

论著

## 细胞信号转导抑制剂介导Th1/Th2免疫偏移对血吸虫虫卵肉芽肿的影响

夏超明, 龚唯, 骆伟, 周卫芳, 李允鹤, 熊思东, 查锡良

苏州大学医学院寄生虫学教研室; 苏州大学医学院寄生虫学教研室; 苏州大学医学院寄生虫学教研室; 苏州大学医学院寄生虫学教研室; 苏州大学医学院寄生虫学教研室; 复旦大学上海医学院免疫学教研室; 复旦大学上海医学院生物化学教研室 苏州 215007; 苏州 215007; 苏州 215007; 苏州 215007; 苏州 215007; 上海 200032; 上海 200032

收稿日期 修回日期 网络版发布日期 接受日期

摘要

目的 观察酪氨酸蛋白激酶(TPK)、蛋白激酶C(PKC)和磷脂酰肌醇-3-激酶(P13-K)特异性抑制剂(分别为tyrphostin-25、D-sphingosine和wortmannin)对日本血吸虫感染小鼠虫卵肉芽肿病变的影响,并探讨其作用机制。方法 于小鼠感染日本血吸虫后第35天起,经尾静脉分别注射3种信号转导分子抑制剂,连续5 d。在小鼠感染后6和8wk,观察小鼠肝肉芽肿病变,并用ELISA夹心法和硝酸还原酶法分别测定小鼠血清IFN- $\gamma$ 、IL-4和一氧化氮(NO)水平。结果 感染小鼠应用TPK和PKC抑制剂后均可显著抑制肝肉芽肿病变,PKC抑制剂可使肉芽肿减少率达56.2%~63.4%( $P<0.01$ )。PKC抑制剂主要抑制Th2细胞因子IL-4的表达,其抑制率为34.1%和65.6%( $P<0.01$ ),而对NO水平的检测结果进一步证明了PKC抑制剂对IL-4表达的抑制作用。结论 在日本血吸虫感染早期应用PKC抑制剂干预T淋巴细胞信号转导可显著抑制小鼠肝肉芽肿病变,其机制可能是由于抑制了Th2优势应答并介导Th2向Th1免疫反应偏移。

关键词 [日本血吸虫](#) [虫卵肉芽肿](#) [细胞信号转导](#) [Th1/Th2细胞因子](#)

分类号

## Effect of Inhibitors of Cell Signal Transduction on Egg Granuloma Formation in Mice Infected with *Schistosoma japonicum*

XIA Chao-ming, GONG Wei, LUO Wei, ZHOU Wei-fang, LI Yun-he, XIONG Si-dong, ZHA Xi-liang

1 Department of Parasitology; School of Medicine; Soochow University; Suzhou 215007; 2 Department of Immunology; 3 Department of Biochemistry of Shanghai Medical College; Fudan University; Shanghai 200032

Abstract

Objective To observe the effect of signaling inhibitors of tyrosine-protein kinase (TPK), protein kinase C (PKC) and phosphatidylinositol-3-kinase (PI3-K) (tyrphostin-25, D-sphingosine and wortmannin, respectively) on the egg granuloma formation of *Schistosoma japonicum*, and probe the mechanism of the effect. Methods Three signaling inhibitors were injected by tail vein of mice from the thirty-fifth day after infection for five successive days. The liver egg granuloma measurement was performed by histological examination and the kits of ELISA and NO assay were used for the quantitative determination of IFN- $\gamma$ , IL-4 and NO respectively in murine serum at 6 and 8 weeks after infection. Results The egg granuloma formation of liver tissue was significantly reduced by the specific inhibitors of TPK and PKC in vivo. The ratio of egg granuloma inhibition was up to 56.2% - 63.4% by the effects of PKC inhibitor D-sphingosine. The PKC inhibitor mainly inhibited the expression of IL-4 and the detection of NO level further demonstrated the inhibition. Conclusion The egg granuloma formation could be significantly inhibited by PKC inhibitor in the early stage of *Schistosoma japonicum* infection in mice. These findings suggest that PKC inhibitor might inhibit the Th2 bias and mediate a deviation from Th2 to Th1.

Key words [Schistosoma japonicum](#) [egg granuloma](#) [singnal transduction](#) [Th1/Th2 cytokine](#)

DOI:

通讯作者

作者个人主页 夏超明; 龚唯; 骆伟; 周卫芳; 李允鹤; 熊思东; 查锡良

扩展功能
本文信息
▶ <a href="#">Supporting info</a>
▶ <a href="#">PDF (348KB)</a>
▶ <a href="#">[HTML全文](OKB)</a>
▶ <a href="#">参考文献[PDF]</a>
▶ <a href="#">参考文献</a>
服务与反馈
▶ <a href="#">把本文推荐给朋友</a>
▶ <a href="#">加入我的书架</a>
▶ <a href="#">加入引用管理器</a>
▶ <a href="#">复制索引</a>
▶ <a href="#">Email Alert</a>
▶ <a href="#">文章反馈</a>
▶ <a href="#">浏览反馈信息</a>
相关信息
▶ <a href="#">本刊中 包含“日本血吸虫”的 相关文章</a>
▶ 本文作者相关文章
· <a href="#">夏超明</a>
· <a href="#">龚唯</a>
· <a href="#">骆伟</a>
· <a href="#">周卫芳</a>
· <a href="#">李允鹤</a>
· <a href="#">熊思东</a>
· <a href="#">查锡良</a>