




CARBOSILANE DENDRONS FUNCTIONALIZED WITH FATTY ACIDS: FORMATION OF MICELLES AND USES IN BIOMEDICINE AS ANTIVIRAL, ANTIBACTERIAL, ANTIPRIONIC, ANTIMICROBIAL AND DRUG TRANSPORTERS

Patent
ES2657282 B1

Code

BIO_UAH_27

Application areas

- Biological Sciences, Health and Pharma 
- Environment and risk prevention

Type of Collaboration

- Technical cooperation
- Commercial agreement with technical assistance
- License agreement

Main Researchers

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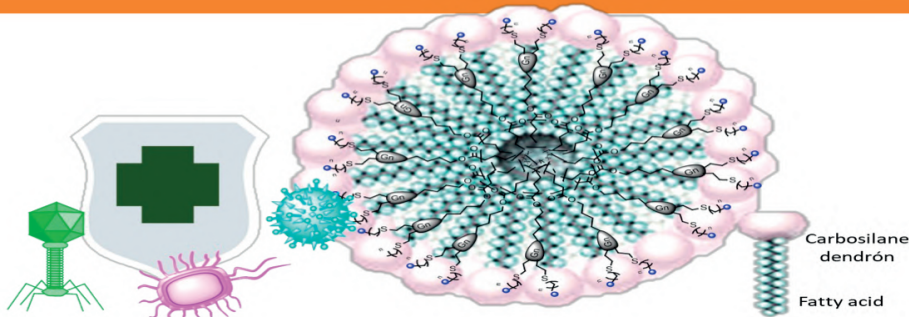
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ABSTRACT

The present invention provides compounds formed by dendrons of carbosilane structure that are functionalized in their periphery with anionic groups (such as carboxylate, sulfonate or sulfate), which endow the system with a net negative charge, or cationic (such as ammonium), which endow the system with a positive net charge.

These dendrons present a focal point that contains a hydrophobic function, mainly derived from a fatty acid. The fatty acid is linked to the dendron preferably through an ester bond, without dismissing other bonds, or even through electrostatic interactions.

The patent also includes the preparation of Janus type dendrimers, which are characterized by being formed by two dendritic units that have some distinct structural feature.

And finally, the invention includes the ability of the described compounds to form micelles. The principal medium for its formation would be aqueous but micelles can also be formed in solutions containing soluble salts in these media or surfactants.

Regarding the uses in biomedicine of these compounds and the micelles formed by them, it is worth highlighting: their use as non-viral transport agents for the transfection or internalization of nucleic material within different cell lines in gene therapy processes; use of these compounds as "per se" therapeutic agents, e. g. as antiviral, antimicrobial or antipyretic agents, or as drug transporters, even for the preparation of a drug of solid or liquid composition and oral, nasal, topical or parenteral administration.

In their environmental application, they can be used as biocides to prevent the appearance of microorganisms on surfaces or water treatment.

ADVANTAGES AND INNOVATIONS

- These systems are able to overcome some of the difficulties that certain drugs found, increasing their solubility and even acting as transporters to the areas of interest.
- Ease of diffusion of dendrimers through biological barriers, and therefore access to target cells.
- Possibility of encapsulation and transport of drugs or other molecules with biological activity.
- The preparation of these dendrimers as pharmaceutical formula can be very varied, being possible any solid composition (tablets, pills, capsules, granules, etc.) or liquid (gels, solutions, suspensions or emulsions). For oral, nasal, topical or parenteral administration.