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Drug effects and drug targets from human pathogenic amoebas *Entamoeba histolytica*, *Acanthamoeba polyphaga* and *Naegleria fowleri*

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In our laboratory we have been working for several years searching and identifying thiol compounds such as Trypanothione in human pathogenic amoebas like *E. histolytica, A. polyphaga* and *N. fowleri* as well as on the inhibition of their enzyme NADPH-dependent Trypanothione reductase as a drug target, by neuroleptics, anti-mycotics, antibiotics and other drugs with antiproliferative effects. It is worth to be mentioned that *E. histolytica,* at least in 60 hours cultures, contains as much as four times more reduced cysteine than T(SH)2. Contrariwise, *T. cruzi* and *Crithidia luciliae* do not contain appreciable amounts of reduced cysteine. *T. cruzi* however, contains a much higher amount of T(SH)2 (559 nmol/g) than *E. histolytica* (29 nmol/g) when expressed by wet weight of the pellet, but the opposite is true when the amount is calculated in relation to the number of cells (*T. cruzi*=0.202 nmol/L×106 epimastigotes and *E. histolytica*=0.961 nmol/L×10^6 trophozoites). There is no doubt that the thiol compound trypanothione, which was previously thought to occur only in Kinetoplastida, is also present in these human pathogens, as well as in the non-pathogenic euglenozoan *E. gracilis.* The presence of the trypanothione/trypanothione reductase system in these amoebas creates the possibility of using this enzyme as a new "drug target" for rationally designed drugs to eliminate the parasite without affecting the human host.

Biography

Raul N Ondarza-Vidaurreta is a Professor of Biochemistry at Faculty of Medicine, UNAM and Medical Researcher at National Institute of Public Health, currently teaching Biochemistry and Molecular Biology and directing research theses in both Master's and Doctor's degree in the Faculties of Sciences and Medicine of the UNAM. He has published more than 50 scientific papers. He has completed his Postgraduate in Biochemistry, Glasgow University, Scotland, Great Britain and Doctor in Biology (Biochemistry) Faculty of Sciences, UNAM, Mexico and he was a Fellow of John Simon Guggenheim Memorial Foundation, Dr. Honoris Causa, Republique Francaise, Académie de Créteil, Universitè Paris XIII. He was a Visiting Professor at Scripps Institution of Oceanography, University of California, San Diego at La Jolla, California.

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