



# Hemocompatible Coatings

SurModics active and passive hemocompatible coatings improve the safety and function of interventional medical devices by reducing the risk for thrombus formation.

Coating	Description	Advantages
<b>Active</b> (heparin)	Photo-immobilized heparin actively inhibits thrombin generation	Effective, well characterized agent for thrombus inhibition
<b>Passive</b> (non-heparin)	Photo-immobilized polymers reduce protein adsorption and platelet activation	Reduced cost and simplified regulatory pathway compared to heparin coatings

Fig. 1. SurModics hemocompatible coatings (active and passive) reduce platelet deposition in a primate model

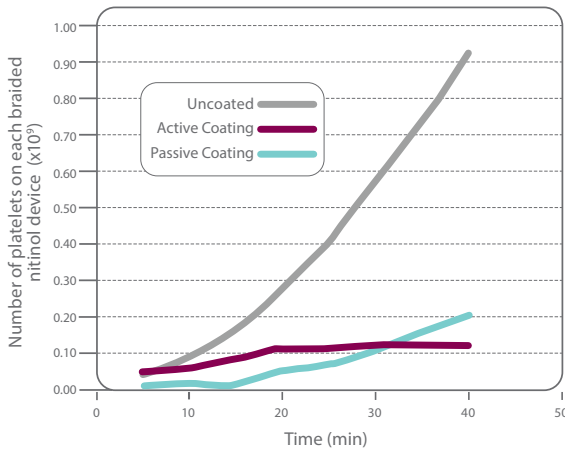
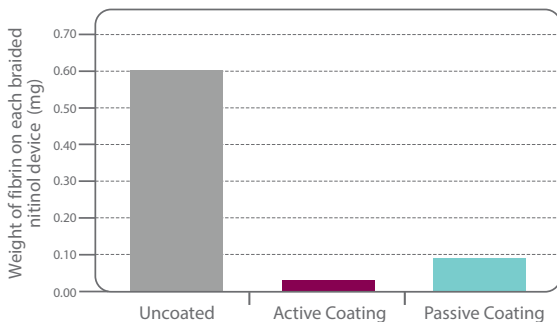


Fig. 2. SurModics hemocompatible coatings (active and passive) reduce fibrin deposition in a primate model



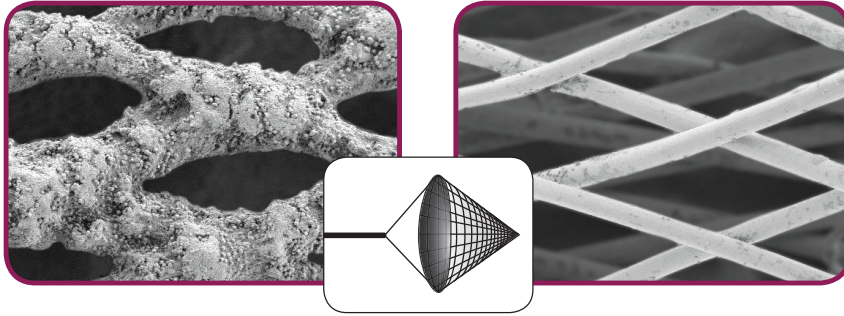
**Reduced Thrombosis Risk:** Thrombosis induced by medical devices can lead to serious complications or death. SurModics hemocompatible coatings reduce the risk of thrombosis by limiting the adherence of blood components and inhibiting blood coagulation on the medical device. Improved hemocompatibility imparted by SurModics coatings can extend a device's period of safe operation and reduce the need for anticoagulant therapy.

**Demonstrated Safety and Performance:** SurModics coatings are biocompatible, stable and compatible with common means of sterilization. Extensive research has demonstrated the efficacy of the coatings for preventing thrombus formation (Figures 1 and 2). SurModics coatings are used to promote hemocompatibility on commercial devices around the world.

**Customized Coatings:** SurModics coatings can be easily customized to meet specific blood compatibility and durability requirements of a device. SurModics has successfully coated many types of devices, including catheters, embolic filters and sensors.

**Proven Technology:** Application is easy using SurModics PhotoLink® light-activated technology, which creates a covalent bond between the coating and the device substrate for virtually all medical-grade materials.

- Durable surface modification
- Aqueous process with no harsh solvents
- Biocompatible reagents with proven track record
- Substrate and geometry versatility



SEM images of uncoated (left) and coated (right) braided nitinol embolic protection devices after 40-minute exposure to whole blood in a primate AV shunt model.

## Medical Devices That May Benefit From Hemocompatible Coatings

### Short-Term Use (<24 hrs.)

- Cannulae and introducer sheaths
- Electrophysiology catheters
- Embolic protection devices
- Neurological guide wires and catheters
- Thermodilution catheters
- Thrombectomy devices

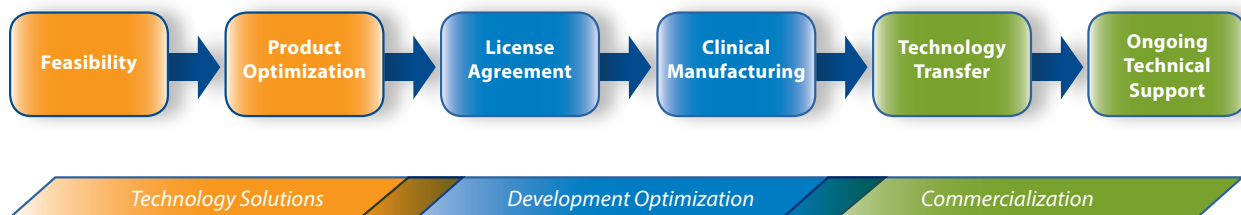
### Long-Term Use (>24 hrs.)

- Blood sensors
- Central venous catheters
- Drainage catheters
- Extracorporeal therapy devices
- Heart valves
- Hemodialysis catheters and equipment
- Implantable pacing and defibrillation devices
- Oxygenators
- Peripherally inserted central catheters (PICCs)
- Septal defect repair devices
- Stimulation leads
- Temperature management catheters
- Vascular stents and grafts
- Vena cava filters
- Ventricular assist devices

## When selecting a hemocompatible coating technology for your medical device, consider these key questions:

- How simple and fast is the coating process? Does it take minutes, hours, or days to complete?
- After application, is the coating uniform?
- Where is the device being placed, and what is the potential for clot formation?
- How long will the device be in the body?
- What is the geometry of the device?
- Are there additional surface modification needs (lubricity, biocompatibility, drug delivery)?
- What is the timeline and regulatory pathway for your device?

## Collaborative Partnership Model



### Working with SurModics

SurModics has a proven record of bringing products from concept to successful commercialization for large corporations and small emerging companies. Our customer partnership process is designed to identify an optimal technology solution and reduce time-to-market for your product. At SurModics, we regard customers as partners and strive to add to their success. For more information on how SurModics coating technologies can enhance your product, please contact us at 952-500-7000 or visit [www.surmodics.com](http://www.surmodics.com).



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