

## The nuclear division in ciliate-DNA distribution to daughter cells by nuclear positioning

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### SUMMARY

A ciliate has two kinds of nuclei in a cell: a macronucleus (MAC) and a micronucleus (MIC). During cell division, the MAC divides amitotically and the MIC divides mitotically. The mechanism of MAC amitosis is unknown. Nuclear division in three species of *Euplotes* was observed in living cells. The U- or  $\tau$ -shaped MAC shortened to a rod shape at the end of S phase and was positioned just under the division furrow. The anteriorly located MIC moved with the anterior replication band to the division furrow. Based on these results, together with previous results for *Tetrahymena* and *Paramecium*, we propose that even distribution of DNA to the daughter cells is achieved by precise nuclear positioning. Ciliates have a unique mechanism of DNA distribution.