



NYU



Avobenzene-Dendrimer Conjugates

The use of a dendrimer scaffold to stabilize avobenzene in sunscreens and improve photochemical properties.

Technology

This invention from the [Weck Lab](#) at NYU describes the use of a dendrimer scaffold to stabilize avobenzene and improve photochemical properties. In proof-of-concept studies, synthesized avobenzene-dendrimer conjugates show higher UV-A absorbance (357 nm) relative to unmodified avobenzene. Additionally, the avobenzene-dendrimers exhibit higher stability over time in the presence of UV-A radiation (less degradation). In all, these data strongly suggest avobenzene-dendrimers to be more effective UV-A filters for preventing skin cancer and aging.

Background

Skin cancer is the most common form of cancer in the U.S., resulting in approximately 5 million new cases each year. The major cause of skin cancer is UV damage, which is easily avoidable through the use of sunscreen. Avobenzene is an FDA-approved UV-A filter, found in many sunscreens, that absorbs low-energy UV radiation and prevents sensitized skin (blotchy skin with visible dryness and irritation). Despite widespread use, avobenzene has several inherent drawbacks, notably, its instability to light exposure, which causes chemical degradation and reduces longevity. Therefore, new chemical formulations that stabilize avobenzene and prevent degradation would serve to maximize UV-A protection and more effectively prevent against skin cancer and aging.

Application

For use as an UV-A filter in sunscreens

Benefits

- Higher UV-A absorption: Avobenzene-dendrimers show higher UV-A absorption than non-conjugated avobenzene
- Improved photostability: Avobenzene-dendrimers show higher UV-A absorption over time than non-conjugated avobenzene
- Monodispersity and customizability: Dendrimers are intrinsically monodisperse macromolecules that can be readily derivatized
- Pleasant rheological properties: Dendrimers form thin and cosmetically-favorable films on skin

Intellectual Property

A US non-provisional patent has issued covering this invention (US11291620B2) and a continuation application thereto is currently pending.

Category

Consumer Health
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