

PROGRAMMED GENETIC MATERIAL ELIMINATION IN EUKARYOTES

In most organisms, the somatic cells and pre-meiotic germ cells share an identical genome. Nevertheless, some organisms can selectively eliminate parts of their genomes, during specific stages of ontogenesis, in germ cells, during meiosis and in somatic cells. Despite years of research into selective DNA elimination, some important questions still remain unresolved: (i) How are sequences that are destined for elimination recognized in different organisms? (ii) Are mechanisms of genetic material elimination similar among model organisms or are they unique to each species? (iii) Why do only some organisms eliminate their DNA, while the vast majority of them do not? (iv) Could these mechanisms be used for manipulating the genome or the karyotype?

A beautifully illustrated review, which recently appeared in [Biological Reviews](#), looks at the phenomenon in different organisms, ranging from ciliate protozoa to mammals. The authors summarize recent developments in programmed genetic material elimination, which includes chromatin diminution (together with programmed genome rearrangement or DNA rearrangements), B and sex chromosome elimination, paternal genome elimination, parasitically induced genome elimination, and genome elimination in animal and plant hybrids.

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