

论著

蒺藜中甾体皂苷对新生隐球菌生物膜形成的抑制作用

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摘要: 目的 观察蒺藜甾体皂苷类化合物TTS-12对新生隐球菌生物膜形成的影响,探讨其可能的作用机制。方法 光镜观察TTS-12对新生隐球菌生物膜生长形态的影响;MTT法观察TTS-12对新生隐球菌生物膜形成的影响;实时定量RT-PCR观察不同浓度TTS-12对新生隐球菌细胞生物膜关键基因PMT4表达的影响。结果 经TTS-12处理的新生隐球菌生物膜结构更疏松,TTS-12可剂量依赖性地降低新生隐球菌生物膜生长动力学指标及PMT4基因表达水平($P<0.01$)。结论 TTS-12可抑制新生隐球菌生物膜的形成。通过降低新生隐球菌PMT4基因表达可能是其抑制新生隐球菌生物膜的形成作用机制之一。

关键词: 蒺藜 新生隐球菌 生物膜 TTS-12 PMT4

Inhibitory effects of Tribulus terrestris steroid saponin TTS-12 on building biofilm of *Cryptococcus neoformans*

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Abstract: Objective To investigate the influence of TTS-12, a steroid saponin from *Tribulus terrestris*, on building biofilm of *Cryptococcus neoformans*, and to explore the possible mechanism. Methods The inhibitory effects of biofilm formation of *Cryptococcus neoformans* by TTS-12 was observed by microscopy and assessed by MTT method. The expression of PMT4 mRNA was measured by real-time RT-PCR with different concentrations of TTS-12. Results Compared with control group, TTS-12 treatment showed inhibitory effects on the formation process, making the biofilm more loosened. The growth kinetics and PMT4 mRNA level in TTS-12-treated group were dose-dependently lower than those in the control group ($P<0.01$). Conclusions TTS-12 may have inhibitory effect on formation of *Cryptococcus* biofilm by PMT4 gene.

Keywords: *Tribulus terrestris* *Cryptococcus neoformans* biofilm TTS-12 PMT4

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- [1] Zhang JD, Cao YB, Xu Z. In vitro and in vivo antifungal activities of the eight steroidal saponins from *Tribulus terrestris* with potent activity against fluconazole-resistant fungal pathogens[J]. *Biol Pharm Bull*, 2005, 28(12): 2211-2215.
- [2] Zhang JD, Xu Z, Cao YB. Antifungal activities and action mechanisms of compounds from *Tribulus terrestris* L[J]. *J EthnoPharmacol*, 2006, 103 (1): 76-84.
- [3] 张军东, 陈海生, 曹永兵, 等. 天然产物T12抗真菌作用及其机制研究[J]. *中国新药杂志*, 2004, 13(12): 1110-1114.
- [4] 徐瑞宏, 方伟, 廖万清. 新生隐球菌生物膜动物模型构建及PMT4对生物膜形成的影响[J]. *中国真菌学杂志*, 2009, 8(4): 198-201.
- [5] 李秀丽, 仲学龙, 廖万清, 等. 隐球菌生物膜的构建、结构及影响因素的研究[J]. *中国麻风皮肤病杂志*, 2007, 2(2): 34-37.
- [6] Kuhn DM, George T, Chandra J. Antifungal susceptibility of *Candida* biofilms: unique efficacy of amphotericin B lipid formulations and echinocandins[J]. *Antimicrob Agents Chemother*, 2002, 46(6): 1773-1780.
- [7] Chandra J, Mukherjee PK, Leidich SD. Antifungal resistance of *Candida* biofilms formed on denture acrylic in vitro[J]. *J Dent Res*, 2001, 80(3): 903-908.
- [8] Ramage G, Vandewalle K, Wickes BL. Characteristics of biofilm formation by *Candida albicans*[J]. *Rev Iberoam Micol*, 2001, 18(4): 163-170.

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2. 阳隽, 张天托, 朱家馨. 荧光定量PCR检测不同状态下白念珠菌CPH1、EFG1基因的表达[J]. *中国真菌学杂志*, 2012, (2): 77-81
3. 李秀丽, 田媛, 史玉玲, 顾俊瑛, 李晓建, 刘至昱, 马越娥, 高飞, 王祯祯. 新生隐球菌MIS1基因的siRNA表达载体的构建及鉴定[J]. *中国真菌学杂志*, 2012, 7(1): 17-19, 23
4. 周南, 黄晨, 潘炜华, 廖万清. 舍曲林抗新生隐球菌的体外及动物实验研究[J]. *中国真菌学杂志*, 2011, 6(5): 267-270
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9. 孙继梅, 王艳玲, 周秀珍, 郑伟, 张智洁, 刘勇. 新生隐球菌感染12例临床特点及实验室检测的回顾性分析[J]. *中国真菌学杂志*, 2011, 6(3): 154-157
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