

# miR-21的功能分析及其在结肠癌中的临床意义

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**Title:** Function analysis of miR-21 and the clinical significance in colon cancer

**作者:** 韦皓棠<sup>1</sup>; 王佳雷<sup>1</sup>; 倪敏<sup>1</sup>; 郭尔娜<sup>2</sup>

1.广西医科大学第三附属医院胃肠外科, 广西 南宁 530031; 2.广西医科大学国际教育学院, 广西 南宁 530021

**Author(s):** Wei Haotang<sup>1</sup>; Wang Jialei<sup>1</sup>; Ni Min<sup>1</sup>; Guo Erna<sup>2</sup>

1.Department of Gastrointestinal Surgery, the Third Affiliated Hospital of Guangxi Medical University, Guangxi Nanning 530031, China;2.International Education College of Guangxi Medical University, Guangxi Nanning 530021, China.

**关键词:** 结肠癌; miR-21; 功能分析; 预后分析

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**摘要:** 目的: 分析miR-21的功能及其在结肠癌中的临床意义。方法: 采用miRWalk在线工具预测和筛选miR-21的靶基因, 并使用DAVID分析靶基因的功能和信号通路; 检测结肠癌患者和健康对照人群血清以及癌组织和癌旁组织标本的miR-21的表达水平; 使用TCGA数据库中结肠癌的数据, 分析miR-21表达水平与临床病理参数的关系以及与患者预后的关系。结果: 共筛选出429个miR-21的靶基因, 靶基因功能分析提示这些基因主要参与了正性调节代谢过程、蛋白结合等。结肠癌患者血清miR-21表达水平显著高于健康对照人群, 差异有统计学意义 ( $P < 0.05$ )。TCGA数据显示, 结肠癌组织中的miR-21表达水平与肿瘤的临床分期、肿瘤侵袭程度、淋巴结转移分期、远处转移分期无显著差异 ( $P > 0.05$ )。生存分析显示组织中高表达miR-21的患者其生存时间较表达者短 ( $P < 0.05$ )。结论: miR-21调控多个肿瘤发生相关的基因, 在结肠癌发生过程中具有重要的调控作用。结肠癌患者miR-21表达水平显著高于健康人群, 且miR-21高表达的患者预后差。

**Abstract:** Objective: To analyze the function of miR-21 and the clinical significance in colon cancer. Methods: The target genes of miR-21 were screened by the miRWalk online tool, and the gene function and signal pathways were analyzed by DAVID tool. The serum levels of miR-21 were tested and compared in colon cancer patients and healthy controls. The data of colon cancer was download from TCGA database, and the relation of miR-21 with clinicopathological parameters were analyzed, the relation of miR-21 and prognosis of colon cancer patients was also analyzed. Results: 429 validated target genes of miR-21 were screened. These target genes were involving the positive regulation of metabolic process, protein binding. The serum levels of miR-21 were significantly increased in colon patients compared with that in healthy controls ( $P < 0.05$ ). The data of TCGA revealed that the expression of miR-21 in colon cancer tissue has not significant difference in clinical stage, tumor invasive, lymph node metastasis, distant metastasis of colon cancer ( $P > 0.05$ ). Survival analysis showed that high expression of miR-21 was associated with shorter survival time compared with low expression ( $P < 0.05$ ). Conclusion: miR-21 participate in the process of colon cancer by regulating several target genes. The expression of miR-21 was increased in colon patients compared with that in healthy controls, and high expression of miR-21 indicates a poor prognosis of colon cancer patients.

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