基于表达谱分析识别鼻咽癌血管生成及淋巴管生成的调控通路(点击查看pdf全文)

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Title: Analysis of angiogenesis and lymphangiogenesis signaling pathways based on gene expression patterns of nasopharyngeal carcinoma

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摘要: 目的探讨鼻咽癌是通过调节哪些靶基因的表达影响血管生成和淋巴管生成。方法以Sengupta等通过基因芯片数据（其中含10例正常鼻咽组织，31例鼻咽癌组织）分析所得的831个鼻咽癌与正常鼻咽组织差异表达基因为基础,根据最新的基因组信息以及设定差异表达值的最小阈值260，筛选出246个有效基因。对这246个基因进行基于文献挖掘的基因功能分析和网络构建，最后进行通路分析。结果246个基因与鼻咽癌、EB病毒、转移、血管生成、淋巴管生成、侵袭等关键词特异相关。其中，52个基因已知与血管生成相关（P=0.00001），19个基因构成了血管生成基因网络（P=0.0042）；21个基因已知与淋巴管生成相关（P=0.00001），6个基因构成了与淋巴管生成相关基因网络（P=0.0226）。包含PTGS2在内的8个基因参与NFκB信号通路已知在小细胞肺癌中与血管生成密切相关（P=7.87E-07）。包含STAT1及CXCL10等在内的5个基因参与了Toll样受体通路（P=0.00176）。结论PTGS2和NFκB共同调控鼻咽癌血管生成，Toll样受体信号通路可能与淋巴管生成密切相关。它们的相互作用方式值得进一步研究。

Abstract: ObjectiveTo pinpoint angiogenesis- and lymphangiogenesis-related genes in nasopharyngeal carcinoma (NPC).
MethodsBased on the reported microarray data which identified831differentially expressed genes in NPC tissues and the latest genomic information, we selected 246genes for analysis with the smallest differential expression threshold of260. Gene function analysis and network construction was carried out based on literature mining for analysis of the signaling pathways related with angiogenesis and lymphangiogenesis of NPC. ResultsThe246 genes were related with such keywords as nasopharyngeal carcinoma, EB virus, metastasis, angiogenesis, lymphangiogenesis, and invasion. Particularly, we found that

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up to52genes were associated with angiogenesis (P=0.00001), and19genes form12related gene pairs (P=0.0042). Twenty-one lymphangiogenesis-related genes were identified (P=0.00001), and 6of these genes formed a gene network (P=0.0226). Eight genes, including PTGS2, participated in the nuclear factor-κB (NF-κB) pathway, which was closely related to angiogenesis in small cell lung cancer (P=7.87E-07). Five genes, including STAT1and CXCL10, participated in toll-like receptor signaling pathway (P=0.00176).ConclusionPTGS2and NF-κB promote angiogenesis of NPC, and the role of toll-like receptor signaling pathway in lymphangiogenesis warrants further investigation.

参考文献/REFERENCES

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