TITLE: STUDY OF SPHINGOLIPIDS ROLE ON THE INTERACTION OF *B. vulgatus* AND *B. thetaiotaomicron* STRAINS WITH MICE PERITONEAL MACROPHAGES

AUTHORS: MARINATO, C. E. G.; MORENO, M. T. C.; LORETE, A. R. M.; CARDOSO, A. M.; VIEIRA, J. M. B. D.

INSTITUTION: FUNDAÇÃO CENTRO UNIVERSITÁRIO ESTADUAL DA ZONA OESTE (UEZO), LABORATÓRIO DE MICROBIOLOGIA BÁSICA E APLICADA (LMBA) - AVENIDA MANOEL CALDEIRA DE ALVARENGA, 1.203, CEP: 23070-200, CAMPO GRANDE, RIO DE JANEIRO – RJ, BRASIL.

ABSTRACT: The human gastrointestinal tract is colonized by several species of bacterium, among them the anaerobes of the genus *Bacteroides,* including *Bacteroides vulgatus* and *Bacteroides thetaiotaomicron*. Both are commensal, being *B. thetaiotaomicron* the second most numerous in this site, being exceeded only by *B. fragilis*. Under dysbiosis conditions, *B. vulgatus* has been associated with the development of inflammatory bowel diseases, such as Chrohn disease and ulcerative colitis. Apart from being microbiota members, both can act as opportunistic pathogens. In this context, the host defenses include the nutrient achievement restriction and the immune system cell's action, such macrophages, which are associated with phagocytic activity, for instance. Previous results developed by the group demonstrated that like *B. fragilis*, *B. vulgatus* and *B. thetaiotaomicron* can modify the microbicidal activity of peritoneal macrophages in mice, promoting the overflow of iNOS from infected macrophages. Moreover, data from the literature indicate that sphingolipids associated with *B. fragilis* generate on it the ability to survive oxidative stress, working as an immune response escape mechanism. Therefore, it is important to evaluate the interference of *B. vulgatus* and *B. thetaiotaomicron* sphingolipids on the interaction with mice peritoneal macrophages *in vitro*, since both have pathogenic potential. Preliminary results obtained after treatment of *B. vulgatus* and *B. thetaiotaomicron* strains with myriocin, inhibitor of sphingolipid synthesis, indicated that these molecules seem to be important for the maintenance of these bacteria under stress conditions caused by mice peritoneal macrophages. Analysis by Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) are being performed after bacterial/macrophages interaction assays to evaluate, respectively, the morphology and ultrastructure of the phagocytes. In addition, future studies will be needed to better analyze how these microorganisms are able to change the activity of macrophages, as well as to understand the related mechanisms that may contribute to their pathogenic potential.

KEYWORDS: *Bacteroides vulgatus, Bacteroides thetaiotaomicron,* sphingolipids, mouse peritoneal macrophages, inflammatory bowel disease.

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