

Accepted Manuscript

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PII: S1050-4648(18)30581-3

DOI: [10.1016/j.fsi.2018.09.037](https://doi.org/10.1016/j.fsi.2018.09.037)

Reference: YFSIM 5558

To appear in: *Fish and Shellfish Immunology*

Received Date: 24 July 2018

Revised Date: 20 August 2018

Accepted Date: 12 September 2018

Please cite this article as: Johansen MD, Hortle E, Kasparian JA, Romero A, Novoa B, Figueras A, Britton WJ, de Silva K, Purdie AC, Oehlers SH, Analysis of mycobacterial infection-induced changes to host lipid metabolism in a zebrafish infection model reveals a conserved role for LDLR in infection susceptibility, *Fish and Shellfish Immunology* (2018), doi: <https://doi.org/10.1016/j.fsi.2018.09.037>.

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Analysis of mycobacterial infection-induced changes to host lipid metabolism in a zebrafish infection model reveals a conserved role for LDLR in infection susceptibility

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Keywords: zebrafish, mycobacterium, pathogenesis, lipid, metabolism

Abstract

Changes to lipid metabolism are well-characterised consequences of human tuberculosis infection but their functional relevance are not clearly elucidated in these or other host-mycobacterial systems. The zebrafish-*Mycobacterium marinum* infection model is used extensively to model many aspects of human-*M. tuberculosis* pathogenesis but has not been widely used to study the role of infection-induced lipid metabolism. We find mammalian mycobacterial infection-induced alterations in host Low Density Lipoprotein metabolism are conserved in the zebrafish model of mycobacterial pathogenesis. Depletion of LDLR, a key lipid metabolism node, decreased *M. marinum* burden, and corrected infection-induced

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