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Where Metabolism Meets DNA Repair: A Nuclear Perspective

Genome integrity depends on the efficient repair of DNA lesions, yet the metabolic underpinnings of how the nucleus supports this process remain underexplored. Drawing on our recent findings, I will discuss how nuclear metabolism plays key roles in orchestrating the DNA damage response. Specifically, I will highlight how nuclear cofactor availability, metabolite-derived building blocks, nuclear energy and redox buffering within the nuclear compartment influence chromatin-associated repair events, damage-sensing signalling and the kinetics of lesion resolution. I will also address how perturbations in these nuclear metabolic pathways compromise repair fidelity and can be exploited as vulnerabilities in disease contexts such as aggressive cancer subtypes. By reframing metabolism and DNA repair as intimately connected in the nuclear space, I will present a unified perspective on how cells coordinate energy, redox and biosynthetic demands to maintain genome stability.



Thursday
February 26, 2026



U3-BIOS building
room U3-09



4.30 pm
to 5.30 pm

Host:
Ferdinando Chiaradonna



The certificates of attendance for the seminar are also valid for the acquisition of CFU credits
For information, please visit the seminar's webpage

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