

11th Quinquennial Conference on
Responses to DNA damage:

Egmond aan Zee, The Netherlands, 27 March – 1 April, 2022



Program

SUNDAY MARCH 27

- 13:00 – 17:00 Registration open (Room 523)
- 16:00 **Opening Ceremony** (Zuiderduinzaal)
Chair: Wim Vermeulen
- 16:10 – 16:50 **Keynote speaker 1:** Dan Durocher (Lunenfeld-Tanenbaum, Canada) ***“Charting DNA repair pathways”***
- Plenary Session I: 'Replication Stress' (Chair: Wim Vermeulen)** (Zuiderduinzaal)
- 16:50 – 17:15 Dana Branzei (IFOM, Italy) ***“Dealing with replication damage at the fork and in its wake”***
- 17:15 – 17:35 Marcel Tijsterman (LUMC, The Netherlands) ***“Causes and consequences of Tandem DNA duplications”***
- 17:45 *Welcome drinks* (The Pub)
- 18:30 – 19:45 *Dinner* (Restaurant)
- 20:00 – 22:00 **Poster viewing session I** (free drinks) (Room 522 and Abdijzaal)
A-I: Mismatch Repair & Other
B-I: Nucleotide Excision Repair & Transcription Stress
C-I: DSB Repair (NHEJ & TMEJ)
- 22:00 *Jam-session* (The Pub)

MONDAY MARCH 28

From 7:00 Breakfast (Restaurant)
8:00 – 10:00 Registration open (Room 523)

Plenary Session II: 'Replication Stress' (Chair: Marcel van Vugt) (Zuiderduinzaal)

09:00 – 09:25 Massimo Lopes (Zürich, Switzerland) ***“Replication fork plasticity in cancer and stem cells”***

09:25 – 09:50 Philip Zegerman (Cambridge, UK) ***“Dephosphorylation of the pre-initiation complex during S-phase is critical for origin firing dynamics”***

09:50 – 10:15 Philippe Pasero (CNRS, France) ***“Signaling replication stress beyond cell boundaries”***

10:15 – 10:30 Arnab Ray Chaudhuri (Erasmus MC, The Netherlands) ***“Modulating replication stress response as a vulnerability to target BRCA2 deficient tumors”***

10:30 – 11:00 Coffee/tea Break (Lounge 1 & 2)

Plenary Session III: 'Chromosome Stability' (Chair: Jessica Downs) (Zuiderduinzaal)

11:00 – 11:25 Tatsuro Takahashi (Osaka University, Japan) ***“Regulation of the fidelity of homology-directed repair in Xenopus egg extracts”***

11:25 – 11:45 Puck Knipscheer (Hubrecht Institute, The Netherlands) ***“Mechanisms that resolve G-quadruplex structures”***

11:45 – 12:00 Hans-Peter Wollscheid (IMB, Germany) ***“Cytoskeleton meets Chromatin: the role of Myosin VI during replication stress”***

12:00 – 12:15 Inés Paniagua (NCI, the Netherlands) ***“MAD2L2 protects stalled replication forks and promotes their recovery”***

12:15 – 12:30 Nitika Taneja (Erasmus MC, the Netherlands) ***“Significance of epigenetic landscape in maintenance of replication fork integrity”***

12:30 Lunch (Restaurant)

(Chair: Marcel Tijsterman) (Zuiderduinzaal)

13:40 – 14:00 Jacqueline Jacobs (NCI, The Netherlands) ***“Ubiquitin-mediated control of NHEJ at uncapped telomeres”***

14:00 – 14:25 Agnel Sfeir (Sloan Kettering Institute, USA) ***“Understanding the mechanistic basis of MMEJ”***

14:25 – 14:40 Raphael Ceccaldi (Institut Curie, France) ***“Pol Theta (Pol θ) preserves genome integrity during mitosis”***

14:40 – 14:55 Marie Boursier (Artios Pharma, UK) ***“Novel Pol θ inhibitors effectively treat homologous recombination deficient and PARP inhibitor-resistant tumors”***

14:55 – 15:25 Coffee/tea Break (Lounge 1 & 2)

Plenary Session IV: 'Repair Mechanisms I' (Chair: Puck Knipscheer) (Zuiderduinzaal)

15:25 – 15:50 Andre Nussenzweig (NIH, USA) *“Endogenous DNA damage in neurons”*

15:50 – 16:05 Juan Garaycochea (Hubrecht Institute, the Netherlands) *“Tissue-specific mutational consequence of endogenous DNA damage”*

