

Probes into the clock of aging in *Paramecium tetraurelia* using microinjection of macronuclear DNA

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SUMMARY

After conjugation or autogamy in *Paramecium tetraurelia*, cumulative cell divisions result in the decrease of the fission rate and, eventually, in clonal death. The life span of *P. tetraurelia* is known to be about 200 fissions after autogamy. The clock for counting the number of fissions (i.e. clonal age) may lie in the chromosome of the macronucleus. To analyze whether clonal age is memorized in the macronucleus, we injected extracted macronuclear DNA of young cells into aged cells that were at S-phase. The cells that were injected with the DNA expressed the marker gene. However, the cells did not recover in fission rate nor prolong their life span. This result suggests that the clock is not located in the DNA, though that possibility cannot be completely ruled out.