Alan Lehmann** (University of Sussex, UK)  
"The role of polk in nucleotide excision repair"
- 11:30 am - 11:40 am Discussion
- 11:40 am - 11:55 am **Iwona Fijalkowska** (Polish Academy of Sciences, Poland)  
"Dpb2p, a non catalytic subunit of DNA polymerase epsilon contributes to the fidelity of DNA replication in *S. cerevisiae*"
- 11:55 am - 12:00 pm Discussion
- 12:00 pm - 12:25 pm **Wei Yang** (NIDDK, NIH, USA)  
"Translesion DNA synthesis by *E. coli* pol II"
- 12:25 pm - 12:30 pm Discussion
- 12:30 PM Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 5:30 pm Poster Session III
- 5:30 PM Reception on the Cloisters Lawn
- 6:00 PM Formal Conference Dinner
- 7:30 pm - 9:30 pm **Signaling for repair: avoiding excessive mutagenesis**  
Session Chair / Discussion Leader: **Joe Jiricny** (University of Zurich, Switzerland)
- 7:30 pm - 8:00 pm **Joe Jiricny** (University of Zurich, Switzerland)

8:00 pm - 8:10 pm	"Mismatch repair in unusual settings"
8:10 pm - 8:25 pm	Discussion <b>Joyce Lebbink</b> (Erasmus University, The Netherlands) "DNA loop formation by the MutS MutL protein complex during early steps of DNA mismatch repair"
8:25 pm - 8:30 pm	Discussion
8:30 pm - 8:55 pm	<b>Wei Xiao</b> (University of Saskatchewan, Canada) "Ubiquitination of DNA clamps: a central signaling for repair and tolerance?"
8:55 pm - 9:00 pm	Discussion
9:00 pm - 9:25 pm	<b>Tom Ellenberger</b> (Washington University, USA) "Specialization of Mammalian DNA Ligases"
9:25 pm - 9:30 pm	Discussion
9:30 PM	Chair's closing reception
<b>FRIDAY</b>	
8:00 am - 9:00 am	Breakfast
9:00 AM	Departure