基于数据库分析人EIF3C在头颈鳞状细胞癌中的表达及临床意义

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Title: **Expression and clinical significance of EIF3C in head and neck squamous cell carcinoma utilizing databases**

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关键词: 真核翻译起始因子3C; 头颈鳞状细胞癌; 数据库分析; 预后

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摘要: 目的：通过研究真核翻译起始因子3C（eukaryotic translation initiation factor 3 subunit C，EIF3C）在头颈鳞状细胞癌（head and neck squamous cell carcinoma，HNSCC）组织中的表达，阐明EIF3C基因的表达与HNSCC临床病理特征和预后的关系以及其相互作用蛋白参与的生物学过程。方法：采用GEPIA数据库分析HNSCC和对照组织中EIF3C基因的表达差异以及HNSCC患者中EIF3C基因表达的高低与预后之间的关系。采用LinkedOmics数据库分析EIF3C基因的表达与HNSCC的病理分级以及TNM分期之间的关系。采用The Human Protein Atlas数据库分析EIF3C蛋白在正常和HNSCC组织中的表达水平。采用STRING数据库分析EIF3C相互作用的蛋白以及参与的生物学过程。结果：EIF3C的表达水平在HNSCC中显著增高（P < 0.01），与HNSCC的病理分级相关（P=0.026 6），且分别与HNSCC的T分期（P=0.261 8）、N分期（P=0.358 8）和M分期（P=0.3413）不相关。EIF3C基因表达的高低与HNSCC的总生存率（P=0.24，HR=1.2）和无病生存率（P=0.66，HR=0.93）无显著性差异。免疫组化结果显示EIF3C蛋白在正常组织中呈中等水平表达，而在HNSCC组织中呈中、高等水平表达。EIF3C主要与其他EIFs蛋白相互作用，主要参与细胞的翻译起始调控。结论：HNSCC中EIF3C的表达显著增高且与临床病理分级相关，可为后续EIF3C的功能研究提供重要的理论基础。

Abstract: Objective：To elucidate the relationship between expression of eukaryotic translation initiation factor 3 subunit C (EIF3C) and clinical characteristics，prognosis of head and neck squamous cell carcinoma (HNSCC)，and the biological process with EIF3C interacting proteins by studying the expression of EIF3C in HNSCC tissues.Methods：The GEPIA database was used to analyze the difference in expression of EIF3C between HNSCC and control tissues，and the relationship between the level of EIF3C gene expression and prognosis in HNSCC patients.The relationship between the expression of EIF3C and the pathological grade of HNSCC and TNM stage was mined by LinkedOmics database.The expression level of EIF3C protein in normal and HNSCC tissues was explored in The Human Protein Atlas database.The STRING database was used to analyze EIF3C interacting proteins and the biological process involved.Results：The expression level of EIF3C was significantly increased in HNSCC (P < 0.01)，correlated with the pathological grade of HNSCC (P=0.026 6)，and T stage (P=0.261 8)，N stage (P=0.358 8) and M stage (P=0.341 3) were not relevant.There was no significant difference between EIF3C expression and overall survival (P=0.24，HR=1.2) and disease-free survival (P=0.66，HR=0.93) of HNSCC.Immunohistochemistry results showed that EIF3C protein was expressed at moderate levels in normal tissues and at intermediate and high levels in HNSCC tissues.EIF3C mainly interacted with other EIFs proteins and was mainly involved in the regulation of translational initiation.Conclusion：The expression of EIF3C in

HNSCC is significantly increased and correlated with clinical pathological grade, which may provide an important theoretical basis for further study.

