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L615细胞染色体上二氢叶酸还原酶扩增基因的定位[1)]

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摘要 在L615细胞株的细胞中发现有双微体（DM）[1] 同样,这种细胞株的细胞中也有均质染色质区(HSR)的染色体.这条染色体为中度长短,HSR位于这条染色体的中部靠近顶端着丝点处.DM和HSR都是二氢叶酸还原酶(DHFR)基因的顺序,它们是DHFR基因的扩增.由于DHFR基因的扩增,细胞超量产生二氢叶酸还原酶,所以L615细胞对叶酸的同系物药物-氨甲喋呤(MTX)是抗性的。

关键词

分类号

Location of Amplification Dihydrofolate Reductase Gene on L615 Cell Chromosomes

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Abstract

Our experiments demonstrated that there were DMs in part of L615 cells, in other part of L615 cells there were homogeneously staining region(HSR) on chromosomes. The relationship between Dm and HSR was little known. But the two forms of abnormal chromosomes are amplified dihydrofolate reductase(DHFR) gene. The L615 cell's resistance to methotrexate (MTX) resulted from DHFR gene amplification. We suggest that the cell mitosis in some cases might become DMs. Sometimes the DM is integrated into chromosome during cell mitosis, which formed a homogeneously. staining region. Recently, extracts of cells at various stages of mitosis has been examined with nonionic detergents by steroscopic whole mount electron microscopy. It is revealed that an extensive skeletal framework which is continuous from the plasma. lamina to the chromosomes. The granular netword occasionally observed in preparations may represent a remanant of the skeletal framework. DM chromosomes enmeshed in this type of highly structured element in conjunction with their close association with the centric chromosomes may present a mechanism for the segregation of these elements during mitosis, assuring their continued presences within the cell population. The HSR chromosome in L615 cells is the eighteenth chromosome. The HSR is located on the middle size chromosome. The homogeneously staining region showed strong fluorescence when the cells were stained with Hoechst33258. The hybridization results also show that the HSR is located in a middle size chromosome. Meanwhile the hybridization results demonstrated the nucleotide sequence of HSR was homologous with DM. The dihydrofolate reductase analysis shows that the enzyme quantity is at a high level.

Key words

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