

Understanding Lung Immunopathology Caused by the Human Metapneumovirus: Implications for Rational Vaccine Design

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Abstract

Acute respiratory tract infections (ARTIs) are the major cause of child mortality worldwide. The human metapneumovirus (hMPV) is one of the leading causes of child hospitalizations due to pneumonia. The adaptive immune response generated by the host against hMPV is usually inefficient at protecting from reinfections, which is repeat throughout life, from childhood to old age. Despite considerable research efforts, to date there are no licensed vaccines to prevent respiratory disease caused by hMPV infection. In this article we review current vaccine strategies tested in animal models and the implication of such studies in understanding the different immune cell populations that contribute to hMPV clearance and the prevention and resolution of lung inflammation upon exposure to the virus.