

A Novel Nitric-Oxide Releasing Drug

Tech ID: 19637 / UC Case 2007-196-0

BACKGROUND

Typically used to treat a variety of cardiac conditions, most nitric oxide generating drugs are organic nitrates (such as nitroglycerin) that require metabolic conversion in order to release NO. Many of these organic compounds have limited suitability for long-term use. Tolerance can develop in the patient and the number of NO molecules available may be restricted due to toxicity caused by either metabolic by-products or concurrently released moieties such as cyanide. Therefore, a need for a potent, non-toxic agent that releases NO directly exists and could provide a desirable alternative to patients suffering from hypertension, congestive heart failure or other conditions where fast, effective vasodilation is required.

TECHNOLOGY DESCRIPTION

This hypertensive agent, nitrosyl-cobinamide, is a direct NO releasing agent that does not require biotransformation, thereby avoiding the concurrent release of toxic metabolites (superoxide ions, peroxynitrate, or cyanide ions). Cobinamide is a precursor of Vitamin B12 and appears to be metabolically neutral at the doses used for this indication. It has been tested in mammalian cells, *Drosophila melanogaster* and mice, where a rapid reduction of blood pressure was demonstrated.

STATE OF DEVELOPMENT

Development for the use of this compound is at the prototype stage and efficacy in reducing blood pressure has been demonstrated. Ongoing pre-clinical studies continue, including pharmacokinetic and toxicology.

ADVANTAGES

- ▶ Direct release of NO at physiological temperature and pH.
- ▶ More potent than equimolar amounts of nitroglycerin.
- ▶ Development of patient tolerance should not occur.
- ▶ No toxic by-products or concurrently released agents.
- ▶ Repeated administration regimens or development of time released formulations possible.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,222,242	07/17/2012	2007-196

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Treatment for Smoke Inhalation and Cyanide Poisoning](#)
- ▶ [New Treatment for Sepsis](#)

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OTHER INFORMATION

CATEGORIZED AS

- ▶ [Medical](#)
- ▶ [Disease: Cardiovascular and Circulatory System](#)

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