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SEXUAL DIMORPHISM OF KARYOTYPE AND TRIGONOSOME HYPOTHESIS OF SEX DETERMINATION

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From the chromosome theory of sex determination it follows that the division into two sexes is genetically determined by the sex chromosomes (gonosomes). In some species, including humans, the male karyotype consists from two different types of gonosomes — X and Y (XY-constitution). The female karyotype contains two homologous X gonosomes (XX-constitution). There is a sexual dimorphism of karyotype and a digonosome mechanism of sex determination. A number of experimental data (e. g. discrepancy between karyotype and sex) do not fit into the framework of this concept. Therefore, a trigonosome (X, Y and X_Y) scheme is proposed. In it, the individuals of each sex contain one different polar sex chromosome (X or Y) in their karyotype that characterizes the sex of the carrier. In these chromosomes the genetic factors of one or the other sex predominate. The third, neutral intersex chromosome X_Y, is common to both sexes and its genetic factors are approximately equally responsible for the formation of both masculine and feminine characters during ontogeny. The proposed concept is based on symmetry considerations and is compatible with known data, including facts that have not been explained within the framework of classical genetics of sex.

Key words: genetics of sex, sex chromosomes, sexual dimorphism of karyotype, trigonosome mechanism