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PRESSURE-SENSOR EMBEDDED STENT

MEDICAL DEVICES

Pressure-sensor-embedded-stent to *in situ* measure the blood pressure inside a vessel and thus provides advance notice of restenosis.

TECHNOLOGY TYPE

Class I/II
Cardiology
Nanodiagnostics
Pressure Sensor

STAGE OF DEVELOPMENT

- Functionality demonstrated on virtual copper stent.
- Ongoing testing in liquid tube capacitive node.
- Next steps include *in vivo* testing and further optimization.

IP PROTECTION

Nationalized PCT Pending in the United States, Issued in Europe

Stent with embedded pressure sensors
US-2016-0022447-A1
EU 2967928

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Reference Number: U-5535

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TECHNOLOGY SUMMARY

Restenosis, the development of plaque deposition in the arteries, occurs in 20 percent of stent implanted patients. Diagnostic technologies on the market today are error prone, difficult to implant, and difficult to manufacture. A new stent has been developed for use in angioplasty stent placement to widen arteries the same as a traditional stent. The stent can measure the pressure along its length to accurately diagnose restenosis. By measuring any drastic drop or gradual increase in pressure through a multiple-zone pressure sensor scheme, the device is able to help locate and diagnose restenosis. These measurements are transmitted wirelessly to a data retrieval device, eliminating the need for periodic interventional procedures currently used to monitor the development of restenosis.

FEATURES AND BENEFITS

- Reduces the need for periodic interventional procedures to monitor restenosis development.
- Increases diagnosis accuracy by measuring change in pressure at various points through multiple-zone pressure sensor scheme.
- Eliminates need for batteries, electronic processing, and ASIC circuitry.
- Prevents surgery-insertion difficulty
- Higher signal resolutions against tilting or misalignment errors of inductive coils.

RECENT PUBLICATIONS

Bulbul, A., Him, H. (2017). Design and performance of a wireless pressure sensing stent. *19th International Conference on Solid-State Sensors, Actuators, and Microsystems*.

INVENTOR PROFILE

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