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Mammalian Orthoreoviruses: circulation in pigs and bats

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Between 2015 and 2016 we have detected Mammalian Orthoreoviruses (MRV) type 3 in faeces of diseased pigs in Italy. MRV3 was detected in conjunction with porcine epidemic diarrhoea (PED) virus or Astrovirus. MRV3 was previously reported in swine showing gastro-enteric signs and diarrhea in China and South Korea mainly in association with gastrointestinal pathogens and in USA during PED outbreaks.

Interestingly, the Italian and USA MRV3 strains present a high sequence homology with MRV3 isolated from European bats and a child with acute gastroenteritis in Slovenia. This may highlight the importance for human health and the zoonotic potential of MRV3.

The paucity of data on the MRVs distribution and genetic characteristics prevents any hypothesis on the more likely epidemiological links between bats, pigs and humans. Current literature and scientific investigations on MRVs in swine and bats are weak and therefore we propose to undertake a study to evaluate the circulation and the genetic characterization of porcine and bat MRV in North East Italy, and to elucidate their mechanism for interspecies transmission.