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A New Class of Stent -
The CATANIA™ Coronary
Stent System

Interview

Dr Jamil Mayet
(Chief of Service, Cardiovascular
Medicine, Imperial College
Healthcare NHS Trust)

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(Opinion from Dr Nick Curzen)

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**Dr Chris Baker during
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A New Class of Stent:

The Stealth Surface Solution

“Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius - and a lot of courage -- to move in the opposite direction.”

- Albert Einstein

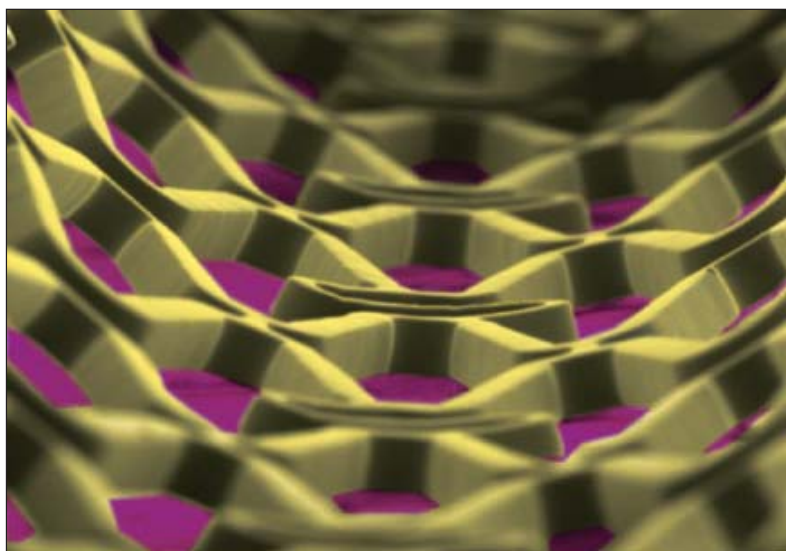
Percutaneous treatments for cardiovascular disease have steadily advanced since 1977 when Andreas Gruentzig performed the first successful transluminal coronary angioplasty on a human. Since then, various improvements have been made that attempt to address the “Achilles Heel” of stenting: restenosis.

- Some improved stent geometry to increase flexibility and reduce vessel injury
- Some tried different substrates such as tantalum and cobalt chromium
- Many experimented with cell designs e.g., open, closed, sinusoidal
- More engineered reduction in strut thickness and surface contact.
- Others sought to reduce vessel wall injury by improving balloon design.
- Some used heparin coatings to reduce restenosis.
- A few tried brachytherapy which has since been all but abandoned.
- Drug-eluting stents took center stage using polymer base coats, top coats, and matrices, mechanical divots, dimples, and channels to hold and elute the anti-proliferative drugs.

- Original drugs were followed by their analogs.
- Some researchers now say the future is bioabsorbable stents.
- Others say it is adding more surface molecules such as endothelial progenitor cells or nitric oxide.

In the Southern United States, where CeloNova BioSciences is headquartered, this is called “putting lipstick on a pig.” These approaches focus on reducing or treating damage caused by the stenting procedure. However, the underlying problem of foreign body response remains. Incremental improvements have been made in almost every area of stenting except the most basic one: preventing the body’s own inflammatory response.

Current thinking in the medical community is focused on “treating” complications. This paradigm lead researchers toward in-



Above: The CATANIA™ Stent architecture

creasingly more complex solutions such as adding drugs, and more recently, biological agents to reduce negative outcomes associated with stent implantation.

What if there was a simple solution that interrupted this cycle or prevented it entirely? Celonova BioSciences' patented, bioinvisible stent surface treatment with Polyzene®-F enables the body to accept the implant by permitting healthy cellular growth without activation of the blood coagulation cascade or the complement system.

Celonova approaches medicine from the perspective of prevention of negative outcomes rather than adding treatments to address side effects and complications. The Polyzene®-F surface treatment simply makes the stent "invisible" to the body. This concept of cloaking the stent surface has never been adequately explored and perfected until now.

The CATANIA™ Coronary Stent System with NanoThin Polyzene®-F is a new class of stent. It does not release drugs or biological agents. It allows for quick vessel healing. Therefore, the CATANIA™ stent does not require long-term dual-antiplatelet therapy. It is anti-inflammatory, bacterial-resistant, and helps to prevent tissue reactions that lead to restenosis. Importantly, the CATANIA™ stent has a 0% thrombosis rate in clinical studies performed to date.

The CAT™, as it is called, is not a bare metal stent because it has a nanothin layer of Polyzene®-F. It is not a drug-eluting stent and does not contain any cytostatic, cytotoxic, anti-inflammatory, anti-thrombogenic drugs or additives. It is a well-designed, cobalt-chromium alloy stent with thin struts and a 40 nanometer-thin surface treatment of Polyzene®-F. A proprietary surface technology from Celonova BioSciences, Polyzene®-F is an ultrapure, inorganic polymer that bestows biocompatible, anti-thrombogenic, bacterial-resistant, and anti-inflammatory properties to any device or substrate it coats. The body 'perceives' the Polyzene®-F coated implant as being a natural, integral part of itself. All of these features combine to create what some physicians call "the safest stent" on the market.

The CATANIA™ Coronary Stent System from Celonova BioSciences proves that there are simple, elegant solutions to complex problems if you have the courage to move, as Einstein suggested, in the opposite direction.

The CATANIA™ Coronary Stent System with NanoThin Polyzene®-F is CE Marked and available throughout the British Isles and all of the European Union. Contact sales@celonova.com or visit www.celonova.com for more information.

All images courtesy of Celonova BioSciences, Inc.



Above: Nanothin Polyzene®-F surface treatment on the CATANIA™ stent



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The CATANIA™ Stent System with NanoThin Polyzene®-F
Now available throughout the British Isles and all of the European Union.

Do you wonder if DES are worth the expense and risks?
Do you want an alternative to long-term dual anti-platelet therapy?
Do you want a real solution to late thrombosis?



**CORONARY STENT SYSTEM
WITH NANOTHIN POLYZENE®-F**

The CAT™ is Additive-Free

- No Off-Loaded Materials or Agents
- No Biological Substitutes
- No Extras Needed

The CAT™ is Drug-Free

- No Drugs on the Stent
- No Long-Term Dual Anti-Platelet Therapy Required

The CAT™ Primum Non Nocere

- Anti-Inflammatory
- Anti-Thrombogenic
- 0% Thrombosis in Clinical Trials



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