Abstract

Pore-linked filaments were visualized in spreads of anuran spermatocyte nuclei using transmission electron microscope. We used Odontophrynus diplo and tetraploid species having the tetraploid frogs reduced metabolic activities. The filaments with 20-40 nm width are connected to a ring component of the nuclear pore complex with 90-120 nm and extend up to 1 μm (or more) into the nucleus. The filaments are curved and connect single or neighboring pores. The intranuclear filaments are associated with chromatin fibers and related to RNP particles of 20-25 nm and spheroidal structures of 0.5 μm, with variations. The aggregates of several neighboring pores with the filaments are more commonly observed in 4n nuclei. We concluded that the intranuclear filaments may correspond to the fibrillar network described in Xenopus oocyte nucleus being probably related to RNA transport. The molecular basis of this RNA remains elusive. Nevertheless, the morphological aspects of the spheroidal structures indicate they could correspond to nucleolar chromatin or to nucleolus-derived structures. We also speculate whether the complex aggregates of neighboring pores with intranuclear filaments may correspond to pore clustering previously described in these tetraploid animals using freeze-etching experiments.

Keywords

pore-linked filaments, intranuclear filaments, clustered-like NPCs in polyploid anurans, RNA transport.