

MICROSCOPY OF A CONSERVED NUCLEAR DOMAIN IN CHORDATA

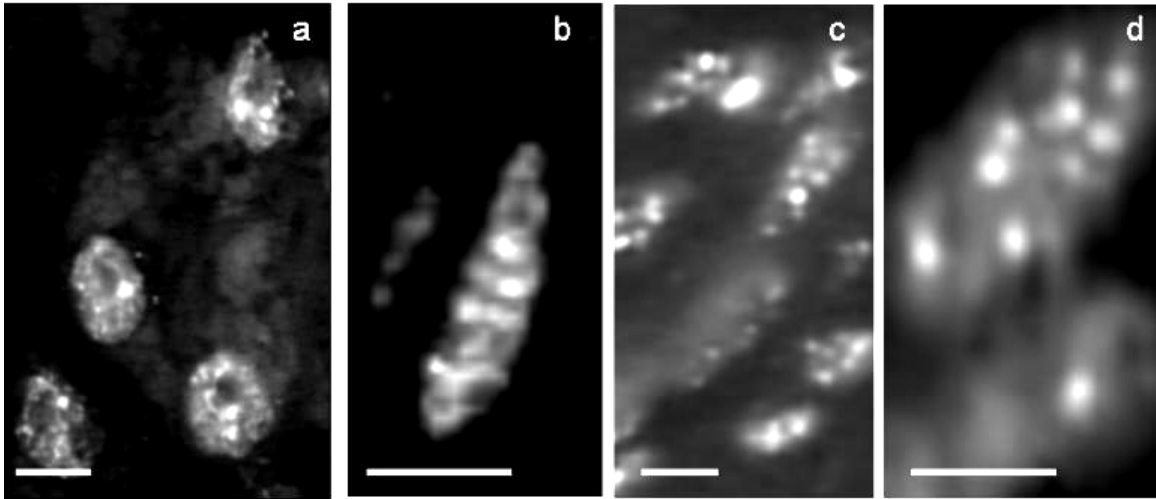
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The interphase cell nucleus is a very compartmentalized and dynamic organelle (1). Several domains have been described involved in the intranuclear RNA metabolism. Such domains include the nucleolus and the interchromatin space where domains as speckles and nuclear bodies are present, among others. Speckles are structures visualized by light microscopy that, when observed with electron microscopy correspond to cumuls of interchromatin granules associated to perichromatin fibers. Speckles are structures enriched in splicing factors. The morphology of speckles varies depending upon transcriptional or splicing activity. Although speckles have been studied mainly in mammalian cultured cells, recently speckles have been also observed in several tissues that in addition are transcriptionally responsive to hormones (2), similar to that observed in cultured cells. We therefore asked whether speckles are domains conserved throughout evolution. We used samples of different sources including agnatha (*Lampetra*), fishes (*Salmo*), amphibians (*Bufo*, *Eleutherodactylus*), reptiles (*Sceloporous*) and birds (*Gallus*). These samples were prepared for histology by using paraformaldehyde fixation and paraffin embedding. Immunofluorescence using antibodies to splicing factors revealed speckles in all of the tissues studied.

These results suggest that this nuclear domain predates the origin of chordates and may be involved in the intranuclear RNA metabolism since then as a storage site of splicing factors. In fact, we also have studied hemichordata samples (*Balanoglossus*) and found that nuclear speckles are also present in these organisms. These results extend the present of speckles from vertebrates to chordata.

References

- (1) Misteli, T. J. Cell Sci. (2000) 113, 1841.
- (2) George-Téllez, R. et al., Biol. Cell (2002) 94, 99.



Immunofluorescence to SR proteins in the nuclei of the amphibian *Bufo* (a, b) and *Eleutherodactylus* (c, d). Bar is 5 μm . Speckles within the cell nuclei are seen as bright spots.