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综述

癌症高表达蛋白Hec 1与染色体不稳定性

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摘要 摘要：癌症高表达蛋白 Hec 1是纺锤体检验点信号途径中的一个蛋白,在有丝分裂期位于着丝粒。Hec 1-Nuf 2复合物是招募纺锤体检验点复合物Mad 1/Mad 2的重要结构基础。Hec 1蛋白可以与26S蛋白酶体亚基相互作用抑制其降解细胞周期素功能。Hec 1是用酵母双杂交方法寻找与Rb相互作用蛋白时发现的,Rb可通过与Hec 1相互作用调节Smc 1与DNA的结合能力,从而参与M期调控。Hec 1主要在G2/M期表达,激酶Nek2磷酸化Hec 1是其发挥功能的关键。〖STBX〗Hec 1〖ST〗在一些肿瘤细胞中高表达并且在部分肿瘤组织中表现扩增。〖STBX〗Hec 1〖ST〗基因的功能异常会引起严重的染色体分离障碍,从而导致染色体不稳定,而染色体不稳定性与肿瘤的发生、发展密切相关。所以Hec 1可能成为肿瘤基因治疗的一个新的靶点。

关键词 癌症高表达蛋白 纺锤体检验点 染色体不稳定性 肿瘤

分类号

Highly Expressed Protein in Cancer (Hec 1) and Chromosome Instability

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Abstract

ABSTRACT:Highly expressed in cancer (Hec 1), locating at centromere during cell mitosis, plays an important role in the pathway of spindle checkpoint. Hec 1-Nuf 2 complex is the structural basis for the recruitment of Mad 1/Mad 2 complex of spindle checkpoint. Hec 1 can interact with the subunit of 26S proteasome and inhibit the degradation of cyclins. It was initially identified as a protein interacting with Rb by yeast two-hybridization assay. Rb interacts with Hec 1 to regulate the binding ability of Smc 1 with DNA and participates in the regulation of M phase. Hec 1 mainly expresses at G2/M phase and functions through the phosphorylation by kinase Nek 2. Hec 1 is over expressed in some cancer cell lines and amplified in tumor tissues. The dysfunction of Hec 1 gene may cause severe impediment of chromosome separation and finally lead to chromosome instability, which is closely associated with the occurrence and development of tumors. Therefore, Hec 1 may become a new target of tumor gene therapy.

Key words highly expressed protein in cancer spindle checkpoint chromosome instability tumor

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