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综述

MicroRNA参与肿瘤发生发展的调控机制

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摘要:

MicroRNAs（miRNAs）具有瘤基因或抑瘤基因的功能，其表达异常影响细胞增殖、凋亡、侵袭和转移等肿瘤恶性表型，从而参与肿瘤的发生发展及其转录调控网络。转录因子与miRNA，miRNA 与靶基因之间一对多及多对一的调控关系，增加了miRNA 调控的复杂性，从而影响肿瘤的生物学特征；miRNA 加工过程中，Drosha 和Dicer 的表达和活性影响成熟miRNA 的加工合成；竞争性内源RNA（ceRNA）与miRNA 的靶基因竞争相同的miRNA，从而作为miRNA 的拮抗子影响miRNA 功能的发挥，ceRNA 表达和结构异常是肿瘤发生发展的又一重要分子机制。这种多维调控模式构成了miRNA 调控的复杂网络，参与肿瘤发生发展的精细调控，从而为肿瘤诊断和治疗提供了新的靶点。

关键词： microRNA 肿瘤 转录因子 靶基因 竞争性内源RNA 网络调控

MiRNA regulatory mechanism in tumor initiation and progression

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Abstract:

MiRNAs can function as oncogenes or tumor suppressor genes. The abnormal expression of miRNAs leads to tumor malignant phenotypes, such as cell proliferation, apoptosis, invasion and metastasis, through which it is involved in the process of tumor initiation, progression and transcriptional regulation network. Therefore, it is important to clarify the mechanism of miRNA involved in the process of tumor initiation and progression. MiRNA regulation mechanism in tumor initiation and progression includes one-to-many and many-to-one regulation between TFto- miRNA and miRNA-to-target gene, which increases the complexity of miRNA regulation, thus affecting the biological behavior of the tumor, The expression and activity of Drosha and Dicer in the process of miRNA affect the synthesis of mature miRNA and involve in the process of tumor initiation and progression; ceRNA may bind with miRNA by competing with miRNA targeting genes and affect biological function of miRNA as miRNA inhibitor. Therefore the abnormal expression and structure of ceRNA is an important molecular mechanism of tumor initiation and progression. This complicated regulation network comprised by multi-dimensional regulation model and specific regulation of tumor initiation and progression provides impetus to exploring the functional restoration of miRNA as a novel target for cancer diagnosis and therapy.

Keywords: miRNA tumor transcription factor target gene ceRNA regulation network

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