16:05 – 16:30 Dorothy Erie (University of North Carolina, USA) *“Integrative single-molecule studies of DNA mismatch repair initiation”*

16:30 – 16:50 Joyce Lebbink (EMC, The Netherlands) *“Mechanistic analyses of coordinated DNA incision, unwinding and excision during mismatch repair”*

17:00 – 18:30 **Poster discussion session I** (3 parallel sessions)

A-I: Mismatch Repair & Other (Room 558)

B-I: Nucleotide Excision Repair & Transcription Stress (Room 559)

C-I: DSB Repair (NHEJ & TMEJ) (Zuiderduinzaal)

18:45 – 19:45 *dinner*

20.00 - 22.00 **Poster viewing session II** (free drinks) (Room 522 and Abdijzaal)

A-II: Crosslink Repair & Base Excision Repair

B-II: Translesion synthesis & DNA structures

C-II: DSB Repair (HR)

22:00 *Jam-session* (The Pub)

TUESDAY MARCH 29

Plenary Session V: 'Repair Mechanisms II' (Chair: Jacqueline Jacobs) (Zuiderduinzaal)

09:00 – 09:25 Jo Morris (University of Birmingham, UK) *“Targeting HR-alternatives”*

09:25 – 09:40 Ross Chapman (University of Oxford, UK) *“New insights into the multiple mechanisms governed by 53BP1 during DNA end-joining”*

09:40 – 10:00 Sylvie Noordermeer (LUMC, The Netherlands) *“Exploring novel vulnerabilities of BRCA-mutated tumours”*

10:00 – 10:15 Sven Rottenberg (University of Bern) *“MDC1 counteracts restrained replication fork restart and its loss causes PARP inhibitor resistance in BRCA1/2-deficient mammary tumors”*

10:15 – 10:30 Julien Duxin (University of Copenhagen, Denmark) *“SCAI promotes error-free repair of DNA interstrand crosslinks via the Fanconi anemia pathway”*

10:30 – 11:00 *Coffee/tea Break* (Lounge 1 & 2)

(Chair: Haico van Attikum) (Zuiderduinzaal)

11:00 – 11:15 Aaron Goodarzi (University of Calgary, Canada) *“CHD6 has separate, cooperative DNA- and poly(ADP-ribose)-binding domains that regulate retention at DNA damage and repair”*

11:15 – 11:40 Keith Caldecott (University of Sussex, UK) *“A novel role for single-strand break repair in human cells and disease”*

- 11:40 – 12:00 Martijn Luijsterburg (LUMC, The Netherlands) ***“Molecular mechanisms in transcription-coupled DNA repair”***
- 12:00 – 12:15 Sheera Adar (University of Jerusalem, Israel) ***“Genomic characterization of the interplay between bulky DNA damages and transcription”***
- 12:15 – 12:30 Katrina Lappin (Queen’s University Belfast, Ireland) ***“Cancer-associated SF3B1 mutations confer a BRCA-like cellular phenotype and synthetic lethality to PARP inhibitors”***

12:25 – 13:40 *Lunch* (Restaurant)

Plenary Session VI: 'Transcription Stress' (Chair: Martijn Luijsterburg) (Zuiderduinzaal)

- 13:40 – 14:05 Andrés Aguilera (Cabimer, Spain) ***“New factors and mechanisms in R loop-mediated genome instability”***
- 14:05 – 14:20 Tycho Mevissen (Harvard Medical School, USA) ***“Transcription-coupled DNA repair in a test tube”***
- 14:20 – 14:45 Fabrizio d’Adda di Fagagna (IFOM, Italy) ***“DNA damage-induced RNA synthesis”***
- 14:45 – 15:05 Jurgen Marteijn (EMC, The Netherlands) ***“Unravelling the cellular responses to DNA damage-induced transcription stress”***

15:05 – 15:30 *Coffee/tea Break* (Lounge 1&2)

(Chair: Jurgen Marteijn) (Zuiderduinzaal)

- 15:30 – 15:55 Jesper Svejstrup (Francis Crick Institute, UK) ***“Transcription-coupled repair and degradation of RNA polymerase II”***
- 15:55 – 16:10 Helga Landsverk (Institute for Cancer Research, Norway) ***“WDR82/PNUTS-PP1 prevents transcription-replication conflicts and DNA damage after the Wee1 inhibitor MK1775”***
- 16:10 – 16:35 Tomoo Ogi (Nagoya University, Japan) ***“Ubiquitination of RNA polymerase II and transcription-coupled repair”***
- 16:35 – 16:50 Hilde Nilsen (University of Oslo, Norway) ***“Base excision repair causes age-dependent accumulation of single-stranded DNA breaks that contribute to Parkinson’s disease pathology”***