参考文献/REFERENCES

[1] Siegel RL, Miller KD, Jemal A.Cancer statistics, 2019 [J] .CA Cancer J Clin, 2019, 69(1): 7-34.
[2] Torre LA, Bray F, Siegel RL, et al.Global cancer statistics, 2012 [J] .CA Cancer J Clin, 2015, 65(2): 87-108.
[3] Shetty AV, Wong DJ.Systemic treatment for squamous cell carcinoma of the head and neck [J] .Otolaryngol Clin North Am, 2017, 50(4): 775-782.
[4] Hunter KD, Parkinson EK, Harrison PR.Profiling early head and neck cancer [J] .Nat Rev Cancer, 2005, 5(2): 127-135.
[5] Smith RA, Andrews KS, Brooks D, et al.Cancer screening in the United States, 2017: A review of current American Cancer Society guidelines and current issues in cancer screening [J] .CA Cancer J Clin, 2017, 67(2): 100-121.
[6] Hinnebusch AG.The scanning mechanism of eukaryotic translation initiation [J] .Annu Rev Biochem, 2014(83): 779-812.
[7] Masutani M, Sonenberg N, Yokoyama S, et al.Reconstitution reveals the functional core of mammalian EIF3 [J] .Embo J, 2007, 26(14): 3373-3383.
[8] Lee HY, Chen CK, Ho CM, et al.EIF3C-enhanced exosome secretion promotes angiogenesis and tumorigenesis of human hepatocellular carcinoma [J] .Oncotarget, 2018, 9(17): 13193-13205.
[9] Gao W, Hu Y, Zhang Z, et al.Knockdown of EIF3C promotes human U-2OS cells apoptosis through increased CASP3/7 and Chk1/2 by upregulating SAPK/JNK [J] .Onco Targets Ther, 2019(12): 1225-1235.
[10] Hao J, Wang Z, Wang Y, et al.Eukaryotic initiation factor 3C silencing inhibits cell proliferation and promotes apoptosis in human glioma [J] .Oncol Rep, 2015, 33(6): 2954-2962.
[11] Zhao W, Li X, Wang J, et al.Decreasing eukaryotic initiation factor 3C(EIF3C) suppresses proliferation and stimulates apoptosis in breast cancer cell lines through mammalian target of rapamycin (mTOR) pathway [J] .Med Sci Monit, 2017(23): 4182-4191.
[12] Tang Z, Li C, Kang B, et al.GEPIA: A web server for cancer and normal gene expression profiling and interactive analyses [J] .Nucleic Acids Res, 2017, 45(W1): W98-W102.
[13] Vasaikar SV, Straub P, Wang J, et al.LinkedOmics: Analyzing multi-omics data within and across 32 cancer types [J] .Nucleic Acids Res, 2018, 46(D1): D956-D963.
[14] Uhlen M, Zhang C, Lee S, et al.A pathology atlas of the human cancer transcriptome [J] .Science, 2017, 357(6352).
[15] Szklarczyk D, Morris JH, Cook H, et al.The STRING database in 2017: Quality-controlled protein-protein association networks, made broadly accessible [J] .Nucleic Acids Res, 2017, 45(D1): D362-D368.
[16] Chen W, Zheng R, Baade PD, et al.Cancer statistics in China, 2015 [J] .CA Cancer J Clin, 2016, 66(2): 115-132.
[17] Argiris A, Eng C.Epidemiology, staging, and screening of head and neck cancer [J] .Cancer Treat Res, 2003(114): 15-60.
[18] Rettig EM, D' Souza G.Epidemiology of head and neck cancer [J] .Surg Oncol Clin N Am, 2015, 24(3): 379-396.
[19] Lee AS, Kranzusch PJ, Cate JH.eIF3 targets cell-proliferation messenger RNAs for translational activation or repression [J] .Nature, 2015, 522(7554): 111-114.
[20] Liu P, Lu Y, Liu H, et al.Genome-wide association and fine mapping of genetic loci predisposing to colon carcinogenesis in mice [J] .Mol Cancer Res, 2012, 10(1): 66-74.
[21] Hao J, Wang Z, Wang Y, et al.Eukaryotic initiation factor 3C silencing inhibits cell proliferation and promotes apoptosis in human glioma [J] .Oncol Rep, 2015, 33(6): 2954-2962.

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