

Lorenzo Atzeni

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EDUCATION

- **University of Pavia** Pavia (PV), IT
PhD Program in Genetics, Molecular and Cellular Biology Oct 2024- Present
Thesis: *Mechanisms of transcription-replication conflicts.*
Supervisor: Dr. Giordano Liberi; Co-supervisor: Dr. Giacomo Buscemi
- **University of Milan “UNIMI”** Milan (MI), IT
MSc in Molecular biology of the cells Oct 2019 – Apr 2022
Cumulative GPA: 28,4/30
Final grade: 110/110
Thesis: *Characterization of Saccharomyces cerevisiae DNA Polymerase η under replicative stress.*
Supervisor: Professor Marco Muzi-Falconi; Co-supervisor: Dr. Federico Lazzaro
- **University of Milan “UNIMI”** Milan (MI), IT
BSc in Science biology Oct 2016 – Oct 2019
Final grade: 106/110
Thesis: *Studies of different biotechnological approach to study the immune response and the plant growth.*
Supervisor: Professor Paolo Pesaresi; Co-supervisor: Professor Giorgio Scari

POST-DEGREE EXPERIENCES

- **Istituto di Genetica Molecolare – Consiglio Nazionale delle Ricerche (IGM-CNR)** Pavia (PV), IT
Fellowship “Assegno di ricerca IGM0132023PV” Mar 2024 – Oct 2024
Supervisor: Dr. Giordano Liberi
Project: *Profiling transcription at DNA breaks to tackle genome instability.*
Project description: The aim of the project is to identify and characterize new molecular mechanisms and factors that prevent transcription-induced replication stress and aberrant R-loop accumulation. To carry out my project, I am using both physical and genetic approaches in the *Saccharomyces cerevisiae* model system.
- **Istituto FIRC di Oncologia molecolare (IFOM)** Milan (MI), IT
Fellowship Oct 2022 – Nov 2023
Supervisor: Dr. Ylli Doksani
Project: *Investigating about which factors are recruited at telomeres in presence of ssDNA breaks leading to i-loop formation.*
Project description: The aim of the project was to elucidate what factors in human cells might be involved in the formation, bypass or repair of i-loop structure at the level of repetitive sequences such as telomeres. In this

project I contributed to set up a TurboID-based proximity labelling approach to identify physical interactors of the telomere-end binding protein TRF1.

- **University of Milan (UNIMI)**

Milan (MI), IT

Fellowship “Giovani promettenti”

May 2022 – Oct 2022

Supervisor: Dr. Marco Muzi-Falconi

Project: *Investigation of SUMOylation effect of Saccharomyces cerevisiae DNA Polymerase η during replicative stress.*

Project description: This fellowship allowed me to continue my studies begun during my Master Thesis on the role played in replication by the budding yeast translesion-synthesis DNA Polymerase η (Pol η). Specifically, here I focused on the role that SUMOylation plays in regulating the recruitment of Pol η to the replication fork. By mutagenizing several putative SUMOylation sites, I identified a lysine that may be the main residue involved in the Pol η SUMOylation. The aim of my master thesis work has been to define how DNA Polymerase η (Pol η) leads to toxic effect in *Saccharomyces cerevisiae* cells under replication stress conditions. My role in the project was to elucidate the role of Pol η in the formation of R-loops under these conditions. To achieve my goal, I generated several constructs where both yeast Pol η and Sen1, the latter a DNA/RNA helicase implicated in R-loop removal, can be overexpressed independently and at different phases of the cell cycle.

TECHNICAL SKILLS AND COMPETENCE

WET LAB SKILLS

Molecular biology: PCR (qPCR, colony PCR, mutagenic PCR, one-step PCR), DNA extraction, replication intermediates isolation and 2D gel analysis, cloning. Plasmid extraction from human cells (Hirt protocol), *E. coli* cells (MINI and MAXI Prep), and *S. cerevisiae* cells (Teen protocol).

Biochemistry: Extraction and protein purification, SDS-page, Western and Southern Blot, NiNTA Pull-Down assay.

Cellular biology: Yeast asci dissection, drug sensitivity test, cell synchronization, Delitto Perfetto strategy. Human cell manipulation, human cell line formation by CRISPR-Cas9 approach, human cells transfections, infections and electroporation. Genomic extraction from both mammalian and yeast cells.

Microbiology: Manipulation and transformation of *E. coli* and *S. cerevisiae*.

DRY LAB SKILLS

Pubmed, NCBI, BLAST, UniProt, Ensembl. Primer design and sequence mapping, Gene Ontology, Office 365. ImageJ. ImageLab.

CERTIFICATES

- Italian mother tongue
- English: IELTS at 13/04/2024.

Listening	Reading	Writing	Speaking	Overall band score	CEFR level
7,5	6,5	6,5	6,5	7	C1