



National Institute of Environmental Health Sciences
Your Environment. Your Health.

The Fidelity of DNA Replication: from Basic Mechanism to Disease
August 29-30th, 2019

North Carolina Biotechnology Center
Research Triangle Park, North Carolina

Thursday, August 29th

- 12:30 – 1:00 PM Arrival and Registration
1:00 – 1:05 PM Kasia Bebenek, NIEHS: *Welcome*
1:05 – 1:10 PM Darryl Zeldin, NIEHS: *Opening Remarks*

Session 1 – Structure-function studies of DNA polymerase fidelity

Chair: Lars Pederson

- 1:10 – 1:35 PM Sam Wilson, NIEHS
“DNA Polymerase Correct Nucleotide Insertion: The downside of being right”
- 1:35 – 2:00 PM Lorena Beese, Duke University
“Structural tales of replication and repair”
- 2:00 – 2:25 PM Myron Goodman, University of Southern California
“Conformational Regulation of E. coli SOS DNA polymerase V by RecA and ATP”
- 2:25 – 2:50 PM Erik Johansson, Umeå University
“Leading strand synthesis in yeast”
- 2:50 – 3:20 PM Group photo, Coffee Break

Session 2 – Transactions at the replication fork

Chair: Stephanie Nick McElhinny

- 3:20 – 3:45 PM Peter Burgers, Washington University
“The replication fidelity of DNA polymerases”
- 3:45 – 4:10 PM Duncan Smith, New York University
“Replication dynamics in vivo through the prism of the lagging strand”
- 4:10 – 4:35 PM Youri Pavlov, University of Nebraska
“Nucleobase analogs, our vital precarious friends”
- 4:35 – 5:00 PM Philip Hanawalt, Stanford University
“Polymerases back up to get ahead”



National Institute of Environmental Health Sciences
Your Environment. Your Health.

The Fidelity of DNA Replication: from Basic Mechanism to Disease
North Carolina Biotechnology Center
Research Triangle Park, North Carolina

Friday, August 30th

8:30 - 9:00 AM Arrival

Session 3 – Determinants of genome maintenance

Chair: R. Scott Williams

9:00 – 9:25 AM Dorothy Erie, University of North Carolina
“Integrative single-molecule studies of DNA mismatch repair initiation”

9:25 – 9:50 AM Andrei Chabes, Umeå University
“dNTPs, rNTPs and maintenance of genome stability”

9:50 – 10:15 AM David MacAlpine, Duke University
“Disruption and repair of chromatin at a site specific DNA break”

10:15 – 10:40 AM Tom Petes, Duke University
“Genetic instability resulting from defective DNA replication in yeast”

10:40 – 10:55 AM Coffee Break

Session 4 – Non-canonical replication

Chair: Roger Woodgate

10:55 – 11:20 AM Kristin Eckert, Penn State University
“Sequence-Dependent Replication Roadblocks: Perspectives from DNA Polymerases”

11:20 – 11:45 AM Anders Clausen, University of Gothenburg
Tracking DNA polymerase eta to the lagging strand”

11:45 – 12:10 AM Luis Blanco, Centro de Biologia Molecular
“Making a DNA primer is a weird task, but worth it”

12:10 – 12:35 PM Dale Ramsden, University of North Carolina
“When TA Kunkel talked, I listened”

12:35 – 1:30 PM Lunch Break (on-site)



National Institute of Environmental Health Sciences
Your Environment. Your Health.

The Fidelity of DNA Replication: from Basic Mechanism to Disease
North Carolina Biotechnology Center
Research Triangle Park, North Carolina

Session 5 – Replication, transcription, polymerases and disease (Part I)

Chair: Roel Schaaper

1:30 – 1:35 PM Roel Schaaper, NIEHS: *Some reflections*

1:35 – 2:00 PM Sue Jinks-Robertson, Duke University
“Transcription as a driver of genetic instability in yeast”

2:00 – 2:25 PM Miguel Garcia-Diaz, Stony Brook University
“Mechanisms of mitochondrial biogenesis”

2:25 – 2:50 PM Mark Hall, Purdue University
“Phosphatase specificity in cell cycle control and genome stability”

2:50 – 3:15 PM Coffee Break

Session 6 – Replication, transcription, polymerases and disease (Part II)

Chair: Bill Copeland

3:15 – 3:40 PM Polina Shcherbakova, University of Nebraska
“15 years of error-prone DNA synthesis outside the Kunkel lab”

3:40 – 4:05PM Zachary Pursell, Tulane University
“You only think I guessed wrong! Lessons from the Kunkel Lab”

4:05 – 4:30 PM Larry Loeb, University of Washington
“FOREVER FAITHFUL”

4:30 – 4:50 PM Tom Kunkel, NIEHS
“Subjects we are investigating”

4:50 – 4:55 PM Bill Copeland, NIEHS: *Closing Remarks*

4:55 – 5:00 PM Jessica Williams, NIEHS: *Final thoughts and acknowledgements*