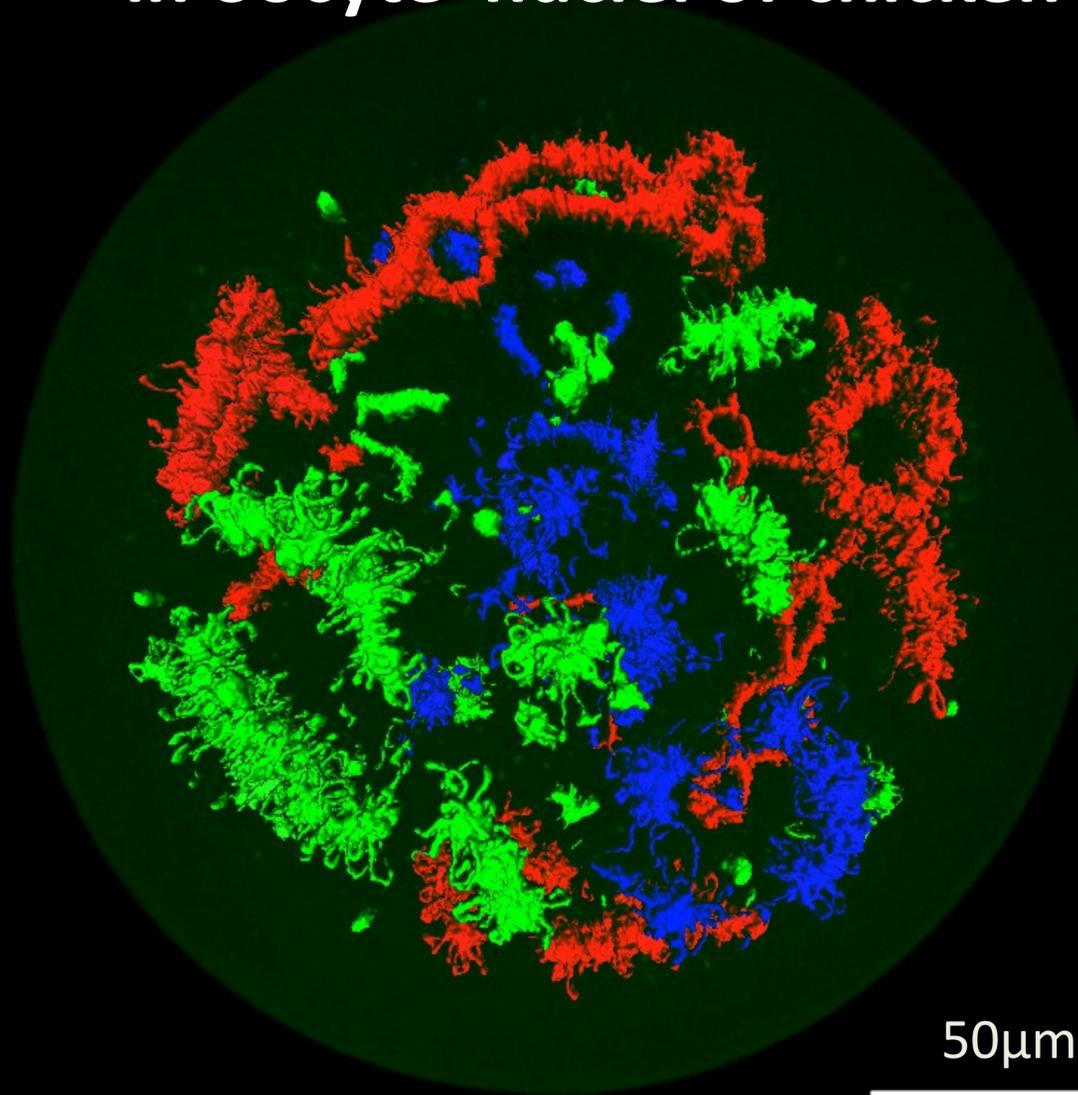




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Spatial arrangement of lampbrush chromosomes in oocyte nuclei of chicken



A 3D reconstruction of the giant nucleus manually isolated from growing oocyte of domestic chicken. The nucleus was stained with nucleic-acid specific fluorescent dye Sytox green and scanned with a confocal microscope. Isosurfaces created around macro-, midi- and microchromosomes in the lampbrush form were computer-painted with red, blue and green, respectively. Gene-rich microchromosomes are found mainly on the periphery of the region occupied by the whole chromosome set, rather than in the nuclear centre. Gene-poor macrochromosomes have no preferential localization within the nuclear interior. In contrast, in the interphase nucleus of chicken somatic cells microchromosomes occupy the central nuclear area, whereas the territories of large and medium-sized chromosomes are located mostly at the nuclear periphery. The disorderly arrangement of lampbrush chromosomes in the oocyte nucleus probably reflects a lack of the structural limitations in this very large nucleus that determine the regular organization of chromosome territories in the interphase nucleus.