International Centre for Genetic Engineering and Biotechnology
ARTURO FALASCHI CONFERENCE
Science for Development

At the Intersection of DNA Replication and Genome Maintenance: from Mechanisms to Therapy

5-7 July 2022 | Trieste, Italy

PROGRAMME

Monday July 4th

15.00-19.00 Registration at Hotel Savoia Excelsior

19.00-20.00 Welcome Reception

Tuesday July 5th

08.45-09.00 Welcome Address

Session 1

Basic mechanisms of DNA replication

Chairman: Johannes Walter

09.00	How the MCM helicase is loaded and activated at eukaryotic replication origins	**John Diffley**, Francis Crick Institute, London, UK
09.25	Cryo-EM reveals new insights into DNA clamp loading and primer synthesis	**Huilin Li**, Van Andel Institute, Grand Rapids, USA
09.50	Dynamic motion during DNA replication viewed using single-molecule techniques	**Nynke Dekker**, Delft University of Technology, The Netherlands
10.15	Visualising eukaryotic replicative helicase activation by cryoEM	**Sarah Henrikus,** The Francis Crick Institute, London, UK
10.30	Genome-wide mapping of individual replication fork velocities using nanopore sequencing	**Olivier Hyrien,** Ecole Normale Supérieure, CNRS, INSERM, Université PSL, Paris, France
10.45	Rewiring of the molecular mechanisms of DNA replication between the naive and primed pluripotent states of embryonic stem cells	**Patricia Ubieto Capella,** Centro Nacional de Investigaciones Oncológicas, Madrid, Spain

11.00-11.30	*Coffee break*	
11.30-13.05	Session 2 **Replication-recombination interface** **Chariman: Arnab Ray Chaudhuri**	
11.30	Rad51-mediated replication of damaged templates relies on monoSUMOylated DDK kinase	**Dana Branzei**, IFOM, Milan, Italy
11.55	Recombination and repair at stalled mammalian replication forks	**Ralph Scully,** Harvard Medical School, Boston, USA
12.20	Loss of the Bloom syndrome helicase BLM is synthetic lethal with BRCA1 deficiency	**Andrew Blackford**, University of Oxford, UK
12.35	Structural snapshots of pre-synapsis reveal mechanism of Rad52 promoted Rad51 filament formation during HR	**Edwin Antony,** Saint Louis University School of Medicine, USA
12.50	Recombinational repair of DNA: Proteins, structures and functions	**Eric Chih-Chao Liang,** The Francis Crick Institute, London, UK
13.05-14.30	*Lunch break*	
14.30-16.30	**Poster session 1** *(even-numbered abstracts)*	
16.30-18.05	Session 3 **Specialised repair mechanisms during replication** **Chairman: Karlene Cimprich**	
16.30	POLQ - a gap in our knowledge	**Simon Boulton**, Francis Crick Institute, London, UK
16.55	The role of 9-1-1 in Microhomology-Mediated End Joining (MMEJ)	**Agnel Sfeir,** MSKCC, New York, USA
17.20	The Fanconi anemia protein SLX4 compartmentalizes the sumoylation / ubiquitylation system to control DNA processing reactions	**Angelos Constantinou**, Université de Montpellier – CNRS, France
17.35	DNA protein crosslink repair protease in embryonic development	**Marta Popovic,** Ruder Boskovic Institute, Zagreb, Croatia
17.50	RAD52 inhibition triggers a RAD51-Polα mediated repriming mechanism	**Ludovica Di Biagi**, Istituto Superiore di Sanità, Roma, Italy
18.00	*GROUP PHOTO*	
18.30	*Dinner*	

Wednesday July 6th

09.00-11.00 Session 4

Transcription, replication, and genome stability

Chairman: Alessandro Vindigni

09.00	Mechanisms of RNA-mediated Genome instability	**Karlene Cimprich,** Stanford University, Stanford, USA
09.25	Chromatin modifications upon transcription-dependent or independent replication stress	**Andres Aguilera**, University of Seville, Seville, Spain
09.50	Formaldehyde induced endogenous DNA damage at the crossroads between replication and transcription coupled DNA repair	**Ketan J. Patel**, Weatherall Institute of Molecular Medicine, Oxford, UK
10.15	Reactive oxygen species induce R-loop-dependent replication stress in human cells	**Martin Andrs,** Institute of Molecular Genetics of the Czech Academy of Sciences, Prague, Czech Republic
10.30	The ubiquitin ligase TRAIP plays an essential role during S-phase of unperturbed cell cycles for the resolution of DNA replication - transcription conflicts	**Shaun Scaramuzza**, University of Birmingham, UK
10.45	The SMC5/6 complex is required for genome integrity upon APOBEC3A-mediated replication stress	**Abby Green**, Washington University School of Medicine, St. Luis, USA

