

## Expression of microRNAs and innate immune factor genes in lung tissue of pigs infected with influenza virus (H1N2) - DTU Orbit (06/08/2016)

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Swine influenza is a highly infectious respiratory disease in pigs caused by influenza A virus. Activation of a frontline of pattern-recognition receptors (PRRs) expressed by epithelial cells as well as immune cells of the upper respiratory tract, leads to a potent type 1 interferon (IFN) release and simultaneous proinflammatory cytokine expression. A transient induction of cytokines is required for an efficient antiviral defence; however, an over-reactive and prolonged inflammatory response may lead to excessive infiltration of immune cells, contributing to immunopathology of the infected lung. Thus, this response must be tightly regulated. Recently, microRNA (miRNA) has been proposed to play an important role in modulating and fine tuning the innate immune response in order to avoid such harmful overreactions.

Little is known about the significance of miRNA regulation in the lung during acute influenza A infection. The present work aimed of providing a better understanding of the involvement of innate immune factors including miRNA in the host response to establishment and progression of influenza virus infection.

Twenty pigs were challenged by aerosol containing H1N2 (A/swine/Denmark/12687/03) influenza virus. Expression of mRNA coding for cytokines, chemokines, pattern recognition receptors and other antiviral effector molecules were quantified in lung tissue at different time points after challenge (24h PI, 72h PI, and 14days PI). Likewise, microRNA in the lung tissue was quantified at the same time points. Our results demonstrate a significant regulation of several microRNAs and their targeted mRNA in the lungs of pigs during acute influenza.

### General information

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