

↳ ③ centromere

↳ the region where spindle fibres attach during ~~each~~ cell division

• during interphase, chromosomes are organised in the nucleus

↳ chromosomes organise themselves into discrete patches (chromosome territories)

↳ active genes (the euchromatic regions of chromosomes) tend to be located near the boundary of the chromosome territory

genome

• genome: the complete set of genes of an organism (ie. all of the DNA found in a body cell)

• genomics: the genome-wide analysis of gene structure and expression

↳ genomes can be entirely sequenced (eg. the human genome project)

• eg. the human genome is:

↳ 21% LINES

↳ 13% SINES

↳ 8% retroviral-like elements

↳ 3% DNA-only transposon "fossils"

↳ 3% segmental duplications

↳ 5% simple sequence repeats

↳ 37.5% introns (non-coding regions)

↳ 1.2% exons (protein-coding regions)

↳ 8% heterochromatin

• the size of a genome is not directly related to its biological complexity

↳ the bulk of genomes are heterochromatin (not sequenced) and introns/other non-coding parts of genes from euchromatin

• comparisons of genomes among species can suggest evolutionary and functional relationships among genes

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Page 3 of 3