Lipid Droplets Play an Important Role During Obligate Intracellular Bacterial Infections

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**Chlamydia pneumoniae**

**Causing agent of:**
- Infections in the upper respiratory tract and coronary arteries.

**Pathogenesis:**
- Enter the host through the respiratory tract.
- Induces inflammation, angiogenesis, and atherosclerosis.
- Causes coronary artery disease and myocardial infarction.

**Lipid Droplets and C. pneumoniae:**
- Hosts use lipid droplets (LDs) for energy, membrane trafficking, and signaling.
- LDs provide fatty acids, cholesterol, and phospholipids for C. pneumoniae.

**What are Lipid Droplets?**
- Store excess cellular free fatty acids and cholesterol as triacylglycerol (TAG) and cholesterol ester.
- Participate in lipid uptake, transportation, esterification, and degradation.

**What are Chlamydia pneumoniae Lipid Droplets?**
- C. pneumoniae interacts with LDs in the host cell.
- Promotes LD formation to obtain fatty acids and cholesterol for growth.

**Summarize the published literature describing the pathways obligate intracellular bacterial pathogens employ to manipulate lipid droplets and identify the contribution of lipid droplets to bacterial intracellular survival and infectivity.**

**What are Lipid Droplets?**

- Cytoplasmic lipid storage organelles surrounded by a phospholipid monolayer.
- Store excess cellular free fatty acids and cholesterol as triacylglycerol (TAG) and cholesterol ester (CE) respectively.
- Functions include lipid metabolism, energy homeostasis, membrane trafficking, cell signaling, and inflammation.

**Lipid Droplets and Chlamydia pneumoniae:**
- C. pneumoniae interacts with LDs in the host cell.
- Promotes LD formation to obtain fatty acids and cholesterol for growth.
- Host lipids and lipid metabolism modulatory effects.

**Conclusion:**
- Lipid droplets play an important role during obligate intracellular bacterial infections.

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**Lipid droplets play an important role during obligate intracellular bacterial infections**

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