Infection by Dengue Virus in HepG2 Cells Modulates Differential Expression of Proteins on Lipid Droplets.

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Hepatic cells are able to synthetize lipid droplets (LDs), an inducible citoplasmatic organelle able to interact with others organelles and that participates on several cellular processes. Previous studies reported the involvement of LDs during virus replication, helping in the assembly of new virions. The proteins present on LDs population can suffer alterations due to a specific stimulus, such as an infection. Hence, we isolate the LDs generated from HepG2 cells (hepatoma cell line), stimulated with acid oleic (AO) or infected by dengue virus type 2 (DV) by separating them on gradient of sucrose after ultracentrifugation. Aliquots of the isolation (1ml) were collected, from the top to the bottom and tested against contaminants (LDH kit). Only the initial aliquots (1 to 4) were selected for posterior analysis. Due to the proximity, aliquots 1 and 2 were pooled and named as fraction 1, and aliquots 3 and 4, fraction 2. These fractions were submitted to 1D electrophoresis analysis in order to compare the pattern of proteins among the fractions and conditions. The results revealed high similarities among fractions 1 and 2 from the same condition, but few differences between AO and DV. Then to characterize these proteins we applied them on mass spectrometer, Synapt G1 HDMS system (Water, Machester, UK). So far we were able to identify and quantify with high reliability 195 molecules (ANOVA p value ≤ 0.05). Proteins such as, HSP 90-beta, PDIA3, Cyclophilin B, hnRNP A2/B1, were up-regulated in DV condition and already describe as participating in virus assembling and multiplication of dengue virus, and, replication and binding to core protein, of other *Flavivirus*. Here we show that dengue infection can stimulate differential quantitative insertion of proteins in LDs. How these findings correlate with infection and virus replication process is worth of further investigation.

Key words: proteome, dengue and lipid droplet.

Acknowledgements: CAPES, CNPq and FAPERJ.