European School of Molecular Medicine

2026 spring call PhD selections

AVAILABLE POSITIONS

Principal Investigator	Ylli Doksani
Institute of Affiliation	IFOM

PROJECT INFO	
Title of the proposed project:	How do tumor cells accumulate extrachromosomal circular DNA?
Short description of the project	Why do some tumor cells build massive extrachromosomal DNA amplifications that accelerate evolution and drug resistance? This PhD project will tackle that question by uncovering how large ecDNA molecules arise from DNA damage and repetitive elements in human cells. Using CRISPR-Cas9, molecular and cellular biology, and cancer-focused models, the student will explore a new and fast-moving area of genome biology with strong relevance to tumor progression.
Main research area for the project	Genome instability, cancer biology, Molecular and cellular biology
Second research area for the project	Cancer genomics
3 key words for the project	ecDNA; genome instability; CRISPR

LAB INFO	
Main topic/s of the lab	Genome instability, DNA damage response, telomere biology, repetitive DNA, and mechanisms of extrachromosomal circular DNA formation in cancer.
Short description of the lab activity	The Doksani lab studies how DNA damage and repetitive genomic elements reshape chromosome structure and promote genome instability. A major focus of the lab is understanding how unusual DNA structures form at telomeres, centromeres, rDNA, and other repetitive regions, and how these processes contribute to eccDNA/ecDNA production and tumor evolution. The lab combines mechanistic molecular biology with advanced structural and genome-wide approaches, including CRISPR-based genetic engineering, DNA damage assays, electron microscopy imaging, and sequencing-based analysis. Recent work from the lab has helped define internal DNA loop intermediates (i-loops) as a route to circular DNA formation and has established strong expertise in telomere and repeat biology.
Recent bibliography	https://www.ifom.eu/en/cancer-research/publications/ylli-doksani.php
Group composition	9 people total: 3 postdocs, 1 staff scientist, 3 PhD students, 1 master student, 1 research fellow. The lab provides a collaborative and friendly environment, with strong support and supervision.
Institutional page link	https://www.ifom.eu/en/
Lab website link	https://www.ifom.eu/en/cancer-research/research-labs/research-lab-doksani.php
Social media links	https://bsky.app/profile/doksanilab.bsky.social