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Entamoeba histolytica: The effect of Carbohydrates on the formation of NETs from mouse neutrophils

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Entamoeba histolytica (Eh), produce amebic colitis and can migrate to the liver producing amebic liver abscess (ALA). Neutrophils are the first and main line of the host defense during the invasion of Eh and have a close contact with it. The trophozoites can adhere to the host cells through different lectins such as Gal/GalNac, 220 kDa and 112 kDa adhesin among others. Recently it has been reported that Eh induces the NETs formation. NETs are composed mainly of DNA, histones and myeloperoxidase (MPO). The present study was to evaluate the possible effect of carbohydrates in the NETS formation after the interaction of Eh trophozoites with mouse neutrophils in presence or absence of N-acetyl-D-galactosamine, N-acetyl-glucosamine and D-mannose at different times and concentrations. For detect NETs formation we used a specific polyclonal antibody against MPO, and DNA was detected by Sytox green stain. DNA was quantified by Picogreen assay. The amoeba viability was determined by trypan blue exclusion dye. We observed the formation of NETS during the interaction of Eh and neutrophils in the presence of N-acetyl-D-galactosamine and D-acetyl-glucosamine. No differences in NETs release were observed in presence or absence carbohydrates. We evaluated the DNA concentration in presence of the carbohydrates we can observe an important increase of DNA concentration. The viability of Eh trophozoites diminished importantly in presence of N-acetyl-D-galactosamine with the other two carbohydrates the decrement was lesser. We can conclude that carbohydrates allow that the neutrophils increase the release and formation of NETs and consequently damage to Eh.

Biography

José Eduardo Aguayo Flores has completed his Medical studies at the National Polytechnic Institute and did a research stay at the Conde de Valenciana Foundation Ophthalmology Institute. He is a Medical and Optometrist Researcher in the Biochemistry Laboratory in the area of Immunology, a Researcher in the Ministry of Health of Mexico and carries out research in the Ophthalmology area. He has contributed multiple investigations that resulted in several articles published in renowned journals.

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