

## CHARACTERIZATION OF COILED BODIES IN SUGARCANE MERISTEMATIC NUCLEI DURING THE CELL PROLIFERATION PROCESS.

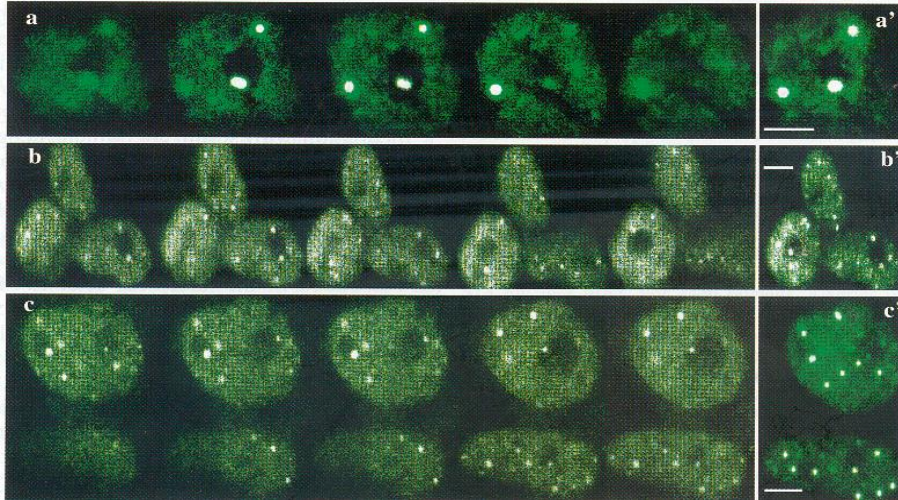
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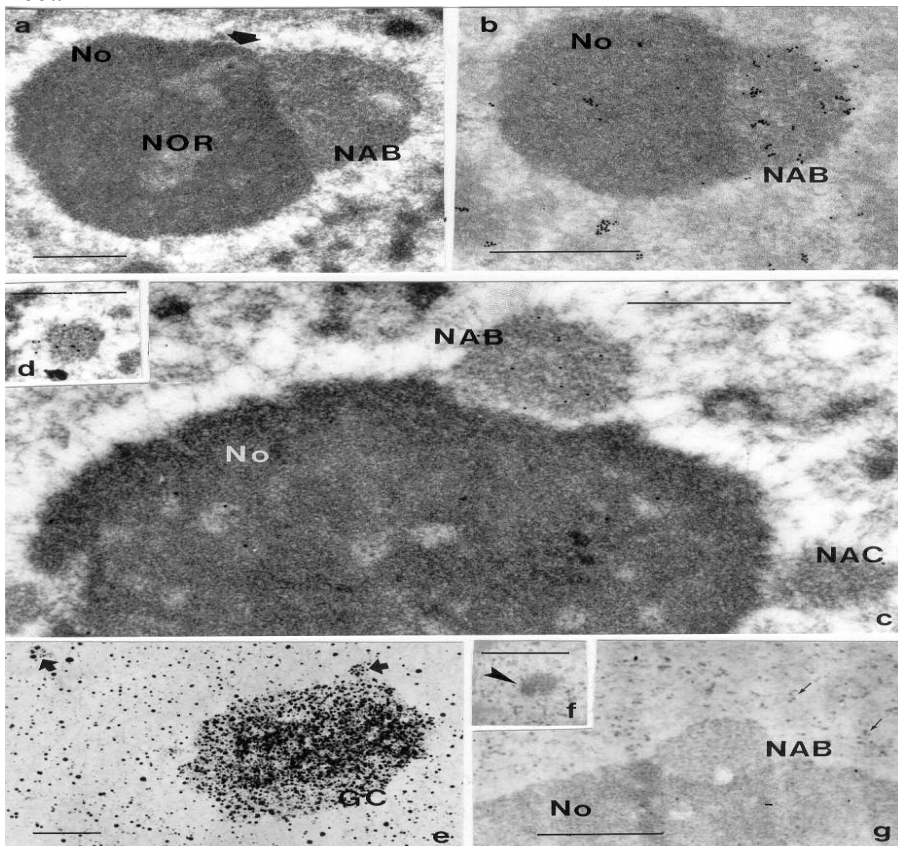
Coiled bodies are a class of conserved nuclear bodies in animal and plant cells. Coiled bodies contain splicing ribonucleoproteins (RNPs), the phosphoprotein p80 coilin and nucleolar antigens such as fibrillarin and snoRNPs (1). Coiled bodies plows highly dynamic structures. They vary in size, number, nuclear localization (associated with the nucleolus and free in the nucleoplasm) and composition, in different cell types and under different growth conditions. Coiled bodies have been proposed to be the sites of assembly of splicing factors (1), to play a role in histone mRNA processing (2) and to be involved in the processing, or transport, of snoRNA precursors (3). But the function of them is still under debates. Many Scientists include in the coiled bodies term to family of related structures, some of them containing different proteins and performing different functions (1). The objective of this work was to characterize the coiled bodies of Cristalina, a sugarcane cultivar, a monocot with a 2C DNA content of 6 pg and semireticate chromatin organization (4, 5). Samples of quiescent primordial were excised from radicle bans before soaking and roots of different times after activation to the steady state of proliferation were also taken. They were analyzed in a confocal microscope by immunofluorescence labeling with antibodies against components of the splicing (U2B'' and Sm core protein B) and pre rRNA processing (fibrillarin) complex. An electron microscopic study was done too. The number, size and distribution of coiled bodies varied in the meristematic tissue depending on cell activity. While G<sub>0</sub> cells in the dry primordia and proliferating cells showed a similar number of coiled bodies attached to their nucleoli, the number of nucleoplasmic coiled bodies greatly increased after the primordia were stimulated to proliferate (Fig. 1). Their number remained steady from the time the meristematic population reached the steady state of proliferation, as estimated by flow cytometry. Fractionation studies demonstrated that coiled bodies are a part of the underlying nuclear matrix. Comparison of immunocytochemical and cytochemical data from confocal and electron microscopical studies (Fig. 2) demonstrated that the nucleolar and nucleoplasmic coiled bodies detected by confocal microscopy shared many features, suggesting that they form a family of closely related structures.

### References

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**Fig. 1.** Labelling of sugarcane meristem root cells in different states of activity with 4G3 antibody. Several confocal images through a cell and the corresponding projection (on the right). **a, a'**. Dormant (G0) cells of primordial display a few large coiled bodies associated with the nucleolus. **b, b'**. Reactivating meristem cells in the 2 mm root have more but smaller coiled bodies, many of them lying in the nucleoplasm. **c, c'**. The steady-state proliferating cells of the 15 mm root present a distribution of coiled bodies similar to that in the 2 mm root.



**Fig. 2.** Citochemical and immunocitochemical characterization of the coiled. Conventional staining of dormant nucleolus (No) with a great nucleolar associated body (NAB), the nucleolar organizer (NOR) and the connection among them (arrows). Y12 immunolabelling of the NAB in dormant nucleolus (**b**) and in reactivating meristem (**c**). **d**. Y12 immunogoldstaining of a nucleoplasmic coiled bodies. **e**. Silver impregnation of nucleolar and nucleoplasmic coiled bodies. **f**. and **g**. Bismuth oxynitrate staining.