CSIC and Universidad Pompeu Fabra have developed a vaccine of foot and mouth disease virus based on a peptide capable of generated the necessary immune response to protect the animals from this serious infection.

Industrial partners from pharmaceutical and biotechnology industry are being sought to collaborate through a patent licence agreement.

An offer for Patent Licensing

Veterinary vaccine for Foot-and-mouth disease virus (FMDV)

Foot-and-mouth disease (FMD) is one of the most devastating animal diseases. It mainly affects cattle and swine and also sheep, goats, deer, and other cloven-hooved ruminants. FMD is characterized by fever and vesicle lesions followed by erosions on the tongue and lips, in the mouth, on the teats, and between the hooves. It is caused by a highly contagious virus and represents a high economic impact as it causes severe losses in the production of meat and milk. Endemic areas fight against the disease with vaccination. Free areas tend to sacrifice.

A multidisciplinary research group has engineered a dendrimeric peptide that displays immunogenic epitopes of FMDV. Particularly, it includes a B epitope of serotype O, which is the most prevalent in our targeted areas, and a T-cell epitope from FMD nonstructural protein 3D. It has been tested in rodents and swine showing a strong immunogenicity (induction of neutralizing antibodies and specific T-cells), higher than that of previous dendrimer peptides including a different T-cell epitope.

Main innovations and advantages

- It can be easily synthesized.
- It does not need refrigeration, allowing for a more convenient and stable storage.
- It differentiates infected and vaccinated animals.
- Its modular composition can be easily tailored to immunize against other FMDVs by replacing the B cell epitope.
- Its immunogenicity can be improved/modulated by combining more than one T-cell epitope.
- The dendrimeric peptide can be also optimized for species other than the pig by replacing the T-cell epitope by species-suited ones.

Patent Status

PCT application suitable for international extension

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