

C-nitroso donors of nitroxyl

Value proposition

Heart failure is a chronic, progressive condition in which the heart muscle is unable to pump enough blood to meet the body's needs for blood and oxygen. More than 200,000 patients experience heart failure in the United States each year. Nitroxyl ions have been clinically used to increase cardiac output while reducing venous output and has been used to treat heart failure. A compound known to donate nitroxyl ion is Angeli's salt. Angeli's salt decomposes in water to release active therapeutic agents. However, it is very hard to control nitroxyl ion delivery rate with this agent. The uncontrollable rate of delivery has been limiting its use in other indications. If the rate of delivery can be controlled, nitroxyl ion can also be used to protect against reperfusion injury. To improve the utilities of nitroxyl ion, novel compounds with controllable release rate need to be created.

Technology

Duke inventors have designed novel compounds that allow control over the rate of nitroxyl ion release by releasing nitroxyl ions into the blood in a second order reaction. Upon activation, nitroxyl ion can be released with a controlled rate for clinical use. When used on a congestive heart failure patient, this invention was able to improve ejection fraction and decreased blood pressure. When used on a heart attack post-surgery patient, ischemic reperfusion injury was prevented.

Advantages

- Nitroxyl ion has been used commonly in clinical practices
- A novel nitric oxide delivery method
- Demonstrated clinical success
- Can be expanded as a prophylactic to protect against reperfusion injury
- Can be easily produced

Patents

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Country: United States of America

Duke

LICENSING & VENTURES

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