



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DEPARTMENT
OF PHARMACY
AND BIOTECHNOLOGY

AVVISO DI SEMINARIO

Il giorno **lunedì 29 settembre 2025**
Alle ore **14.00**

Dott.ssa **Giulia Ricci**
Hubrecht Institute (Utrecht, Paesi Bassi)
IEO (Milano, Italia)

Terrà un seminario dal titolo:

**Acute multi-level response to defective de novo chromatin assembly
in S-phase**

In presenza:

Aula 1, Bodoniana, Via San Donato 15/2, Bologna

ABSTRACT

Long-term perturbation of de novo chromatin assembly during DNA replication has profound effects on epigenome maintenance and cell fate. The early mechanistic origin of these defects is unknown. Here, we combine acute degradation of chromatin assembly factor 1 (CAF-1), a key player in de novo chromatin assembly, with single-cell genomics, quantitative proteomics, and live microscopy to uncover these initiating mechanisms in human cells. CAF-1 loss immediately slows down DNA replication speed and renders nascent DNA hyper-accessible. A rapid cellular response, distinct from canonical DNA damage signaling, is triggered and lowers histone mRNAs. In turn, histone variants' usage and their modifications are altered, limiting transcriptional fidelity and delaying chromatin maturation within a single S-phase. This multi-level response induces a p53-dependent cell-cycle arrest after mitosis. Our work reveals the immediate consequences of defective de novo chromatin assembly during DNA replication, indicating how at later times the epigenome and cell fate can be altered.



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BIOGRAPHICAL SKETCH

Giulia Ricci holds a Bachelor's degree in Biology from Tor Vergata University in Rome and a Master's degree in Molecular and Cellular Biology from the University of Bologna. She conducted her PhD research in Francesca Mattioli's lab at the Hubrecht Institute, part of the Utrecht University Graduate School of Life Sciences, where she studied chromatin dynamics with a focus on the role of de novo nucleosome assembly. She completed her PhD work in January 2025 and is scheduled to defend her thesis in early 2026.

In October 2025, she will start a postdoctoral position in Gioacchino Natoli's lab at the IEO, working on the regulation of extragenic transcription.