CSIC, UPF and INIA have developed a new vaccine for Foot-and-Mouth disease virus based on a multiple antigenic peptide dendrimers, chemically synthesized. Animal health pharmaceutical companies interested in commercialize this vaccine under a patent license are sought for.

**Peptide vaccine for Foot-and-Mouth Disease virus**

**New FMDV vaccine for pigs**

Foot-and-mouth disease virus (FMDV) is a picornavirus that produces a highly transmissible and devastating disease in farm animals, mainly cows, sheep, and pigs. The virus is very resistant under particular conditions and it is necessary to take strict precautionary measures to avoid the contagion and spread of this illness because it can cause severe economic losses.

The vaccines used and known until now, show several disadvantages, such as the requirement of a cold chain to preserve their stability, the need for periodic revaccination, the risk of infectious virus release during its production and its non-identifying nature (the difficulty of serologically distinguishing infected animals from those that have been vaccinated).

This FMDV vaccine contains peptide dendrimers with epitopes of the virus, refer to multiple antigenic peptide (MAP) systems having dimeric, tetrameric or octameric structure comprising a B epitope of FMDV (aminoacids 141-160 of protein VP1).

The dimeric peptide constructs based on a lysine core and containing a T epitope bound to the C-terminal residue of the lysine core and two B epitopes bound to N-terminal residues of the lysine core are easier to obtain and purify. These dimeric peptide construct present improved immunogenic activity compared to the correspond tetrameric peptide construct.

**Main applications and advantages**

- Lack of infectious agent, which ensures absolute safety.
- Accurate molecular delineation of the immunogen, which allows to exclude detrimental sequences present in full-length antigens or other pathogen-related molecules, and permits easy and clear differentiation of infected from vaccinated animals (referred as DIVA vaccines).
- Scale up by peptide synthesis methods (conventional FMD vaccines require this long, laborious and expensive).
- Uncomplicated transport and storage.

**Patent Status**

China patent application

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