# Three-Year Data from the MIMICS-2 Study

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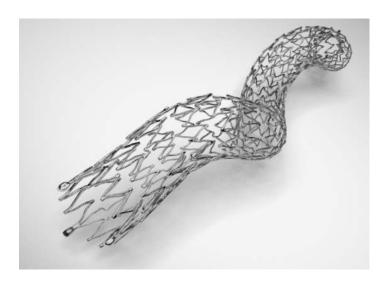
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## BioMimics 3D®: The Swirling Flow® Stent



- Helical centerline
- Simple, accurate placement using standard delivery system

The BioMimics 3D Vascular Stent System has FDA, PMDA and CE Mark approval. Not available for sale in Japan CAUTION: Federal law restricts this device to sale by or on the order of a physician..

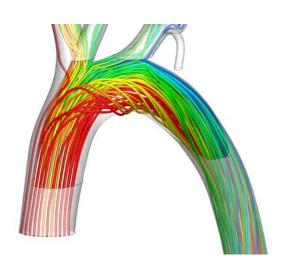


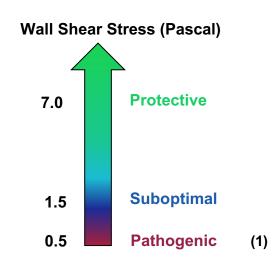
- Imparts non-planar curvature to stented femoropopliteal segment<sup>1</sup>
- Improved biomechanical performance compared to straight stents<sup>1</sup>
- 0% stent fracture Mimics 2 IDE

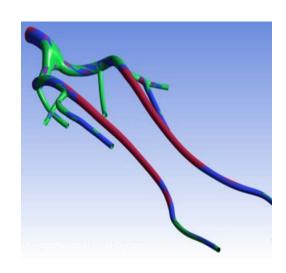




# BioMimics 3D:Helical Centerline Promotes Swirling Flow







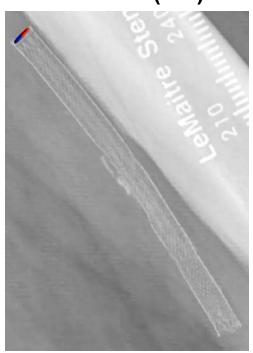
- Swirling flow increases wall shear stress (WSS) on endothelial cells
- WSS naturally protects against atherosclerosis and intimal thickening (2)
- Increased WSS has been shown <sup>(3)</sup> to provide an antiproliferative effect after stenting, without the need for a drug

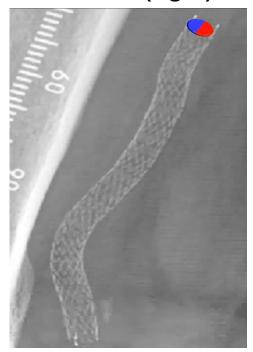
1. Malek AM et al, JAMA 1999;252:2035–2042, 2. Caro CG, Arterioscler Thromb Vasc Biol 2009, 29:158-161, 3. Caro CG et al, J R Soc Interface 10: 20130578



# In Vivo CFD Modelling of Swirling Flow in the Stented Segment

LifeStent (left) and BioMimics 3D Stent (right)







#### MIMICS 2

# Evaluation of Safety and Effectiveness of the BioMimics 3D Stent System in the Femoropopliteal Arteries of Patients with Symptomatic Peripheral Arterial Disease

#### Primary Endpoints

- Safety: composite of death, major amputation or CDTLR through 30 days
- Effectiveness: primary patency at 12-months
- Follow-up: 3 years
- 43 investigational sites enrolled 271 subjects

• US: 31 sites N = 162

• Germany: 6 sites N = 78

• Japan: 6 sites N = 31

#### Study Principal Investigators

- Timothy M. Sullivan, MD Minneapolis, MN, USA
- Thomas Zeller, MD Bad Krozingen, Germany
- Masato Nakamura, MD Tokyo, Japan

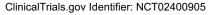
Data on file at Veryan Medical

#### Independent Core labs:

ultrasound; angiography; X-ray

Independent Clinical Event Committee

adjudication





## Baseline Angiography and QVA

Core Laboratory Data		N= 271 Subjects
Reference Vessel Diameter (mm)	Mean ± SD	5.2 ± 0.9 (269/271)
Lesion Type <sup>1</sup>	De novo	100% (271/271)
Lesion Location in	Prox	11.5% (31/270)
Femoropopliteal Artery	Mid	48.1% (130/270)
	Distal	40.4% (109/270)
Diameter Stenosis (%)	Mean ± SD	77.8 ± 18.3 (269/271)
Lesion Length (mm)	Mean ± SD	81.2 ± 38.4 (269/271)
Total Occlusion (%)		30.0 (81/270)
Calcification (%)	None - Mild	54.1 (146/270)
	Moderate - Severe	45.9 (124/270)
Run-off (%) - 1 or more patent tibial artery (<50% stenosis)		98.8 (237/240)

