MEMBRANE RAFT-DEPENDENT ADHESION OF PATHOGENIC FUNGI TO HUMAN LUNG (A549) CELLS

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Cholesterol- and sphingolipid- enriched cell membrane microdomains, called membrane rafts (or lipid rafts), are ubiquitous in mammals and have been shown to play an essential role in different cellular functions, including host cell-pathogen interaction. Here, we demonstrate the involvement of A549 cell membrane rafts in the adhesion process of pathogenic fungi *Paracoccidioides brasiliensis* and *Histoplasma capsulatum*. By fluorescence microscopy, using AlexaFluor 488®-cholera toxin B subunit (CTB) conjugate, which binds to ganglioside GM1 lipid raft marker, we observed that A549 cells infected with yeast forms of *P. brasiliensis* showed high fluorescence with CTB. This reactivity, however, was limited to the yeast-A549 cell contact region, indicating membrane raft involvement in this interaction. Next, we incubated A549 cells with methyl-ß-cyclodextrin (MßCD) in order to promote membrane raft disorganization by depleting membrane cholesterol. Incubation of MßCD treated cells with yeast forms of *P. brasiliensis* or *H. capsulatum* showed that MßCD treatment was able to inhibit the adhesion of *P. brasiliensis or H. capsulatum* to A549 cells by 80% and 65%, respectively, suggesting that intact membrane rafts play a key role in fungi-host interaction. Together, these data indicate for the first time that pathogenic fungi may use host membrane rafts for infection establishment.

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