11.00-11.30 *Coffee break*

11.00-13.05 Session 5

Chromatin and replication

Chairman: Sharon Cantor

11.30	Chromatin Replication and Epigenome Maintenance	**Anja Groth,** University of Copenhagen, Copenhagen, Denmark
11.55	Dissecting the impact of histone H3.3 oncomutations on genome maintenance	**Sophie Polo,** University of Paris, Paris, France
12.20	Mechanism of CAF-1 dependent nucleosome assembly during DNA replication	**Francesca Mattiroli,** Hubrecht Institute, Utrecht, The Netherlands

12.35	Dynamics of epigenetic landscape in maintenance of replication fork integrity	**Nitika Taneja,** Erasmus University Medical Center, Rotterdam, The Netherlands
12.50	Single-copy locus proteomics of early- and late-firing DNA replication origins identifies a role of Ask1/DASH complex in replication timing control	**Stephan Hamperl,** Helmholtz Center Munich, Germany

13.05-14.30 *Lunch break*

14.30-16.05 Session 6

Replication, cohesion and nuclear dynamics

Chairman: Dana Branzei

14.30	Breakage of cytoplasmic chromosomes by pathological DNA base excision repair	**David Pellman,** Harvard Medical School, Boston, USA
14.55	A replication fork determinant for the establishment of sister chromatid cohesion	**Frank Uhlmann,** Francis Crick Institute, London, UK
15.20	Single-molecule visualisation of replication fork encounter with cohesin complexes	**Hasan Yardimci,** Francis Crick Institute, London, UK
15.35	Nuclear Actin Polymerisation mediates the rapid Cellular Response to DNA Replication Stress	**Maria Dilia Palumbieri,** University of Zürich, Switzerland
15.50	Cytoskeleton meets chromatin: a novel nuclear function of myosin VI in fork protection	**Jie Shi,** Institute of Molecular Biology gGmbH (IMB), Mainz, Germany

16.05-20.00 *Free time*

20.00-22.00 **Poster session 2** *(odd-numbered abstracts) with Wine & Pizza*

Thursday July 7th

09.00-10.30 Session 7

Fork plasticity and replication stress response

Chairman: Massimo Lopes

09.00	Impacts of Transcription and RNA on the Repair of DNA Breaks	**Lee Zou,** Harvard Medical School, Boston, USA
09.25	Mechanisms of replication-coupled DNA damage tolerance pathways	**David Cortez**, Vanderbilt University, Nashville, USA

09.50	Replication Fork Uncoupling Causes Nascent Strand Degradation and Fork Reversal	**Tamar Kavlashvili,** Vanderbilt University, Nashville, USA
10.05	Telomere replication is associated with an increased incidence of reversed forks that are elongated by telomerase	**Ylli Doksani,** IFOM ETS the AIRC Institute of Molecular Oncology, Milan, Italy
10.20	FANCJ, the missing piece of AND-1 interaction hub at the DNA replication fork	**Ana Cabaco Boavida,** Istituto di Biochimica e Biologia Cellulare (IBBC), Naples, Italy
10.35-11.00	*Coffee break*	
11.00-12.35	Session 8 **Fork transactions and therapies upon HR deficiencies** **Chairman: David Cortez**	
11.00	Addressing the Replication Gap in Cancer	**Sharon Cantor**, University of Massachusetts, Worcester, USA
11.25	Replication protein quality control by a new AAA+ ATPase complex	**Roger Greenberg,** University of Pennsylvania, Philadelphia, USA
11.50	The interferon/ISG15 system restores replication fork stability, cell viability and chemoresistance in BRCA-defective cells	**Lorenza Penengo**, University of Zurich, Switzerland
12.05	Modulating replication stress response to target viability of BRCA2 deficient tumors	**Arnab Ray Chaudhuri**, Erasmus University Medical Center, Rotterdam, The Netherlands
12.20	MDC1 counteracts restrained replication fork restart and its loss causes PARP inhibitor resistance in BRCA1/2-deficient mammary tumors	**Martin Liptay**, University of Bern, Switzerland
12.35-14.00	*Lunch break*	
14.00-15.45	Session 9 **Replication stress, human disease and therapy perspectives** **Chairman: Agnel Sfeir**	
14.00	Temporal and spatial regulation of DNA interactions during virus infection	**Matthew Weitzman**, University of Pennsylvania, Philadelphia, USA
14.25	Genome-embedded ribonucleotides in human disease	**Andrew Jackson**, University of Edinburgh, UK
14.50	Targeting Replication Stress to Generate Cancer Therapies	**Mark O'Connor**, AstraZeneca, Cambridge, UK

15.15	DNA-PKcs Promotes Fork Reversal and Anti-Cancer Drug Resistance	**Marcus Smolka**, Cornell University, Ithaca, USA
15.30	NEDDylated-Cullin 3 mediates the adaptive response to topoisomerase 1 inhibitors	**Alice Meroni**, Washington University in St. Louis, USA

15.45-20.30 *Free time*

20.30 *Social Dinner*

Friday July 8th

Departures

In collaboration with