17:00 -18:30 **Poster discussion session II** (3 parallel sessions)

- A-II: Crosslink Repair & Base Excision Repair (Room 558)
- B-II: Translesion synthesis & DNA structures (Room 559)
- C-II: DSB Repair (HR) (Zuiderduinzaal)

18:30 – 19:45 *Dinner*

20:00 – 22:00 **Poster viewing session III** (free drinks) (Room 522 and Abdijzaal)

- A-III: Clinical Aspects
- B-III: Replication Stress
- C-III: DSB Repair (general/chrom)

22:00 *Jam-session* (The Pub)

WEDNESDAY MARCH 30

Plenary Session VII: 'Repair Mechanisms III' (Chair: Marcel Tijsterman) (Zuiderduinzaal)

- 09:00 – 09:40 **Keynote speaker 2:** KJ Patel (MRC, UK) *“Aldehydes and the physiological importance to remove DNA crosslinks”*
- 09:40 – 10:00 Alex Zelensky (EMC, The Netherlands) *“How a cancer testis antigen interferes with BRCA2 function”*
- 10:00 – 10:25 Ben van Houten (University of Pittsburgh, USA) *“Watching DNA repair in real time: from single molecules to cells”*
- 10:25 – 10:40 Carel Fijen (NYU Grossman SoM, USA) *“PolQ-mediated DNA repair: insights from Single-molecule studies”*

10:40 – 11:10 *Coffee/tea Break* (Lounge 1&2)

(Chair: Titia Sixma) (Zuiderduinzaal)

- 11:10 – 11:35 Nicolas Thoma (FMI, Switzerland) *“DNA repair and transcription in chromatin”*
- 11:35 – 12:00 Xiaodong Zhang (Imperial College London, UK) *“Structures, assembly and regulation of master kinase ATR/Mec1”*
- 12:00 – 12:15 Evi Soutoglou (University of Sussex, UK) *“Activation of homologous recombination in G1 preserves centromeric integrity”*
- 12:15 – 12:30 Hanna Braun (Institute of Molecular Biology, Germany) *“A novel direct telomere binder that supports telomere integrity via TRF2/RAP1”*

12:30 – 13:30 *Lunch* (Restaurant)

Free afternoon and evening

Diner on your own (no diner provided by the program)

THURSDAY MARCH 31

Plenary Session VIII: 'Chromatin stress' (Chair: Sylvie Noordermeer) (Zuiderduinzaal)

- 09:00 – 09:25 Niels Mailand (University of Copenhagen, Denmark) *“SUMO signaling in genome stability maintenance”*
- 09:25 – 09:45 Jessica Downs (London, UK) *“Chromatin constraints on transcription impact DNA damage and immune responses”*
- 09:45 – 10:10 Gaëlle Legube (University of Toulouse, France) *“Alterations of chromosome architecture following DNA Double Strand breaks”*
- 10:10 – 10:30 Haico van Attikum (LUMC, The Netherlands) *“Regulation of DNA double-strand break repair in chromatin”*

10:30 – 11:00 *Coffee/tea Break* (Lounge 1 & 2)

