

## DNA Topology and Topoisomerases in Genome Dynamics - Switzerland

2 September 2023

14:00 REGISTRATION

15:00 Intro

### Topology and Topoisomerases

15:05	Morgan Crewe (UT Southwestern Medical Center)	Dissecting the Role of TDP2-Mediated DNA Repair for the Expression of Topoisomerase 2-Dependent Neuronal Genes
15:20	Céline Borde (College de France)	An in vivo degradation system to study cross-talk between topoisomerases in <i>E. coli</i>
15:25	Libby Holmes (The University of Sheffield)	Tracking and tracing complex DNA structures using Atomic Force Microscopy
15:30	Max Gamill (University of Sheffield)	Knot What You Might Think - Automated Tracing of DNA Topology
15:35	Katy Hollands (University of York)	
15:40	Ramveer Choudhary (IFOM ETS - The AIRC Institute of Molecular Oncology)	Permissive Topological Conditions For Replication Termination
15:45	Ilse Delint Ramirez (UT Southwestern Medical Center)	Multiple activity-dependent pathways to regulate Topoisomerase 2 $\beta$
15:50	Vita Vidmar (Institut de génétique, biologie moléculaire et cellulaire)	Structural studies on RNA polymerase elongation complexes interacting with topoisomerase I

16:00 Break

### Supercoiling

16:45	Jose Terron-Bautista (Spanish National Cancer Research Centre -	DNA topology in genome organization and disease
17:00	Jillian Armenia (Vanderbilt University)	Effect of Supercoil Handedness on Intermolecular Strand Passage Catalyzed by Gyrase
17:05	María Del Mar Martínez Sánchez (Spanish National Cancer Research Center)	Profiling topoisomerase dynamics in the context of genome organization
17:10	Adam Fineberg (NHLBI/NIH)	Single-molecule rotor bead study of DNA plectoneme pinning in the presence of base-pair mismatches
17:15	Vladislav Kuzin (Karolinska Institute)	Investigating DNA topology regulation by gyrase and reverse gyrase in hyperthermophilic Archaea
17:20	James Provan (Institute for Integrative Biology of the Cell / CNRS)	Understanding the dynamics of <i>Vibrio cholerae</i> Xer recombination
17:25	Ian Morgan (NIH)	Mapping the DNA Cleavage Profiles of Type II Topoisomerases via Simplified High-Accuracy End Sequencing
17:30	Consuelo Perez (MRC Laboratory of Molecular Biology)	Transcription-induced supercoiling as co-regulator of DNA looping

17:50 Break

18:00 Walk

19:30 Dinner

### 3 September 2023

#### 08:00 Breakfast

#### Drug design

09:00	Samika Joshi (Vanderbilt University)	Interactions of established and novel antibacterials with <i>Acinetobacter baumannii</i> gyrase and topoisomerase IV
09:15	Jessica Collins (Vanderbilt University)	Mechanistic basis for target-mediated fluoroquinolone resistance in <i>Neisseria gonorrhoeae</i> gyrase
09:20	Chelsea Mann (The Ohio State University)	Biochemical Evaluation of Atypical Novel Bacterial Topoisomerase Inhibitors
09:25	Anh Cong (Mayo Clinic Graduate School of Biomedical Sciences)	Molecular Insights into Pharmacological Targeting of the Topoisomerase 2 ATPase Domain to Counteract Anthracycline Cardiotoxicity
09:30	Catley Thomas (University of Sheffield)	Investigating DNA damage mechanisms by metallodrugs with Atomic Force Microscopy
09:35	Alina Galivondzhyan (Skolkovo Institute of Science and Technology (Skoltech))	Bacterial Argonaut proteins participate in the repair of topoisomerase-induced double-strand breaks
09:40	Lipeng Feng (John Innes Centre)	Novel thiophene compounds targeting DNA gyrase and DNA topoisomerase IV

#### 09:55 Break

#### SMCs and other proteins

10:40	Marco Russo (University of Bologna)	Top1cc stabilization induces genomic context-dependent R-loop modulation in cancer cells.
10:55	Filippo Conforto (University of Edinburgh)	Entangled Loop-Extruding Polymers
11:00	Judith Benoit (University of Cambridge)	Investigating the role of Topoisomerase II alpha (TOP2A) and interacting proteins in the assembly and maintenance of mitotic chromosomes.
11:05	Alba Ayats Fraile (IBMB-CSIC)	Condensin pinches a short negatively supercoiled DNA loop during each round of ATP usage
11:10	Cleis Battaglia (University of Edinburgh)	Synergistic Mechanisms of Topological Simplification by SMC and Topoisomerase
11:15	Daniel Rollins (University of Sheffield)	Binding, Bridging, Bending: NDP52 and its interaction with DNA
11:20	Quentin Smith (UKRI MRC LMS / Imperial College London)	Structural basis of negative supercoiling induced Cas9 off-targeting

#### 11:35 Lunch

13:05	Breakout sessions:	How to present a poster?
13:05	Breakout sessions:	How to network/build your network?
13:05	Breakout sessions:	Careers with Keir

#### 14:05 Wrap up

#### 14:15 Walk

15:45 Transition to EMBO Workshop