3D Printing of Endovascular Stents as Cardiovascular Medical Devices

Published date: Oct. 27, 2018

Technology description

Novel method for using biomaterial ink (BInkTM) to rapidly produce patient-specific endovascular stents using projection microstereolithography
Northwestern scientists have developed a method for 3D printing of endovascular stents as cardiovascular medical devices that are biodegradable and act as drug-eluting stents. Biodegradable endovascular stents have been found to be more beneficial to patients suffering from cardiovascular disease than bare metal stents, as they allow for eventual recurrence of normal vasomotion. Prof. Ameer and colleagues have designed and optimized a biodegradable polymer for compatibility with a rapid 3D printing method that is integrated with computed-assisted design software. Using this approach, scientists are able to manufacture custom-made stents with high precision (7 Œºm resolution), while reducing production time. Furthermore, stents produced in this fashion can be loaded with drugs to facilitate slow release from the stent bulk, as opposed to from the stent surface. This novel technology has the potential to improve mechanical compliance of endovascular stents to blood vessels, resolving an unmet need in the field of cardiology. Finally, this manufacturing method can also be applied to production of other biomedical implants.

Application area

3D printed biomedical implants
Drug delivery
In vivo sensing platform

Advantages

Rapid production
Customizable
Biodegradable

Institution

Northwestern University

Inventors

Cheng Sun
Assoc Professor
Fan Zhou
Henry Ware
Guillermo Ameer
Professor
Jian Yang
Evan Baker
Graduate

联系我们

叶先生

电 话：021-65679356
手 机：13414935137
邮 箱：yeyingsheng@zf-ym.com