

恶性肿瘤的癌变原理研究专栏

TSC-22基因的研究进展

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摘要:

转化生长因子 $\beta$ 诱导基因22 (transforming growth factor  $\beta$ -inducible gene 22, TSC-22) 是一个候选的负性生长调控和肿瘤抑制基因。能与其他转录因子相结合, 参与细胞生长、凋亡等重要生命活动调控, 在多种肿瘤中低表达, 可能与多种肿瘤的发生、发展有关。

关键词: 转化生长因子 $\beta$ 诱导基因22; 亮氨酸拉链; 转录因子; 抑瘤基因

Progress of TSC-22 gene research

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Abstract:

Abstract: Transformation growth factor  $\beta$ -inducible gene 22 (TSC-22) is a putative negative growth regulation and tumor suppressor gene. It has the ability to combine with other transcription factors to regulate the cell growth and apoptosis. TSC-22 is lowly expressed in many types of tumors, which may be related to the tumorigenesis and development.

Keywords: transforming growth factor  $\beta$ -inducible gene 22; leucine zipper; transcription factor; tumor suppressor gene

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- [1] Shibanuma M, Kuroki T, Nose K, et al. Isolation of a gene encoding a putative leucine zipper structure that is induced by transforming growth factor beta 1 and other growth factors [J]. J Biol Chem, 1992, 267(15): 10219-10224.
- [2] Gupta R A, Sarraf P, Brockman J A, et al. Peroxisome proliferator-activated receptor gamma and transforming growth factor-beta pathways inhibit intestinal epithelial cell growth by regulating levels of TSC-22 [J]. J Biol Chem, 2003, 278(9): 7431-7438.
- [3] Hashiguchi A, Okabayashi K, Asashima M, et al. Role of TSC-22 during early embryogenesis in xenopus laevis [J]. Dev Growth Differ, 2004, 46(6): 535-544.
- [4] Ohta S, Yanagihara K, Nagata K, et al. Mechanism of apoptotic cell death of human gastric carcinoma cells mediated by transforming growth factor beta [J]. Biochem J, 1997, 324 (Pt 3): 777-782.
- [5] Uchida D, Kawamata H, Omotehara F, et al. Over-expression of TSC-22 (TGF-beta stimulated clone-22) markedly enhances 5-fluorouracil-induced apoptosis in a human salivary gland cancer cell line [J]. Lab Invest, 2000, 80(6): 955-963.
- [6] Hino S, Kawamata H, Omotehara F, et al. Cytoplasmic TSC-22 (transforming growth factor-beta-stimulated clone-22) markedly enhances the radiation sensitivity of salivary gland cancer cells [J]. Biochem Biophys Res Commun, 2002, 292(4): 957-963.

