

Nanoemulsions to inhibit the formation of bacterial biofilms

CSIC has developed nanoemulsions composed of an oily core of α -tocopherol and octadecylamine, and a surfactant shell, in combination with an antimicrobial peptide, which inhibit the formation of *Haemophilus influenzae* biofilms, and can be used for the treatment or prevention of diseases caused by this bacteria.

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

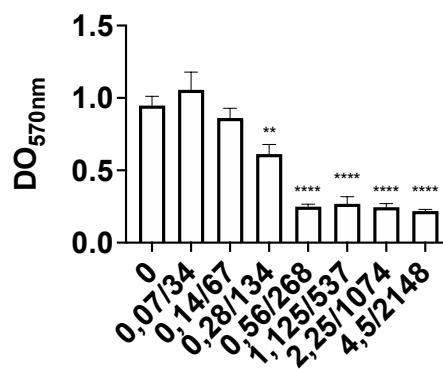
An offer for Patent Licensing

Potent capacity to inhibit the formation of bacterial biofilms

Bacteria living in biofilms are a major contributor to the emergence of antibiotic resistance. Bacterial biofilms are more resistant to antibiotics and account for more than 60% of bacterial infections in humans, leading to the emergence of persistent and chronic infections.

The developed nanoemulsions, composed of a lipid mixture (oily core), preferably of α -tocopherol and octadecylamine, and a shell formed by a surfactant layer that allows its stabilization in water, significantly prevent the formation of bacterial biofilms by *H. influenzae* when used in combination with an antimicrobial peptide.

For this reason, these nanoemulsions can be used for the treatment or prevention of diseases caused by *H. influenzae*, as well as to inhibit the formation of *H. influenzae* biofilms on implants or surfaces.



Effect of antimicrobial peptide-loaded nanoemulsions on the prevention of biofilm formation in a strain of *H. influenzae*

Main innovations and advantages

- These nanoemulsions show excellent physicochemical properties, with encapsulation efficiencies greater than 85% and high stability in suspension at different temperatures, so they can be stored for long periods of time.
- Also, they can be obtained by a simple and easily scalable procedure.
- Additionally, the nanoemulsions can also comprise a pharmacological agent or active ingredient.

Patent Status

Priority patent application filed suitable for international extension

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