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论著

一氧化氮供体对弓形虫速殖子DNA含量的影响

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摘要

目的 探讨亚硝基铁氰化钠 (SNP)对弓形虫速殖子DNA含量的影响。 方法 采用SNP与影响胞内 /胞外钙离子浓度的试剂作用于RH株刚地弓形虫 (Toxoplasmagondii)速殖子 ,流式细胞仪检测其DNA含量的变化。 结果 ①SNP导致弓形虫速殖子DNA的损伤 ,并呈时间和剂量依赖性 ;② 2mmol/L胞外钙离子螯合剂EGTA ,2 5 μmol/L胞内钙离子螯合剂BAPTA/AM及 5 0 μmol/L钙离子拮抗剂verapamil单独处理弓形虫速殖子 ,其DNA含量与对照组相比无显著变化 ;③ 2mmol/LEGTA ,2 5 μmol/LBAPTA/AM及 5 0 μmol/Lverapamil明显减少 2mmol/LSNP所致的速殖子亚二倍体峰的比例。 结论 SNP通过改变弓形虫速殖子胞浆游离钙离子浓度 ,诱导其亚二倍体峰的出现 ,造成虫体的损伤

关键词

刚地弓形虫 速殖子 亚硝基铁氰化钠(SNP) 一氧化氮 DNA含量 流式细胞术

分类号

The Effect of Nitric Oxide Donor on the DNA Content in Toxoplasma gondii Tachyzoite

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Abstract

Objective To determine the role of sodium nitroprusside (SNP) in regulating DNA synthesis of Toxoplasma gondii tachyzoites. Methods Hypodiploid peak of tachyzoite DNA induced by SNP was assessed according to DNA fragmentation. The effect of SNP on appearance of hypodiploid peak and the effect of Ca 2+ on the growth of tachyzoites were evaluated. The intracellular Ca 2+ chelator (BAPTA/AM), antagonist of Ca 2+ channel(verapamil) and the extracellular Ca 2+ chelator (EGTA) were used. The change of DNA content was measured by flow cytometry. Results SNP inhibited DNA synthesis of tachyzoites in a dose and time dependent pattern. The antiproliferative effect of SNP on tachyzoites was inhibited by verapamil, EGTA and BAPTA/AM. The inhibition of the growth of tachyzoites by SNP was associated with increased subploid peak through a Ca 2+ dependent mechanism. Conclusion SNP induced a hypodiploid peak in tachyzoites by altering the Ca 2+ concentration in the plasma of tachyzoite, resulting in damages of the parasite.

Key words Toxoplasma gondii tachyzoite sodium nitroprusside (SNP) nitric oxide DNA content flow cytometry

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