Localization of the 16S mitochondrial rRNA in the nucleus of mammalian spermatogenic cells

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Amplification of RNA from human sperm heads yielded a fragment of 435 bp that shares 100% identity with a central region of the 16S mitochondrial rRNA. The nuclear localization in the sperm of the mitochondrial RNA was confirmed by in-situ hybridization. These results, together with the localization of the 16S mitochondrial rRNA in mouse sperm, are the first demonstration that the organelle transcript is a normal component of the mammalian gamete. The possibility that the nuclear mitochondrial RNA arises from nuclear transcription of a mitochondrial pseudogene was ruled out. To determine when during spermatogenesis the mitochondrial RNA is localized in the nucleus, in-situ hybridization of mouse and human testis was carried out. The nuclei of spermatogonia, spermatocytes and round and elongated spermatids were all positively stained. In human spermatocytes, the nuclear staining pattern was fibrillar, suggesting an association of the mitochondrial transcript with the meiotic chromosomes