


Preclinical Data On Sirolimus Coated Balloons In Deep Veins: Results From The vSTRIDE Trial

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Disclosures

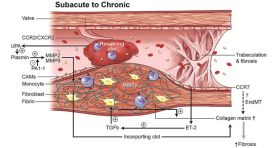
- This research was funded by the American Venous Forum, Surmodics, and the Jobst Foundation.



Oscar Moreno MD
 Post-doctoral fellow, vascular biology
 Conrad Jobst Laboratories

Hypothesis

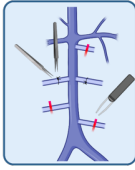
- mTOR is a key regulator of cellular proliferation and vascular inflammation.
- Decades of research have shown that dysregulation of these processes occurs in the postthrombotic vein.



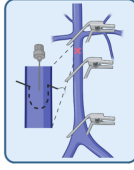
Does local mTOR inhibition (Sirolimus) reduce post-thrombotic venous inflammation/DIT?

Balloon Venoplasty Operative Technique


Branches Ligation and Cauterization



U suture (U-S) and clamps



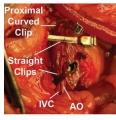
DCB Inflation and U-S ligation



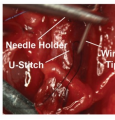
Animal: Sprague-Dawley rats (male), Age: 15 weeks (adult), Weight > 500 grams
 ✦ U-stitch and Insertion Point
Moreno O, Lalle CE, Clay A, Durrant L, Rocco S, Kumar K, et al. Robot Inferior Vena Cava Venoplasty Balloon Model. JVE. 2024 May 24(207):1685D.

Balloon Venoplasty Operative Technique

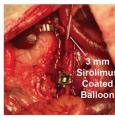
A. Hemostatic control. IVC: Inferior Vena Cava, AO: Aorta



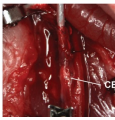
B. U-stitch on infrarenal IVC.



C. Wire insertion through U-stitch.



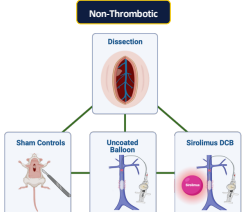
D. Sirolimus coated balloon venoplasty (CBV) retrograde deployment.



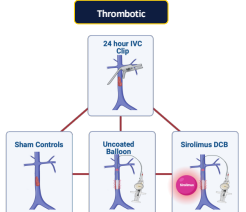
8-0 Nylon
 Retrograde cannulation
 0.014 custom sheathed guidewire
 Surmodics 3x10 mm sirolimus coated balloon venoplasty (CBV)
Moreno O, Lalle CE, Clay A, Durrant L, Rocco S, Kumar K, et al. Robot Inferior Vena Cava Venoplasty Balloon Model. JVE. 2024 May 24(207):1685D.

Study Design

Non-Thrombotic




Thrombotic




Study Outcomes


- Study Design:**
 - 2 groups: non- and thrombotic
 - 3 subgroups: Sham, uncoated, coated balloon venoplasty (sirolimus)
- Animal:** Sprague Dawley rats (male)
- Age:** 15 weeks (adult)
- Weight:** 500 grams




