

论著

TMB-8对小鼠T淋巴细胞体外活化、增殖和细胞周期的影响

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摘要 目的: 研究胞内钙离子释放阻断剂8-(N,N-二乙胺)辛基-3,4,5-三甲氧基苯甲酸酯(TMB-8)对刀豆蛋白A(Con A)介导的小鼠T淋巴细胞体外活化、增殖和细胞周期的影响。方法: 以Con A作为T细胞活化、增殖的刺激剂, 以不同浓度的TMB-8及与环孢菌素A(CsA)联合作用于该系统, 用流式细胞术检测T细胞早期活化标志CD69分子的表达; 以活体染料羧基荧光素乙酰乙酸(CFDA-SE)染色流式细胞术, 分析TMB-8在Con A刺激下小鼠淋巴细胞的增殖相关指数(PI); 以碘化丙啶染色分析细胞周期的分布情况。结果: Con A作用6 h后, CD69+ T细胞的比率为(74.88±1.88)%, TMB-8在终浓度10、20、40 μmol/L下均抑制Con A介导的T细胞CD69表达(P<0.01), 其中, 40 μmol/L的TMB-8为(52.55±1.54)%, 达到最高抑制率。培养48 h和72 h, Con A刺激下的PI值分别为1.24±0.01和2.05±0.07, TMB-8从5 μmol/L起均抑制Con A介导的淋巴细胞增殖(P<0.01), 以40 μmol/L的效果最为显著, PI值分别为1.01±0.01和1.10±0.01; 10 μmol/L的TMB-8与25 μg/L的环孢菌素A(CsA)具有明显的协同抑制作用(P<0.01)。细胞周期分析显示, 培养48 h的TMB-8从10 μmol/L起即显著抑制S期(P<0.01)。结论: TMB-8可明显抑制Con A介导下的T细胞早期活化及增殖, 并具T细胞周期的S期阻滞作用。

关键词 [三甲氧基苯甲酸酯](#); [T淋巴细胞](#); [CD69](#); [细胞增殖](#); [细胞周期](#); [流式细胞术](#)

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Effect of TMB-8 on the activation, proliferation and cell-cycle distribution of the mouse T lymphocytes in vitro

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Abstract

AIM: To study the effects of [8-(diethylamino) octyl-3, 4, 5-trimethoxybenzoate] (TMB-8), an intracellular Ca²⁺ antagonist, on the activation, proliferation and cell-cycle distribution of the mouse T lymphocytes stimulated by concanavalin A (Con A) in vitro.
METHODS: After stimulated with Con A, T cells were treated with different concentrations of TMB-8 alone and its combination with cyclosporine A (CsA). The expression of CD69, the early marker of CD3+ T cell activation, was measured by FACS. The proliferation-related index was determined by carboxyl fluorescein diacetate succinimidyl ester (CFDA-SE) flow cytometry. The cell-cycle distribution was analyzed by propidium iodide staining.
RESULTS: After 6 h culture, the activation rate of CD69+ T cell in Con A group was (74.88±1.88)%. 10, 20 and 40 μmol/L of TMB-8 inhibited the expression of CD69 (P<0.01), especially in 40 μmol/L (52.55%±1.54%). After 48 h and 72 h culture, the PI of Con A group was 1.24±0.01, 2.05±0.07, respectively. TMB-8 with the concentration up to 5 μmol/L exerted a definite inhibitory effect on the proliferation with a maximal inhibition in 40 μmol/L (P<0.01). In the combination of 10 μmol/L of TMB-8 with 25 μg/L of CsA, an evident synergistic effect was observed (P<0.01). Moreover, the cell-cycle distribution analysis showed that after 48 h culture, the concentration of TMB-8 over 10 μmol/L showed an evident suppression in S phase.
CONCLUSION: TMB-8 significantly inhibites the early steps of the Con A-induced T cell activation and proliferation, as well as the progression of T lymphocytes in S phase.

Key words [Trimethoxybenzoate](#) [T-lymphocytes](#) [CD69](#) [Cell proliferation](#) [Cell cycle](#) [Flow cytometry](#)

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