

“CARDIOPROTECTIVE EFFECT OF PDE-5 INHIBITORS (VIAGRA®, LEVITRA® AND CIALIS®)” VCU #02-38

Applications

- Prevention or treatment of heart attack and prevention of related cardiac injury
- Potential for preventing ischemic injury in non-cardiac tissues (e.g., brain, lung)
- Heart protection during bypass surgery
- Organs preservation during transplantation

Advantages

- Expedited FDA approval expected
- Pretreatment with PDE-5 inhibitors significantly reduces cardiac cell death

Inventors

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Contact

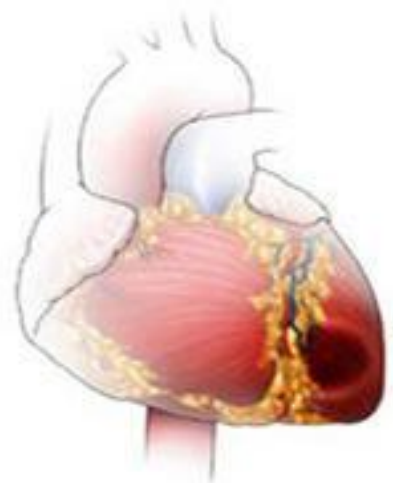
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Market Need

Heart disease is the leading cause of death in the United States with heart attacks accounting for 1 in 5 deaths annually. There are no clinically proven drugs to precondition or protect the heart tissue following ischemia/reperfusion injury. Although aspirin may help prevent heart attacks, it is not known for protecting cardiac tissues when an attack does occur.

Technology Summary

A researcher at VCU has discovered a novel use for the phosphodiesterase type 5 (PDE-5) inhibitors that are currently used to treat erectile dysfunction. He has shown that PDE-5 inhibitors induce a preconditioning-like effect in the heart, reducing the extent of injury due to ischemia. When administered either orally or intravenously in rabbits, the protective effect was observed in as little as 30 minutes and persisted for 24 hours. Data also suggests that PDE-5 inhibitors can protect other organs, including the brain and liver from infarction and ischemia/reperfusion injury.



Technology Status

US patent 7,091,207.

Animal testing completed (see publication: Ockaili, R. *et al.*, *Am. J. Physiol. Heart. Circ. Physiol.* **283**:H1263-69 (2002).

This technology is available for licensing to industry for further development and commercialization.