Protein



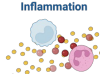
Cell Adhesion Molecules




Vein Wall Thickness



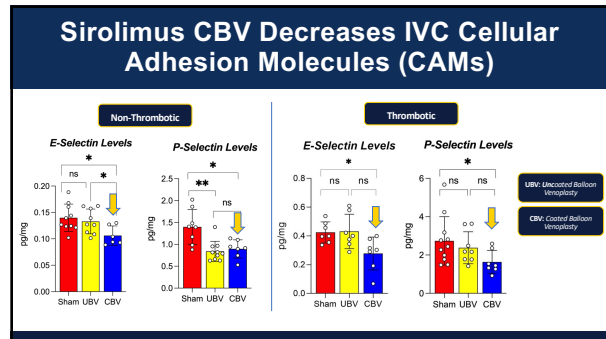
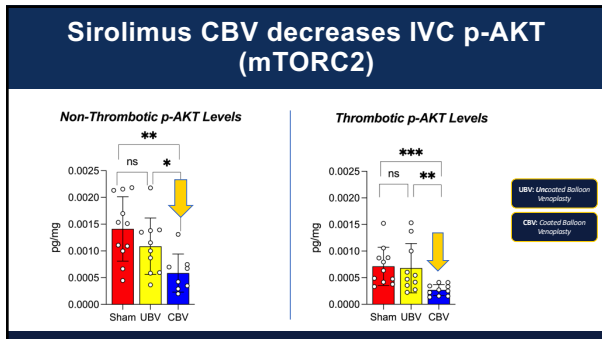
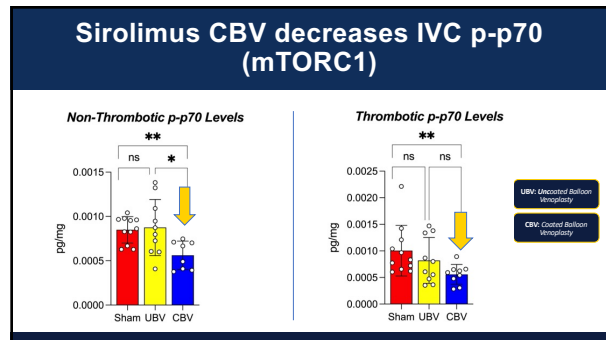
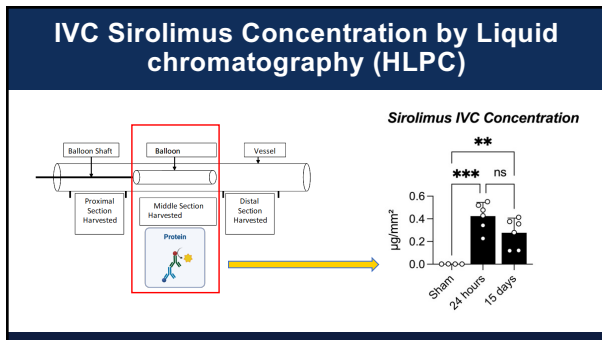
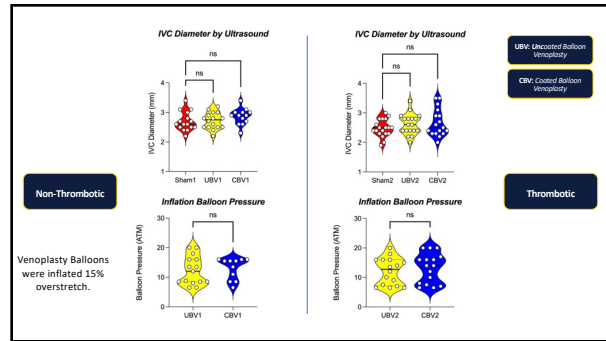
Histology

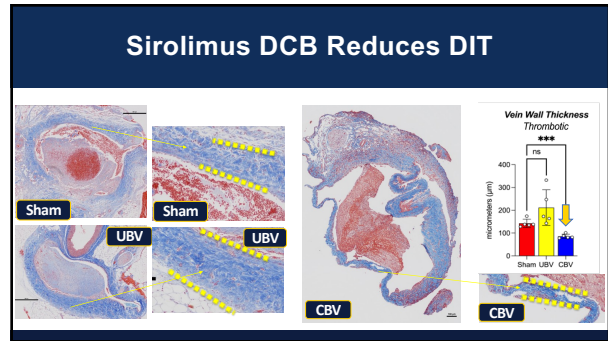
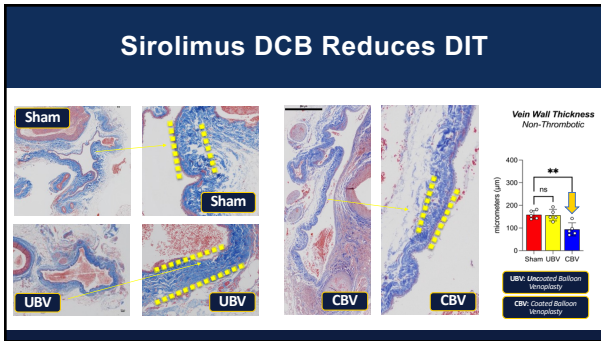


Inflammation



EndMT





- ### Study Results
- First successful venous drug coated balloon deployment in rodents
 - Sirolimus DCB attenuates venous endothelial injury response and diffuse intimal thickening in non-thrombotic and thrombotic conditions


Acknowledgements


Mentors:

- Andrea Obi
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- Kate Micallef






Go Blue!



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