



## 靛玉红甲脒对奈达铂抗人食管癌EC-1细胞的化疗增效作用

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## Anti-tumor Effect of Indirubin-3' -monoxime Combined with Nedaplatin on Human Esophageal Cancer Cell Line EC -1

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**摘要** 目的 探讨靛玉红甲脒(Indirubin-3' -monoxime, IRO)与奈达铂联合应用对人食管癌细胞株EC-1的影响及其作用机制。方法 经不同浓度的IRO和(或)奈达铂处理EC-1细胞后,用MTT法测定细胞增殖抑制效应;流式细胞术观察细胞周期变化;免疫组织化学法观察凋亡相关基因表达变化。结果 与IRO或奈达铂单药作用相比, IRO与奈达铂联合应用可显著增强人食管癌细胞增殖抑制作用,联合用药后细胞周期分布发生改变, G<sub>0</sub>/G<sub>1</sub>期细胞比例下降, G<sub>2</sub>/M期细胞比例上升, 癌细胞Bcl-2基因表达下降, Bax表达增强。结论 IRO与奈达铂联合应用具有协同抗食管癌作用,其机制可能与细胞周期调控及凋亡相关基因表达调控有关。

**关键词:** 食管癌 靛玉红甲脒 奈达铂 细胞周期

**Abstract:** Objective To study the anti-tumor effect of Indirubin-3' -monoxime combined with Nedaplatin(Nap) on the human esophageal cancer cell line EC-1, and to reveal its mechanism. Methods Human esophageal cancer line EC-1 was treated *in vitro* by Indirubin-3' -monoxime with or without Nap in various concentration. The cell growth was evaluated by MTT assay, cell cycle distribution were observed by flow cytometry, and the expression of apoptosis-related genes were analyzed by immunohistochemical staining method. Results Compared with Indirubin-3' -monoxime or Nap individual drug groups, Indirubin-3' -monoxime combined with Nap obviously increased the inhibitory rate of the human esophageal cancer cell line EC-1. In the groups treated by the combination of Indirubin-3' -monoxime and Nap, the cell cycle distribution was altered. In this case, the ratio of G<sub>0</sub>/G<sub>1</sub> phase cell decreased, the G<sub>2</sub>/M phase cell increased, the expression of following the treatment with Indirubin-3' -monoxime combined with Na, with Bcl-2 gene down-regulated, and the expression of Bax gene expression up-regulated. Conclusion Indirubin-3' -monoxime combined with Nap may obviously increase the inhibitory rate of the human esophageal cancer cell, and its mechanism may be to regulate cell cycle and to increase apoptosis-inducing effect which is regulated by several genes.

**Key words:** Esophageal cancer Indirubin-3' -monoxime Nedaplatin Cell cycle

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