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Hedgehog 信号通路对某些消化道肿瘤细胞生长的调节作用

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摘要：

目的: 研究Hedgehog信号通路成员　Shh、patched(PTCH)、smoothened (Smo）和Gli 1在结肠癌和胰腺癌细胞株以及人结肠腺瘤组织细胞中的表达情况，并探讨Smo受体特异性小分子抑制剂环靶明（cyclopamine）对这些肿瘤细胞生长的影响。方法：体外培养结肠癌细胞LS174T、HCT116、SW116、CT26和胰腺癌细胞BxPC3，并肠镜下摘取2例结肠腺瘤组织标本，提取细胞株和腺瘤组织总RNA，用RT PCR扩增　Shh, PTCH, Smo, Gli 1基因；使用MTT法检测环靶明在体外对这些肿瘤细胞生长的抑制作用。结果：　在SW116、　CT 26、　BxPC3细胞和2例结肠腺瘤组织中　Shh、PTCH、Smo和Gli 1均有不同程度的表达，　而在HCT116和LS174T细胞中未能扩增出　PTCH和（或）Smo　基因的mRNA; 环靶明对这些肿瘤细胞的生长有一定的抑制作用，且对　Smo　基因阳性表达细胞株的抑制作用更显著。结论：　Hedgehog信号通路成员　Shh、PTCH、Smo和Gli 1在结肠癌、胰腺癌及结肠腺瘤细胞中有不同程度的表达，环靶明对　Smo　高表达细胞的生长有明显抑制作用；提示该信号通路可能在部分消化道肿瘤细胞中被活化。

关键词：结肠肿瘤　胰腺肿瘤　Hedgehog信号通路　环靶明　肿瘤抑制

Hedgehog signaling pathway regulates growth of human digestive tract tumor cells　Download Fulltext

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Abstract:

Abstract Objective To study the expression of　Shh, patched(PTCH), smoothened (Smo)　and　Gli 1　genes, four components of the Hedgehog signaling pathway, in colonic cancer cell lines, pancreatic cancer cell line and colonic adenoma tissues, and to discuss the influence of cyclopamine, a Smo receptor specific inhibitor, on the growth of these tumor cells. Methods: The expression of　Shh, PTCH, Smo　and　Gli 1　were investigated using RT PCR in 4 colonic cancer cell lines (LS174T, HCT116, SW116 and CT26), pancreatic cancer cell line BxPC3 and 2 colonic adenoma tissues. MTT method was used to study the inhibitory effect of cyclopamine on the growth of these cancer cell lines　in vitro　. Results: Shh, PTCH, Smo　and　Gli 1　genes were expressed in 2 of colonic adenoma tissues and SW116, CT26 and BxPC3 cells. The mRNA of　Smo　and　PTCH　genes were not found in LS174T and HCT116 cells; the expression of　Shh　and　Gli 1　mRNA were significantly up regulated. Cyclopamine inhibited the growth of SW116, CT 26 and BxPC3, expecially the positive cells of　Smo　gene. Conclusion:　Shh, PTCH, Smo　and　Gli 1　genes are expressed in colonic cancer cell lines, pancreatic cancer cell line and colonic adenoma tissues, Cyclopamine has obvious inhibitory effect on cells with overexpression of　Smo　, which implies that Hedgehog signaling pathway might be activated in some tumor cells of digestive system.

Keywords:colon neoplasms　pancreatic neoplasms　hedgehog signaling pathway　cyclopamine　tumor inhibition

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