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Short Review

A proposal of a standardised nomenclature for terminal minute sister chromatid exchanges

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Abstract

We described spontaneous minute sister chromatid exchanges (SCE) in telomeric regions of human and Chinese hamster ovary (CHO) chromosomes more than 10 years ago. These structures, which we called *t*-SCE, were detected by means of highly precise quantitative microphotometrical scanning and computer graphic image analysis. Recently, several authors using the CO-FISH method also found small SCEs in telomeric regions and called them T-SCE. The use of different terms for designating the same phenomenon should be avoided. We propose ter SCE as a uniform nomenclature for minute telomeric SCEs.

Key words: minute telomeric SCEs, chromosome nomenclature.

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Research on the telomeric chromosome segment has considerably increased because it not only keeps constant the chromosome number, and intervenes in cancer and cell senescence processes, but it is also the site of cryptic chromosome aberrations associated with mental retardation, congenital malformations, spontaneous abortions and neoplasias.

An analytical method developed by us based upon a quantitative microphotometrical scanning and computer graphic image analysis (for a detailed description of this system see Drets *et al*., 1995) enabled us to observe, for the first time, differential interchromatid distributions of high density chromatin in T-banded segments of human and CHO chromosomes and minute sister chromatid exchanges between dense and light chromatid areas (Drets *et al*., 1992). We named these SCEs *t*-SCEs. *t*-SCEs are minute structures only detectable using special cytogenetic methodologies. More than eleven years later, several authors (Bailey *et al*., 2004; Bechter *et al*., 2004; Laud et al. 2005; Londoño-Vallejo *et al*., 2004; Wang *et al*., 2005) using the method of CO-FISH, detected minute SCEs in telomeric segments which are quite similar to our *t*-SCEs, and named them T-SCEs.

We feel that the use of different terms for describing similar, if not identical, structures detected with different cytological methods should be avoided and therefore we propose to designate them as "ter SCE" following the rules of ISCN (2005).

In mammalian and human chromosomes ter SCE are more frequent than SCEs observed in other regions. Particularly, human chromosomes termini display elevated rates of mitotic recombination (Cornforth and Eberle, 2001). ter SCE as well as subtelomeric cryptic aberrations associated with severe clinical conditions could reflect a high functional activity of this chromosome region (Obe *et al*., 2002; Drets 2000 and 2004).

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