- (Chair: Joyce Lebbink) (Zuiderduinzaal)
- 11:00 – 11:25 Jessica Tyler (Weill Cornell Medical College, USA) **“Regulation of DNA resection at DNA double-strand breaks in quiescent cells”**
- 11:25 – 11:40 Bas van Steensel (NCI, the Netherlands) **“Highly multiplexed screens and computational modeling to gain insight into chromatin effects on DSB repair pathway balance”**
- 11:40 – 11:55 Beatrice Rondinelli (University of Paris, France) **“Dissecting the impact of oncogenic H3.3 mutations on genome instability and tumorigenesis”**
- 11:55 – 12:20 Chiara Merigliano (University of Southern California, USA) **“Off-pore’ role of nucleoporins in phase separation and heterochromatin repair”**
- 12:30 – 13:45 Lunch (Restaurant)
- Plenary Session IX: Repair Mechanisms IV (Chair: Haico van Attikum) (Zuiderduinzaal)**
- 13:45 – 14:10 Lori Passmore (MRC, UK) **“Mechanistic insight into DNA crosslink repair”**
- 14:10 – 14:25 Emile Alghoul (CNRS, France) **“SLX4 compartmentalizes the SUMO/Ubiquitin system to drive repair”**
- 14:25 – 14:45 Hannes Lans (EMC, The Netherlands) **“Persistent TFIIH binding to DNA damage impairs in vivo neuron functionality”**
- 14:45 – 15:00 Abdallah Gaballa (University of Würzburg, Germany) **“MYC resolves transcription-replication conflicts in pancreatic ductal adenocarcinoma”**
- 15:00 – 15:30 Coffee/tea Break (Lounge 1 & 2)
- (Chair: Titia Sixma)
- 15:30 – 15:55 Johannes Walter (Harvard Med. School, USA) **“Central role for FANCD1 in DNA-protein cross-link repair”**
- 15:55 – 16:15 Susanne Bruekner (NCI, The Netherlands) **“Unexpected moves in MutSα DNA mismatch binding”**
- 16:15 – 16:30 Nick Lakin (University of Oxford, UK) **“Regulation of Rad52-dependent replication fork recovery through site-specific ADP-ribosylation of POLD3”**
- 16:30 – 16:45 Amador Romero Franco (University of Sevilla, Spain) **“CCAR2-controlled circadian oscillations of DNA end resection and homologous recombination”**
- 16:45 – 17:00 Vincent Spegg (University of Zurich, Switzerland) **“Phase separation properties of RPA allow dynamic condensate formation despite ultrahigh-affinity ssDNA binding”**
- 17:15 – 18:45 **Poster discussion session III (3 parallel sessions)**
- A-III: Clinical Aspects (Room 558)
- B-III: Replication Stress (Room 559)
- C-III: DSB Repair (general/chrom) (Zuiderduinzaal)
- 19:30 Conference dinner including poster prize ceremony (Zuiderduinzaal)
- ± 22:00 Jam-session, extended (The Pub)

FRIDAY APRIL 1

Plenary Session X 'Clinical Aspects' (Chair: Jessica Downs) (Zuiderduinzaal)

09:00 – 09:25 Andrew Jackson (MRC, UK) *“Ribonucleotide Excision repair in human disease”*

09:25 – 09:50 Jos Jonkers (NCI, The Netherlands) *“Understanding and overcoming resistance to PARP inhibitors in cancer therapy”*

09:50 – 10:15 Stephen Pettitt (ICR, UK) *“Using forward and reverse translation to understand DDR inhibitor responses and resistance”*

10:15 – 10:30 Ilirjana Bajrami (Francis Crick Institute, UK) *“Loss of the FANCM associated complex MHF1-MHF2 is synthetic lethal in BRCA deficient cancer cells”*

10:30 – 11:00 Coffee/tea Break (Lounge 1 & 2)

(Chair: Wim Vermeulen) (Zuiderduinzaal)

11:00 – 11:25 Mark O’Connor (Astrazeneca, UK) *“Targeting the DNA Damage Response to generate new treatments for cancer patients”*

11:25 – 11:45 Marcel van Vugt (UMCG, The Netherlands) *“Processing of DNA lesions during mitosis”*

11:45 – 12:25 **Keynote speaker 3:** Serena Nik-Zainal (MRC, UK) *“Recent insights into DNA damage mutational processes in human somatic cells”*

12:25 **Closure by Wim Vermeulen**

12:30 – 13:30 Lunch and departure (Restaurant)

12:45 – 14:30 busses to airport

Poster Discussion Sessions

Session	A	B	C
I	Mismatch Repair & Other Chairs: Joyce Lebbink Puck Knipscheer	Nucleotide Excision Repair & Transcription Stress Chairs: Carlos Menck Alex Pines	DSB Repair – NHEJ/TMEJ Chairs: Ross Chapman Rick Wood
II	Crosslink Repair & Base Excision Repair Chairs: Julien Duxin Barbara van Loon	Translesion Synthesis & Alternative DNA structures Chairs: Jacqueline Jacobs Simone Sabbioneda	DSB Repair – HR Chairs: Jessica Downs Sven Rottenberg
III	Clinical Aspects Chairs: Dik van Gent Maaïke Vreeswijk	Replication Stress Chairs: Arnab Chaudhuri Niels Mailand	DSB Repair – general/chrom Chairs: Aaron Goodarzi Evi Soutoglou