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## Identification et fonction des domaines chromatinien associés au nucléole chez *Arabidopsis thaliana*

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### Summary

The nucleolus is the site of ribosomal RNA (rRNA) genes transcription, processing and ribosome biogenesis. However, the nucleolus contains much more than rRNA genes. Using a technique designed to isolate nucleoli by Fluorescence Assisted Cell Sorting (FACS) from any plant tissue, we have identified genomic Nucleolus-Associated Domains (NADs) from *Arabidopsis thaliana* leaves. NADs are essentially composed of genomic regions with silent chromatin signatures. Excluding rRNA genes, NADs contain 11% of *A. thaliana* transposable elements and 3% of *A. thaliana* genes. Analyses of NADs in plant cells with affected nucleolus structure reveal how NADs composition is dependent of rRNA genes expression and the nucleolus structure. Our data also suggest a role of the nucleolus in telomere maintenance and/or protection. Finally, our analyses reveal that some NADs are composed of genes and an important fraction of them are unexpressed. Because RNA polymerase II is excluded from the nucleolus, we propose the existence of a new way to regulate gene transcription by nucleolar sequestration.

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