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Title: Autophagy and Lc3-associated phagocytosis in host defense against Salmonella

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Propositions

Accompanying the PhD thesis

“Autophagy and Lc3-associated phagocytosis in host defense against *Salmonella*”

1. Lc3-associated phagocytosis, requiring the host factors Rubicon and NADPH oxidase, mediates host defense against systemic *Salmonella* infection. (Chapter 3, 4 and 5).
2. The function of macrophages in zebrafish host defense against *Salmonella* infection cannot be taken over by neutrophils. (Chapter 3).
3. *Salmonella* does not require the SPI1 and SPI2 secretion systems to establish systemic infection in zebrafish, but it needs the SPI2 system for increased virulence in Rubicon-deficient hosts. (Chapter 4).
4. The production of flagella by *Salmonella* bacteria comes at the cost of triggering Lc3-associated phagocytosis and an effective innate immune response of the zebrafish host. (Chapter 4).
5. The DNA-damage regulated autophagy modulator Dram1 protects the zebrafish host against *Salmonella* infection by promoting Lc3-associated phagocytosis. (Chapter 5).
6. Transmission electron microscopy continues to be the most reliable direct proof of autophagy.
7. Effective implementation of autophagy modulating strategies in clinical practice will require the development of more selective inducers or inhibitors. (Galluzzi et al., 2017).
8. Autophagy inducers such as resveratrol have an underexplored therapeutic potential, but should not be recommended as health supplements.
9. Considering the role of Lc3-associated phagocytosis in clearance of dead cells (Martinez et al., 2011), it can be predicted that this process is important for limiting granuloma expansion during early stages of tuberculosis infection.
10. Microbial invaders must be able to cross Rubicon to win the battle with host immune cells.
11. Because Pakistan is one of countries with the highest number of lethal cases of Salmonellosis, the government should prioritize policy making decisions to control this disease.
12. Bruises and scars are a symbol of strength not weakness.

12 October 2017, Samrah Masud