

PZ-50 CELL SURFACE ENERGETICS OF Trichomonas vaginalis: INFLUENCE OF FIBRONECTIN

Silva Filho, F.C.^{1,2} & Van Oss, C.J.² - ¹Departamento de Parasitologia e Biofísica Celular, Instituto de Biofísica Carlos Chagas Filho, UFRJ, CP 68047, 21944, RJ, Brasil and ²Departments of Microbiology and Chemical Engineering, State University of New York at Buffalo, NY 14214, USA.

The human mucosal parasite Trichomonas vaginalis is the responsible for one of the most frequent sexually transmitted diseases. It has been proposed that trichomoniasis has its etiology on the adhesion of parasite to the epithelia lining urogenital cavities. In addition, fibronectin (FN) may improve parasite adhesion by exacerbating its cytopathic effect on cultured cells. The binding of both prokaryotes and eukaryotes to FN seems to be firstly mediated by hydrophobic domains of FN molecule. Thus, hydrophobic interactions seems to account for much of cell-FN interactions. This rationale was taken into consideration during the experiments here described. Both T. vaginalis (strains IR78 and NYH286) and human plasma FN were studied with respect to their surface tensions. In order to provide a quantification of the parameters involved in such surface property, either microorganisms as the protein were submitted to contact angle measurements. The test consisted of depositing of drops of liquids with different polarities, and measuring the angle between the surface and the tangent to the drop at the solid-liquid-air meeting point. The values obtained were analyzed and introduced in equations which can provide a quantification of the physico-chemical parameters involved in surface tension of both molecules and cells. Either the high pathogenic NYH286 strain as the low one IR78 have similar interfacial energies (ΔG) when such microorganisms are found adhered on plastic (polystyrene) surfaces; values of G were of -11.3mJ.m^{-2} (IR78) and -13.8mJ.m^{-2} (NYH286). Despite of this similarity the "hydrophobic" components of their surfaces contribute to about 40.7mJ.m^{-2} (IR78) and 37.5mJ.m^{-2} (NYH286) for the ΔG , which means that the very pathogenic microorganisms have surfaces more hydrophobic than those of low pathogenicity. These values were changed when parasites were previously incubated for 30 min in a solution of 30ug.ml^{-1} FN ($Y^{\text{LW}}=29.5$; $Y^{\ominus}=51.6$; $Y^{\oplus}=4.3\text{mJ.m}^{-2}$). The Y^{LW} surface components of NYH286 and IR78 microorganisms were of 43.2mJ.m^{-2} . The results indicate that trichomonads of high surface hydrophobicity are very susceptible to bind plasma FN.
Grants from: CNPq-Brasil and NIAID-USA.

PZ-51 PATHOGENICITY OF TRICHOMONAS VAGINALIS: CYTOPATHOGENIC EFFECT IN MAC COY CELLS CULTURE.

De Carli, G.⁺, Brasseur, Ph.⁺⁺ & Gorenflot, A.⁺⁺⁺
Faculdade de Farmácia, UFRGS, Porto Alegre⁺, Laboratoire de Parasitologie, Hôtel-Dieu, Rouen, França⁺⁺, Faculté de Pharmacie, Paris, França⁺⁺⁺.

Trichomoniasis is the most common infection of the urogenital tract. The pathogenic effects of Trichomonas vaginalis were studied in Mac Coy cells culture using light microscopy and scanning electron microscopy. The parasites adhered to the cells, developed an amoeboid morphology and moved slowly over and under the monolayer of cells. These observations suggest that the adhesiveness, amoeboid morphology, and motility of trichomonads may be important mechanisms in the damage caused to Mac Coy cells, or even with the presence of cell surface receptors. This method of study appeared more sensitive, faster and nearer of cytopathogenicity in women than subcutaneous and intraperitoneal inoculation to mice.

Supported by CEE, MRE, MCT, and CNPq.