

Dual-Function Nitinol Coronary Stent to Prevent Early Thrombosis and Late Restenosis

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Technology description

TECHNOLOGY DESCRIPTION:

Researchers at the University of Delaware have developed a novel new tool to improve contemporary metal stents used in coronary heart disease treatments. The new innovation that they have come up with are dual-functioning nitinol drug-eluting stents. In this structure, a Nano-tubular structure was created on the surface of nitinol wires and a coating of dual drugs sirolimus and aspirin were applied to the Nano-tubular surface. This would improve the performance of the coronary stent. This in turn reduces late-stage restenosis.

PROBLEMS ADDRESSED:

Coronary stents have been used in the treatment of coronary artery disease throughout the past medical history. Many of these stents that are currently used are made as a bare metal stent. These bare metal stents are not as promising because they do not have any anti-proliferative agents in them or released by them to prevent hyperplasia and restenosis. Hyperplasia is the enlargement of a tissue caused by the increase in the reproduction rate of the cells. Restenosis is the narrowing of an artery or valve. Metal stents do not protect against either of these problems. Therefore, the new novel dual function nitinol coronary stents which are drug-eluting stents can solve this problem.

Application area

This is a potent innovation in the treatment of coronary artery disease. The innovation facilitates the revascularization of coronary vessels.

Advantages

- Prolonged drug release from the drug eluting stent
- Prevention of thrombosis
- Prevention of late restenosis
- Limits the vascular smooth muscle cells proliferation

Institution

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