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- [7] Gluderer S, Oldham S, Rintelen F, et al. Bunched, the drosophila homolog of the mammalian tumor suppressor TSC-22, promotes cellular growth [J] . BMC Dev Biol, 2008, 213(8):1472-1475.
- [8] Soundararajan R, Wang J, Melters D, et al. Differential activities of glucocorticoid-induced leucine zipper protein isoforms [J] . J Biol Chem, 2007, 282(50): 36303-36313.
- [9] D' Adamio F, Zollo O, Moraca R, et al. A new dexamethasone-induced gene of the leucine zipper family protects T lymphocytes from TCR/CD3-activated cell death [J] . Immunity, 1997, 7(6): 803-812.
- [10] Riccardi C, Cifone M G, Migliorati G, et al. Glucocorticoid hormone-induced modulation of gene expression and regulation of T-cell death: role of G1TR and G1LZ, two dexamethasone-induced genes [J] . Cell Death Differ, 1999, 6(12): 1182-1189.
- [11] Delfino D V, Agostini M, Spinicelli S, et al. Decrease of Bcl-xL and augmentation of thymocyte apoptosis in G1LZ overexpressing transgenic mice [J] . Blood, 2004, 104(13): 4134-4141.
- [12] Delfino D V, Agostini M, Spinicelli S, et al. Inhibited cell death, NF-kappaB activity and increased IL-10 in TCR-triggered thymocytes of transgenic mice overexpressing the glucocorticoid-induced protein G1LZ [J] . Int Immunopharmacol, 2006, 6(7): 1126-1134.
- [13] Robert-Nicoud M, Flahaut M, Elalouf J M, et al. Transcriptome of a mouse kidney cortical collecting duct cell line: effects of aldosterone and vasopressin [J] . Proc Natl Acad Sci USA, 2001, 98(5): 2712-2716.
- [14] Soundararajan R, Zhang T T, Wang J, et al. A novel role for glucocorticoid-induced leucine zipper protein in epithelial sodium channel-mediated sodium transport [J] . J Biol Chem, 2005, 280(48): 39970-39981.
- [15] Ayroldi E, Migliorati G, Bruscoli S, et al. Modulation of T-cell activation by the glucocorticoid-induced leucine zipper factor via inhibition of nuclear factor kappaB [J] . Blood, 2001, 98(3): 743-753.
- [16] Mittelstadt P R, Ashwell J D. Inhibition of AP-1 by the glucocorticoid-inducible protein G1LZ [J] . J Biol Chem, 2001, 276(31): 29603-29610.
- [17] Ayroldi E, Zollo O, Macchiarulo A, et al. Glucocorticoid-induced leucine zipper inhibits the Raf-extracellular signal-regulated kinase pathway by binding to Raf-1 [J] . Mol Cell Biol, 2002, 22(22): 7929-7941.
- [18] Asselin-Labat M L, David M, Biola-Vidamment A, et al. G1LZ, a new target for the transcription factor FoxO3, protects T lymphocytes from interleukin-2 withdrawal-induced apoptosis [J] . Blood, 2004, 104(1): 215-223.
- [19] Fiorenza M T, Mukhopadhyay M, Westphal H, et al. Expression screening for Lhx3 downstream genes identifies Thg-1pit as a novel mouse gene involved in pituitary development [J] . Gene, 2001, 278(1/2): 125-130.
- [20] Kester H A, Blanchetot C, den Hertog J, et al. Transforming growth factor-beta-stimulated clone-22 is a member of a family of leucine zipper proteins that can homo-and heterodimerize and has transcriptional repressor activity [J] . J Biol Chem, 1999, 274(39): 27439-27447.
- [21] Hino S, Kawamata H, Uchida D, et al. Nuclear translocation of TSC-22 (TGF-beta-stimulated clone-22) concomitant with apoptosis: TSC-22 as a putative transcriptional regulator [J] . Biochem Biophys Res Commun, 2000, 278(3): 659-664.
- [22] Choi S J, Moon J H, Ahn Y W, et al. Tsc-22 enhances TGF-beta signaling by associating with Smad4 and induces erythroid cell differentiation [J] . Mol Cell Biochem, 2005, 271(1-2): 23-28.
- [23] Kania A, Salzberg A, Bhat M, et al. P-element mutations affecting embryonic peripheral nervous system development in *Drosophila melanogaster* [J] . Genetics, 1995, 139(4): 1663-1678.
- [24] Treisman J E, Lai Z C, Rubin G M, et al. Shortsighted acts in the decapentaplegic pathway in *Drosophila* eye development and has homology to a mouse TGF-beta-responsive gene [J] . Development, 1995, 121(9): 2835-2845.
- [25] Dobens L L, Hsu T, Twombly V, et al. The *Drosophila* bunched gene is a homologue of the growth factor stimulated mammalian TSC-22 sequence and is required during oogenesis [J] . Mech Dev, 1997, 65(1/2): 197-208.
- [26] Hamil K G, Hall S H. Cloning of rat Sertoli cell follicle-stimulating hormone primary response complementary deoxyribonucleic acid: regulation of TSC-22 gene expression [J] . Endocrinology, 1994, 134(3): 1205-1212.
- [27] Fiol D F, Mak S K, Kultz D, et al. Specific TSC22 domain transcripts are hypertonicity induced and alternatively spliced to protect mouse kidney cells during osmotic stress [J] . FEBS J, 2007, 274(1): 109-124.
- [28] Nakashiro K, Kawamata H, Hino S, et al. Down-regulation of TSC-22 (transforming growth factor beta-stimulated clone 22) markedly enhances the growth of a human salivary gland cancer cell line in vitro and in vivo [J] . Cancer Res, 1998, 58(3): 549-555.
- [29] Shostak K O, Dmitrenko V V, Garifulin O M, et al. Down regulation of putative tumor suppressor gene TSC-22 in human brain tumors [J] . J Surg Oncol, 2003, 82(1): 57-64.
- [30] Rentsch C A, Cecchini M G, Schwaninger R, et al. Differential expression of TGFbeta-stimulated clone 22 in normal prostate and prostate cancer [J] . Int J Cancer, 2006, 118(4): 899-906.
- [31] Lu Y, Kitaura J, Oki T, et al. Identification of TSC-22 as a potential tumor suppressor that is upregulated by Flt3-D835V but not Flt3-ITD [J] . Leukemia, 2007, 21(11): 2246-2257.

