Use of recombinant capsid proteins in the development of a vaccine against foot-and-mouth disease virus (FMDV). - DTU Orbit (20/03/2019)

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Foot-and-mouth disease remains one of the world's most economically important diseases of livestock. It is caused by foot-and-mouth disease virus, a member of the picornavirus family. The virus replicates very rapidly and can be efficiently transmitted between hosts by a variety of routes. The disease has been effectively controlled in some parts of the world but remains endemic in many others, thus there is a constant risk of introduction of the disease into areas that are normally free of foot-and-mouth disease with potentially huge economic consequences. To reduce the need for large-scale culling of infected, and potentially infected, animals there has been significant effort to develop new vaccines against this disease which avoid some, or all, of the deficiencies of current vaccines. A major focus has been on the use of systems that express the structural proteins of the virus that self-assemble to generate "empty capsid" particles which share many features with the intact virus but lack the ribonucleic acid genome and are therefore non-infectious. Such particles can be "designed" to improve their stability or modify their antigenicity and can be produced without "high containment" facilities. The development and use of such improved vaccines should assist in the global efforts to control this important disease.

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