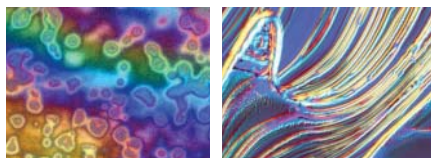


Finale™ Prohealing Coatings



REGENERATIVE TECHNOLOGIES

INTRODUCTION

Finale™ Prohealing Coatings are SurModics' family of extracellular matrix (ECM) protein-based coatings designed to improve tissue healing of implantable medical devices such as vascular stents and grafts. Developed in collaboration with Dr. Stuart K. Williams at the University of Arizona, these coatings signal relevant cell types that promote vessel and tissue healing when applied to a broad range of medical devices.

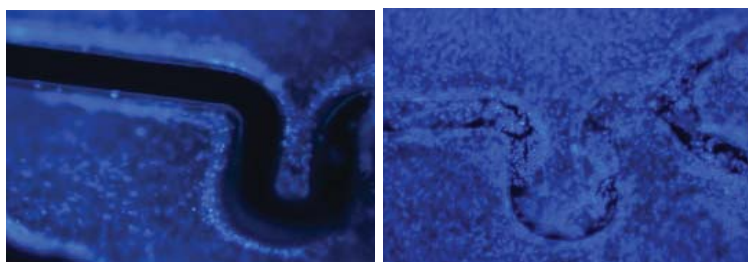


Figure 1. *Left.* En face view of a drug-eluting stent (DES) in a rabbit iliac artery at day 7. *Right:* A Finale-coated DES from the same study. The samples were stained with BBI to fluorescently visualize cell nuclei. Note the layer of endothelial cells on the stent with the Finale coating (right).

CLINICAL PROBLEMS ADDRESSED BY FINALE COATINGS

- Delayed or absent DES endothelialization resulting in increased late stent thrombosis and the need for prolonged anticoagulant therapy
- Neointimal hyperplasia on bare metal stents (BMS) leading to restenosis
- Poor angiogenesis, neovascularization, and endothelialization on fabric-based devices

FINALE PROHEALING SOLUTIONS

- Utilize nature's own healing mechanisms with ECM-based coatings
- Signal relevant cell types to promote vessel healing
- Induce angiogenesis, neovascularization, and endothelialization
- Improve tissue healing of implantable medical devices, e.g., stents, valves, PFO, ASD and other closure devices, small-bore grafts, AAA devices, and neuroembolic devices

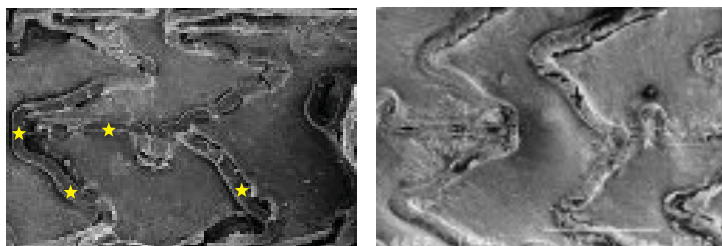


Figure 2. *Left:* Scanning electron microscope (SEM) image of a DES in a rabbit iliac artery at day 7. Note the lack of cell coverage on the DES without a Finale coating (denoted by the stars). *Right:* A Finale-coated DES from the same study.

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POSITIVE IN VIVO RESULTS

Endothelial cells are observed on Finale-coated DES one-week post deployment in a rabbit iliac model (Figures 1,2). Such rapid healing may help prevent late stent thrombosis and ameliorate the need for anti-proliferative drugs.

Additionally, rabbit iliac model data suggest that current BMS technology may be enhanced with Finale ECM protein modification by modulating neointimal formation. Cell coverage on uncoated BMS continued to increase from 7 to 14 days trending towards cell densities slightly greater than that of native vessels. Conversely, cell coverage on Finale-coated BMS approached that of a monolayer after 14 days, suggesting healing without cellular hyperplasia (data not shown).

Finally, when implanted subcutaneously in rats, a Finale prohealing coating improved both angiogenic response and neovascularization of e-PTFE fabric relative to controls (Figure 3), as well as greatly enhanced tissue integration into the fabric.

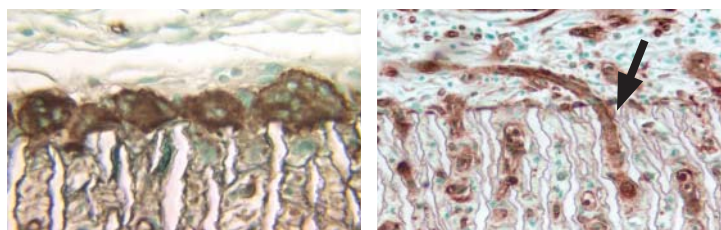


Figure 3. Light micrograph showing the ePTFE/tissue interface of GS-1 stained tissue cross-sections (GS-1 stains blood vessels). *Left.* Uncoated ePTFE. *Right.* ePTFE with a Finale prohealing coating. An arrow points to a longitudinal vessel profile penetrating the ePTFE graft.

CLINICAL TARGETS

- Coronary stenosis
- Thrombosis
- Arrhythmias
- Access/ Closure
- Structural heart defects
- Vulnerable plaque
- Neurovascular diseases

GOAL

This technology may decrease adverse events associated with DES and enable other devices that have thus far proven unsuccessful clinically, such as small-bore coronary grafts. SurModics seeks to partner with a visionary medical device company to commercialize this paradigm-changing technology to the benefit of patients undergoing vascular interventions. SurModics is committed to accelerated innovation and improved patient outcomes.

SurModics
Bringing Innovation Together™

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