

COMPREHENSIVE REVIEW ABOUT THE EFFECTS OF ANEUPLOIDY

Aneuploidy is defined as the loss or gain of chromosomes, leading to a numerical deviation from multiples of n , the haploid chromosome complement (n being 23 in humans). The first aneuploidy identified in humans was trisomy 21 in 1959, the presence of an additional chromosome 21 in patients with Down syndrome.

Now, in the January 5th issue of [Nature Reviews Molecular Cell Biology](#)¹, Rong Li and Jin Zhu from the Mechanobiology Institute, National University of Singapore and the Department of Cell Biology, Johns Hopkins University School of Medicine, Baltimore, published an extensive review about the consequences of aneuploidy. The review covers the natural presence of aneuploid cells in all humans, the causes of aneuploidy (chromosome missegregation, DNA replication stress, spindle defects) and the damaging effects of aneuploidy, e.g. related to cancer. Also, the mechanisms of compensation of these effects are described, as well as the relation between aneuploidy and ageing. The focus is on man, but examples from studies in model organisms such as yeast, fruitfly and mouse illustrate the universality of the consequences of aneuploidy.

A very useful reference that can be used for teaching basic knowledge about chromosome aberrations and their consequences.

¹ Li R, Zhu J: Effects of aneuploidy on cell behaviour and function. *Nat Rev Mol Cell Biol* *in press* (2022) <https://www.nature.com/articles/s41580-021-00436-9>