

# Structural and molecular biology of the DNA damage response

## STRUCTURAL AND MOLECULAR BIOLOGY OF THE DNA DAMAGE RESPONSE 20-22 May 2019

### Venue:

Spanish National Cancer Research Centre – CNIO Auditorium, Madrid, Spain

### Chairpersons and organizing committee:

**Oscar Llorca**, Spanish National Cancer Research Centre, Madrid, Spain

**Rafael Fernández Leiro**, Spanish National Cancer Research Centre, Madrid, Spain

**Laurence H. Pearl**, Genome Damage and Stability Centre–University of Sussex, Brighton, UK

**Titia Sixma**, Netherlands Cancer Institute, NKI, Amsterdam, Netherlands

### Rationale:

DNA is continuously exposed to insults from endogenous and exogenous sources, and, therefore, maintenance of genome integrity is essential to all organisms. There are multiple pathways that ensure that the information contained in DNA is not damaged or lost. When these errors skip the control mechanisms or when other DNA damage type is present, multiple macromolecular complexes detect it and start the signalling cascades that lead to repair by different pathways depending on the lesion. All these pathways are safeguarding our genome and when they are de-regulated or they can't work efficiently, damage to DNA is accumulated. This, together with the instability of the genome, can promote the development of cancer and other diseases. This meeting will bring together research leaders in the field with a focus on the structural basis and molecular mechanisms.

### Speakers

James Berger  
Maria A. Blasco  
Alessandro Costa  
Patrick Cramer  
Aidan Doherty  
Daniel Durocher  
Rafael Fernández Leiro  
Karl-Peter Hopfner  
Oscar Llorca  
Juan Méndez  
Eva Nogales  
Lori Passmore  
Laurence H. Pearl  
Luca Pellegrini  
Titia Sixma  
Song Tan  
Nicolas Thomä  
Alessandro Vannini  
Roger Williams  
Wei Yang  
Xiaodong Zhang

Please, remember that this is a preliminary programme, and that talks and sessions may change time and date depending on the final topics of everyone's talk, and also attending specific needs of some participants.  
The final programme will be closed a few months before the meeting.

## Monday May 20<sup>th</sup>, 2019

- 8:30-09:15 *Registration & welcome coffee for all the participants (hall)*
- 09:15-09:30 Opening Remarks
- 09:30-12:30 Session 1: Chromatin and chromatin complexes  
*Chair: tbc*
- 09:30– 10:00 “Structural mechanism of the INO80 chromatin remodeller”  
**Karl-Peter Hopfner**, Gene Center Munich, Munich, Germany
- 10:00– 10:30 “Structural studies of chromatin complexes”  
**Song Tan**, Penn State University, Pennsylvania, US
- 10:30 – 10:45 short talk
- 10:45-11:15 *Coffee break (social room)*
- 11:15 – 11:45 “Cryo-EM of complexes containing RUVBL1-RUVBL2 AAA-ATPases”  
**Oscar Llorca**, Spanish National Cancer Research Centre, Madrid, Spain
- 11:45 – 12:15 “UV-damage recognition in chromatin”  
**Nicolas Thomä**, Friedrich Miescher Institute, Basel, Switzerland
- 12:15 – 12:30 short talk
- 12:30-14:00 *Lunch (cafeteria)*
- 14:00-17:30 Session 2a: DNA Replication and replication stress  
*Chair: tbc*
- 14:00 – 14:30 “Mechanisms for initiating DNA replication”  
**James Berger**, Johns Hopkins School of Medicine, Baltimore, US
- 14:30 – 15:00 “Operating principles and catalytic mechanism of DNA replisome”  
**Wei Yang**, National Institutes of Health, NIH, Bethesda, US
- 15:00 – 15:30 “Cooperative binding of multiple RPA molecules on single-stranded DNA”  
**Xiaodong Zhang**, Imperial College London, UK
- 15:30 – 15:45 short talk
- 15:45-16:15 *Coffee break (social room)*
- 16:15 – 16:45 “Molecular mechanisms of eukaryotic DNA replication and recombination”  
**Luca Pellegrini**, Cambridge University, Cambridge, UK
- 16:45 – 17:15 “Eukaryotic DNA replication studied by cryo-electron microscopy”  
**Alessandro Costa**, The Francis Crick Institute, London, UK
- 17:15 – 17:30 short talk
- 17:30-19:00 *Poster session, wine & cheese (Social Room)*



## Tuesday May 21<sup>st</sup>, 2019

09:30 - 10:45 Session 2b: DNA Replication and replication stress

Chair: *tbc*

09:30 – 10:00 “The 3Rs (Recruitment, Role and Regulation) of PrimPol during DNA Replication in eukaryotic cells”

**Aidan Doherty**, Genome Damage and Stability Centre, Univ. of Sussex, Brighton UK

10:00 – 10:30 “PrimPol protein at cytotoxic DNA lesions”

**Juan Mendez**, Spanish National Cancer Research Centre, Madrid, Spain

10:30 – 10:45 short talk

10:45-11:15 *Group picture (CNIO main door) & Coffee break (social room)*

11:15 - 14:30 Session 3: DNA transcription

Chair: *Tbc*

11:15 – 11:45 “Structure-function studies of DNA transcription and repair”

**Patrick Cramer**, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany

11:45 – 12:15 “Unveiling RNA Polymerase III (extra)transcriptional complexes with EM”

**Alessandro Vannini**, Institute of Cancer Research, ICR, London, UK

12:15 – 12:30 short talk

12:00-14:00 *Lunch (cafeteria)*

14:00 – 14:30 “Molecular visualization of the transcription initiation process”

**Eva Nogales**, HHMI/University of California at Berkeley, US

14:30-17:30 Session 4a: DNA damage and repair

Chair: *Tbc*

14:30 – 15:00 “Phosphorylation dependent assembly of DNA damage response complexes”

**Laurence H. Pearl**, Genome Damage and Stability Centre-University of Sussex, Brighton, UK

15:00 – 15:30 “Induction of telomeric DNA damage as a novel anti-cancer strategy”

**Maria A. Blasco**, Spanish National Cancer Research Centre, Madrid, Spain,

15:30-16:00 *Coffee break (social room)*

16:00 – 16:30 **Titia Sixma**, Netherlands Cancer Institute, NKI, Amsterdam, Netherlands

16:30 – 17:00 “Mechanistic insights into DNA repair using cryo-EM”

**Lori Passmore**, MRC Laboratory of Molecular Biology, Cambridge, UK

17:00 – 17:15 short talk

17:15 - 19:00 *Poster session – Wine & Cheese (social room)*



## Wednesday May 22<sup>nd</sup>, 2019

09:30-11:45 Session 4b: DNA damage and repair  
*Chair: Tbc*

09:30 – 10:00 “Cryo-EM of DNA repair complexes”

**Rafael Fernández Leiro**, Spanish National Cancer Research Centre, Madrid, Spain

10:00 – 10:15 short talk

10:15-10:45 *Coffee break (social room - certificates and invoices will be available at the reception desk)*

10:45 – 11:15 “Charting the response to DNA damage using functional genomics”

**Daniel Durocher**, The Lunenfeld-Tanenbaum Research Institute, Toronto, Canada

11:15 – 11:45 **Roger Williams**, MRC Laboratory of Molecular Biology, Cambridge, UK

11:15-12:30 *Closing remarks & prizes for best posters and best short talks*

