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THE PLANT NUCLEAR PERIPHERY AS A FUNCTIONAL COMPARTMENT IN NUCLEAR ORGANIZATION.

Our long-standing objective is to investigate the impact of chromatin organization on the dynamic transcriptional regulation occurring during plant development or in response to environmental stimuli. To this aim, our group is using the model species Arabidopsis thaliana to study chromatin organization (i) at the level of the chromatin fiber by analyzing histone variants and high mobility group proteins and (ii) the interaction of chromatin with components of the nuclear periphery, a more spatial (3D) aspect of chromatin organization. I will review our work on the impact of the nuclear periphery in transcriptional control. In particular, I will describe our recent findings about components of the nuclear envelope and nucleoskeleton that support the nuclear periphery as a functional compartment in nuclear organization and regulation of gene expression (1). Our investigations strongly benefited from our recent developments in 3D bio-imaging allowing the fine and automated description of nuclear morphology and chromatin organization (2). This work was performed in the frame of the INDEPTH COST Action (CA16212) (3).

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