C/EBP同源蛋白在紫檀芪抗人肺鳞癌Calu-1细胞中作用机制的研究

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Title: **Pterostilbene inhibits lung squamous cell carcinoma Calu-1 cell via activation of C/EBP homologous protein**

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摘要: 目的：探讨紫檀芪（PT）抗人肺鳞癌Calu-1细胞作用机制及内质网应激（ERS）相关蛋白C/EBP同源蛋白（CHOP）在其中的作用。方法：实验分为对照组、PT组（15、30、45 μmol/L），分别检测各组Calu-1细胞活力值、凋亡率、ROS含量及Caspase-3活性，以及CHOP蛋白和凋亡相关蛋白（Bcl-2、Bax）含量的变化。CHOP小干扰RNA（siRNA）特异性抑制CHOP蛋白表达后，PT（0、30 μmol/L）处理细胞24 h，重复上述检测。结果：PT有效抑制Calu-1细胞增殖，促进凋亡（P<0.05），显著增加ROS含量及Caspase-3活性（P<0.05），并呈浓度依赖效应；Western blot检测结果显示PT上调CHOP及Bax的表达（P<0.05），抑制Bcl-2的表达（P<0.05）；CHOP siRNA转染显著抑制CHOP表达，同时抑制PT对Calu-1细胞的上调CHOP蛋白表达和促凋亡作用（P<0.05）。结论：紫檀芪可有效抑制肺鳞癌Calu-1细胞活力、促进细胞凋亡，此作用可能与激活内质网应激相关蛋白CHOP有关。

Abstract: Objective：To investigate the anticancer effect of pterostilbene (PT) on human lung squamous cell carcinoma Calu-1 cell line and explore the role of endoplasmic reticulum stress (ERS) signaling related protein，C/EBP homologous protein (CHOP)，in this process.Methods：Calu-1 cells were divided into the Control group and PT groups (15，30，45 μmol/L).The cell viability rate，the apoptotic rate and the activity of Caspase-3 and ROS level of cells were respectively detected.Western blot was used to detect the expression of CHOP and apoptosis related proteins (Bax and Bcl-2) in Calu-1 cells.Moreover，small interfering RNA (siRNA) of CHOP transfection was used to block the CHOP expression in Calu-1 cells，then PT treatments (0，30 μmol/L) were implemented for further detection as mentioned in 24 hours.Results：PT treatments resulted in a significant reduction in cell viability and upregulation of cell apoptosis and production of Caspase-3 and ROS in a dose-dependent manner.Western blot analysis showed that PT treatment resulted in a significant increase of CHOP and Bax expression，and decrease of Bcl-2 expression.Moreover，inhibition of CHOP by siRNA decreased the anticancer role of PT on Calu-1 cells.Conclusion：PT treatment can effectively inhibit the proliferation and enhance the apoptosis of Calu-1 cells，which may be related to the activation of CHOP.

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