

# ***Entamoeba histolytica*: immunohistochemical study of hepatic amoebiasis in mouse. Neutrophils and nitric oxide as possible factors of resistance**

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### ***Entamoeba histolytica*: immunohistochemical study of hepatic amoebiasis in mouse. Neutrophils and nitric oxide as possible factors of resistance**

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## **Abstract**

Studies in mice have not rendered conclusive data on cell and humoral factors to support the resistance of this rodent to *Entamoeba histolytica* infection. In Balb/c and C3H/HeJ mice inoculated with live or fixed trophozoites, we studied the evolution of the hepatic lesion, the kinetics of inflammatory cells, and the participation of some humoral factors in the development of the hepatic amoebic lesion. From the first hour, amoebae were surrounded by neutrophils containing inducible nitric oxide synthase (iNOS); macrophages also expressing iNOS appeared lately, whereas NK cells were not part of the inflammatory infiltrates. On the fourth day, neutrophils, macrophages, T and B lymphocytes, plasma cells, and some NK cells limited the lesions and anti-amoeba antibodies appeared when most parasites had been eliminated. Therefore, the resistance of the mice to *E. histolytica* probably lies in non-specific immune responses, among which the activation of neutrophils and the production of nitric oxide (NO) may be important amoebicide factors.

*Index Descriptors and Abbreviations:* ALA: amoebic liver abscess; AP: alkaline phosphatase; C1q, C3, C3a, C3b, C3c, C5a: complement components; CR3: complement receptor-3; DAB: diaminebenzidine; FITC: fluorescein isothiocyanate; H&E: hematoxylin-eosin; HRP: horseradish peroxidase; ICAM-1: intercellular adhesion molecule-1, IL-8, IL-6; IL-1: interleukins; INF $\gamma$ : interferon- $\gamma$ ; iNOS: inducible nitric oxide synthase; LFA-1: lymphocyte function associated molecule-1; LPS: lipopolysaccharide; MBL: mannose binding lectin; MCSF-1: monocyte colony-stimulating factor-1; NO: nitric oxide, NO $_2^-$ : nitrite, NO $_3^-$ : nitrate; NOS: nitric oxide synthase; NTB: 4-nitrochloride tetrazolium blue; PBS: phosphate buffered saline; PLP: peryodate-lysine-paraformaldehyde solution; mRNA: messenger-Ribonucleic acid; TGF- $\beta$  1: transforming growth factor- $\beta$  1, TNF $\alpha$ : tumor

necrosis factor- $\alpha$ , TRIS: tris-hydroxymethyl-aminomethane. Gerbil: *Meriones unguiculatus*, Hamster: *Mesocricetus auratus*, Mouse: *Mus musculus*, Rat: *Ratus norvegicus*.

## **Reference**

Gandhi BM, Gupta H, Irshad M, Chawala TC, Tandon BN : Cell mediated immunity in amoebic liver abscess. J Trop Med Hyg, 89:163-166, 1986.