

A New Structurally Tunable Organic Motif for Visible-light Induced Carbon-monoxide Releasing Molecules

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Abstract

USU researchers have developed an innovative method of carbon monoxide (CO) release for use in biological systems. CO releasing molecules (CORMs) have been studied recently as an approach for the treatment of cardiovascular disease, inflammatory disorders, and use in vasodilation and organ transplants among other applications. By improving this technology, researchers at USU have established a means of progressing towards the medical benefits of CORMs while simultaneously eliminating the negative side effects of existing technology.

Problem

The vast majority of CORMs reported are metal carbonyls and release CO spontaneously, both of which qualities pose potential health problems.

Solution

The toxicity, inaccuracy, and danger associated with most CORMs are eliminated by use of the extended flavonol framework, preserving therapeutic benefits of CO release while avoiding harmful side effects.

Value Proposition

Toxicity and dangerous CO release by CORMs is reduced, flavonol framework is easily synthetically modified, and has augmentable biological properties.

Benefit

Potential for toxicity and unreliable or dangerous CO release by CORMs is reduced through use of this technology. Additionally, the flavonol framework is easily synthetically modified, has augmentable biological properties and is similar to known compounds, as flavonols are found in some plants.

Market Application

This technology will be especially useful in development of CO release technology, and its corresponding use in medicinal, therapeutic and research applications.

Inventors

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Publications

- Anderson, et al., "A Structurally-Tunable 3-Hydroxyflavone Motif for Visible Light-Induced Carbon Monoxide-Releasing Molecules (CORMs)" (2015). Chemistry and Biochemistry Faculty Publications. Paper 632. <https://doi.org/10.1002/open.201500167>

Intellectual Property

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