

Mechanism of lipid droplets biogenesis in *Salmonella* Typhimurium infection

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Salmonella sp is a Gram-negative bacterium and the etiological agent of salmonellosis. Salmonellosis is one of the major zoonoses for public health worldwide, characterized by its endemicity, high morbidity and, above all, by the difficulty of adopting a control measure.

Lipid droplets (LD) are lipid-rich organelles composed of core neutral lipids. The LD can be found virtually in all cell types. LD are also involved in the control and synthesis of lipid inflammatory mediators. LD are also involved in pathogenesis of several pathogens. LD participation in pathogen-host relationship has already been verified infection by virus, bacteria and protozoan parasites.

In view of the foregoing, in this work we aim to investigate the participation of lipid bodies in enterocyte invasion by *Salmonella* Typhimurium and its involvement in pathogenicity. For this, *Salmonella* Typhimurium infection of an Immortalized murine macrophages (WT) as well as knockouts for TLR4, TLR2, Myd88 / TRIF and p22 was used. These macrophages were infected with *Salmonella* Typhimurium using the MOI (10) and the following time points 1h and 24h. Bacterial proliferation was evaluated by microscopy and colony forming units (CFU). The lipid droplets were stained with Oil Red O and analyzed by microscopy.

Our results show that after 1h of infection different macrophages have the ability to induce LD biogenesis, involving the enzymes Dgat-1 and phospholipase A2. The knockouts p22, Myd88 / TRIF and TLR2 inhibited the biogenesis, but in the knockout of TLR4 this increase in LD biogenesis was observed at all times analyzed. This set of data makes us believe that LD can be protective at the beginning of infection, but its excess, as in the case of TLR 4 knockout, may be pro-pathogenic.

For the best elucidation of the nature of this relationship and the contribution of lipid droplets to *Salmonella* intracellular proliferation more experiments will be performed.

Keywords: Lipid droplets, *Salmonella* Typhimurium, TLRs.

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