

REGULATION OF THE HOST CELL TRANSLATIONAL MACHINERY BY DENGUE VIRUS  
INFECTION IN HEPG2 CELLS: IDENTIFICATION OF TARGETS  
FOR DIAGNOSIS AND ANTIVIRAL THERAPY

Villas-Bôas, C.S.A and Montero-Lomeli, M.

Instituto de Bioquímica Médica- UFRJ

Dengue virus is a member of the *Flaviviridae* family, which causes dengue fever and dengue hemorrhagic fever in millions of people each year in tropical and subtropical regions of the world. We have studied the differential expression of genes by HepG2 cells infected by Dengue2 virus after 48 hours of infection. The results showed a significant variance in many biological processes, one of them related to CAP-dependent initiation and elongation of protein synthesis. To better characterize how the DEN virus interacts with the host cell translational machinery, we have performed a time course experiment and measured the rate of protein synthesis, the expression of basic genes that regulate protein synthesis by real time, and the phosphorylation state of factors that regulate protein synthesis such as p70S6 kinase and the translational repressor eukaryotic initiation factor 4E binding protein (4E-BP1). Our results show that total protein synthesis is inhibited in a short course of infection (6h) by approximately 50%. However the transcription of factors that affect CAP-dependent protein synthesis are activated at 6 hours of infection as well as factors that regulate protein synthesis such as p70S6 kinase and 4EBP1. These results indicate that total protein synthesis is inhibited by the infection with the Dengue 2 virus while CAP-dependent protein synthesis is activated, suggesting preferential synthesis of Den2 proteins.