

## Description of the event :

The 6th international course on « Genome instability & human disease” will take place on the 19-23 May 2025 at the Institute Curie in Paris. This course is dedicated to PhD student, postdoc and master students. It is organized around seminars given by renowned scientists at the forefront of their respective field and activities (Poster session, elevator pitch, Chairman/Chairwoman activities). All seminars are open to Curie members.

## Thematic of the course

Genome instability is a hallmark of cancer cells but also a cause of genetic diseases in humans. Our understanding of the causal relationships between genome instability and the development of human diseases rely on our knowledge of the basic mechanisms of DNA and RNA metabolism, from the spatial genome organization to the chromatin landscape up to the regulation of genome expression during development or in response to genotoxic stress. The dysfunctions of these basic mechanisms related to genome metabolism underlie human diseases including cancer, aging, neurological disorders and immune deficiency.

## Specific objectives:

- Gain knowledge of mechanisms ensuring genome stability, from fundamental molecular pathways (DNA replication, repair, transcription, genome organization) up to large scale approaches (molecular signature using NGS and proteomic). The specific topics are : 1- Genome & Chromatin organization for genome stability; 2- molecular signature of chromosome instability; 3- Replication stress & cancer; 4- RNA biology in the DNA Damage response; 5- Genetic instability in clinics; 6- DNA metabolism and immune system; 7- Mechanism of DNA repair and genome rearrangement; 8- Aneuploidy & cancer; 9- telomere & aging.
- Highlight how a research continuum, from basic research to clinical and translational research, provides opportunities to solve human health issues, including cancer.
- Encourage the students to speak. Students will ensure the moderator role and introduce speakers + elevator speech
- Train students to the evaluation process by awarding themselves the poster price.

## Organization:

- Seminars by experts in the field of the mechanisms that maintain genome stability to large scale approaches (molecular signature using NGS and proteomic). Highlight how a research continuum, from basic research to clinical and translational research, provides opportunities to solve human health issues.
- Workshops: Career development, scientific communication, technological workshop, poster session, “elevator pitch”, “students will chair” session
- Poster prize
- Curie Museum visit.

Preliminary program

**DAY 1**

Activities

Elevator Pitch

First poster session

Courses:

Genome & Chromatin Organization for Genome Stability (2)

Molecular signature of chromosome instability (2)

**DAY 2**

Activities

Second Poster session

Courses:

Replication Stress and Cancer (2)

RNA biology in the DNA Damage Response (2)

**DAY 3**

Activities

Career development Ronde Table

Third poster session

Best prize Elevator Pitch

Courses:

Genetic instability in clinics (2)

DNA metabolism and immune system (2)

**DAY 4**

Activities

Museum visit

Fourth Poster session

Workshop

Courses:

Mechanism of DNA repair and genome rearrangements (3)

**DAY 5** 23

Activities

Best Poster prizes

Workshop: scientific communication or Scientific Integrity

Courses:

Aneuploidy & Cancer (2)

Telomere & Aging (2)

## List of speakers by theme

### Mechanism of DNA repair and genome rearrangements

Dana Brnzei (IFOM, IT)  
Aurele Piazza (ENS-Lyon, FR)  
Raphael Guerois (I2BC, FR)

### Replication Stress and Cancer

Annabel Quinet (CEA, Paris, FR)  
Vincenzo Constanzo (IFOM, Italia) Keynote

### Genome & Chromatin Organization for Genome Stability

Anja Groth (University of Copenhagen, Denmark) Keynote  
Karine Dubrana (CEA, Paris, FR)

### Aneuploidy & Cancer

Renata Basto (Curie, Paris, FR)  
Zuzana Storchova (Univeristy Kaiserlautern, Germany)

### RNA biology in the DNA Damage Response

Brian Luke (IMB, Mainz, Germany)  
Benoit Palancade (IJM, Paris, FR)

### Molecular signature of chromosome instability

Marc-henri STERN (Curie, Paris, FR)  
Isidro Cortes-Ciriano (EMBL, Germany)

### Genetic instability in clinics

O. Sordet (CRCT, Toulouse, FR)  
Joanna Loizou (Astrazeneca, UK)

### DNA metabolism and immune system

Andrew Jackson (University of Edinburgh, UK)  
Nicolas Manel (Curie, Paris, FR)

### Telomere & Aging

Stephane Marcand (CEA, Paris, FR)  
Teresa Texeira (IBPC, Paris, FR)

## Organizing committee

**Chunlong Chen**, unité UMR3344 « Dynamique de l'information génétique », chef d'équipe « Programme de Réplication et instabilité du génome », Institut Curie, Paris.

**Valérie Borde**, unité UMR3344 « Dynamique de l'information génétique », chef d'équipe « Dynamique des chromosomes et recombinaison », Institut Curie, Paris.

**Sarah Lambert**, unité UMR3348 « Intégrité du génome, RNA et Cancer », chef d'équipe « Recombinaison, Réplication et Stabilité des Génomes », Institut Curie, Orsay.

**Raphaël Ceccaldi**, unité U830 « Cancer, Hétérogénéité, Instabilité et Plasticité », chef d'équipe « Mécanismes alternatifs de réparation de l'ADN dans les cancers », Institut Curie, Paris.

**Daniele Fachinetti**, UMR 144, Molecular Mechanisms of Chromosome Dynamics, Institut Curie, Paris