

论著

杂色曲霉素对小鼠胸腺和脾脏转录因子F_{oxp3}⁺调节性T淋巴细胞的影响

刘亚玲, 邢欣, 邢凌霄, 姚志刚, 王娟, 严霞, 王俊灵, 张祥宏

(河北医科大学病理学研究室, 河北 石家庄 050017)

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摘要 目的 探讨杂色曲霉素(ST)对机体免疫调节功能的影响。方法 BALB/c小鼠随机分为正常对照组、溶剂对照组、ST 3, 30, 300和3000 $\mu\text{g} \cdot \text{kg}^{-1}$ 组。小鼠ip给药24 h后, 处死取胸腺和脾脏, 采用流式细胞术测定胸腺和脾脏细胞中CD4⁺和CD8⁺ T淋巴细胞及转录因子F_{oxp3}⁺调节性T淋巴细胞的百分率, 免疫组织化学法检测胸腺和脾脏组织中F_{oxp3}⁺调节性T淋巴细胞数量, Western蛋白印迹法和RT-PCR分别测定胸腺和脾脏组织中F_{oxp3}蛋白和mRNA的表达。结果 溶剂对照组与正常对照组比较, 小鼠胸腺和脾脏CD4⁺, CD8⁺和F_{oxp3}⁺ T淋巴细胞百分率均无明显差异。与溶剂对照组比较, ST 3 $\mu\text{g} \cdot \text{kg}^{-1}$ 组胸腺CD8⁺ T淋巴细胞百分率降低, ST 3和30 $\mu\text{g} \cdot \text{kg}^{-1}$ 组脾脏CD4⁺和CD8⁺ T淋巴细胞百分率明显升高, ST 300和3000 $\mu\text{g} \cdot \text{kg}^{-1}$ 组胸腺和脾脏CD4⁺和CD8⁺ T淋巴细胞百分率无明显变化。在ST 3~3000 $\mu\text{g} \cdot \text{kg}^{-1}$ 内, 胸腺和脾脏细胞中F_{oxp3}⁺调节性T淋巴细胞百分率、胸腺和脾脏组织内F_{oxp3}⁺调节性T淋巴细胞数量、F_{oxp3}蛋白和mRNA表达均随ST浓度的增高而增加。结论 ST可诱导小鼠淋巴器官内F_{oxp3}⁺调节性T淋巴细胞数量增加, 从而影响机体免疫耐受功能。

关键词 [杂色曲霉素](#) [T淋巴细胞](#), [调节性](#) [转录因子](#) [胸腺](#) [脾脏](#)

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Effect of sterigmatocystin on transcription factor F_{oxp3}⁺ regulatory T lymphocytes of thymus and spleen in mice

LIU Ya-Ling, XING Xin, XING Ling-Xiao, YAO Zhi-Gang, WANG Juan, YAN Xia, WANG Jun-Ling, ZHANG Xiang-Hong

(Laboratory of Experimental Pathology, Hebei Medical University, Shijiazhuang 050017, China)

Abstract

AIM To explore putative effects of sterigmatocystin (ST) on immunoregulatory function. **METHODS** BALB/c mice were randomly divided into normal control, solvent control and ST 3, 30, 300 and 3000 $\mu\text{g} \cdot \text{kg}^{-1}$ groups. The mice were sacrificed 24 h after ST was ip given and thymus and spleen were taken out. The percentages of CD4⁺ and CD8⁺ as well as transcription factor F_{oxp3}⁺ regulatory T lymphocytes in thymus and spleen were determined with flow cytometric (FCM) method. The changes in number of F_{oxp3}⁺ regulatory T cells were measured with immunohistochemical staining. F_{oxp3} expression at protein and mRNA level in thymus and spleen were respectively analyzed with Western blotting and reverse transcription polymerase chain reaction (RT-PCR) methods. **RESULTS** FCM results showed that there were no significant differences in the percentages of CD4⁺, CD8⁺ and F_{oxp3}⁺ T in thymus and spleen between normal control and solvent control groups. Compared with control groups, the percentage of thymus CD8⁺ T cell in ST 3 $\mu\text{g} \cdot \text{kg}^{-1}$ group was significantly decreased, while that of splenic CD4⁺ and CD8⁺ T cells in both ST 3 and 30 $\mu\text{g} \cdot \text{kg}^{-1}$ groups were all significantly increased. No significant differences in the percentages of CD4⁺ or CD8⁺ T cells were found between ST 300 and 3000 $\mu\text{g} \cdot \text{kg}^{-1}$ groups with control groups in thymus and spleen. At the same time, the results revealed that from 3 to 3000 $\mu\text{g} \cdot \text{kg}^{-1}$, ST could significantly increase percentages and numbers of F_{oxp3}⁺ T lymphocytes as well as expression of F_{oxp3} at both protein and mRNA levels in thymus and spleen dose-effectively. **CONCLUSION** ST exposure could induce increase in F_{oxp3}⁺ regulatory T lymphocytes in lymphatic organ, thus may affect the immune tolerance of host.

Key words [sterigmatocystin](#) [T-lymphocytes](#) [regulatory](#) [transcription factor](#) [thymus](#) [spleen](#)

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