<sup>&</sup>lt;sup>1</sup> Investigator-reported



#### MIMICS 2

#### **Index Procedure Data**

		N= 271 Subjects
BioMimics 3D Stents placed <sup>1</sup>	# Stents / N	305 / 271
	# Subjects with 1 stent	87.5% (237/271)
	# Subjects with 2 stents	12.5% (34/271)
Stented Segment Length <sup>2</sup>	Mean ± SD (mm)	112.3 ± 36.3 (269/271)
Diameter Stenosis <sup>2</sup>	Pre-stent % ± SD	77.8 ± 18.3 (269/271)
	Post-stent % ± SD	12.6 ± 7.5 (269/271)
Dissections <sup>2</sup>	No Dissection	97.8% (263/269)
	Type A-C	2.2% (6/269)
	Type D-F	0% (0/269)
Device Success		100% (271/271)
Technical Success		100% (269/269)

<sup>&</sup>lt;sup>1</sup> Investigator-reported

Device Successful delivery of System; placement of stent and retrieval of System

Technical Success: Core Lab determined ≤50% residual diameter stenosis (in-stent) at end of index procedure



<sup>&</sup>lt;sup>2</sup> CoreLab-reported

## **Primary Endpoints**

## MIMICS 2

#### Safety

Composite of CEC-adjudicated Major Adverse Events through 30 days, including death, any major amputation performed on the target limb, or Clinically-Driven Target Lesion Revascularisation

	Performance Goal	Rate (n/N) [95% CI]
Freedom from MAE through 30 days	>88%	<b>99.6%</b> (268/269) [97.7%, 100%]
Primary sa	afety endpoint	Achieved

#### Effectiveness

Primary stent patency rate at 12 months

	Performance Goal	Rate (n/N) [95% CI]
Primary stent patency	>66%	<b>73.1%</b> (182/249) [67.3%, 78.2%]
Primary effecti endpoint	veness	Achieved

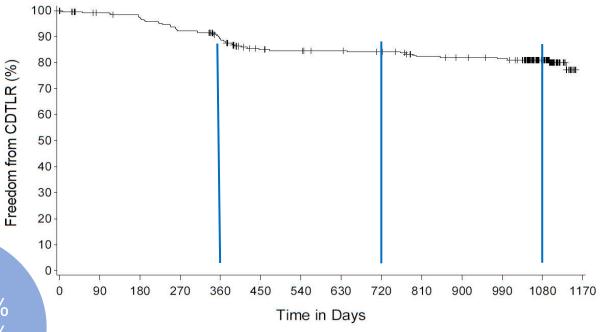
Patency was defined as no significant reduction in luminal diameter (< 50% diameter stenosis) since the index procedure.

Loss of patency was determined by an independent core laboratory when the peak systolic velocity ratio (PSVR) exceeds 2.0, or where angiography revealed > 50% diameter stenosis, or where the subject had a CDTLR.



## MIMICS 2

## Freedom from Clinically-Driven TLR at 3 Years = 81%



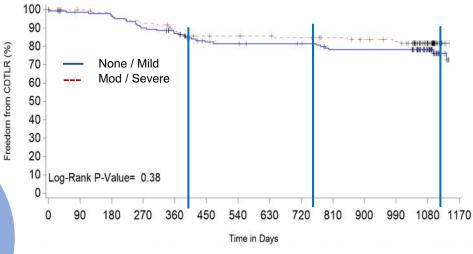
1-year = 89% 2-year = 84% 3-year = 81%

\*Core Lab adjudicated, clinically-driven TLR with objective evidence Subjects are censored at their last known follow-up, or at time of study exit (withdrawal or lost to follow-up) or death



# Freedom from Clinically-Driven TLR at 3 Years Lesion Calcification

Calcification %	None - Mild	54.1 (146/270)
at baseline	Moderate - Severe	45.9 (124/270)



None/Mild = 78% Mod/Severe = 82%

Subjects are censored at their last DUS follow-up, or at time of study exit (withdrawal or lost to follow-up) or death.

Subjects who are PATENT at DUS follow-up are censored at the end of follow-up window

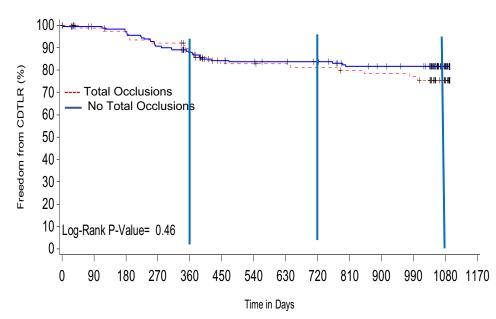
No statistically significant difference between both groups



## Freedom from Clinically-Driven TLR at 3 Years CTO vs. Stenosis

Total Occlusion % at baseline

30.0 (81/270)



CTO = 76% Stenosis = 82%

Subjects are censored at their last DUS follow-up, or at time of study exit (withdrawal or lost to follow-up) or death.

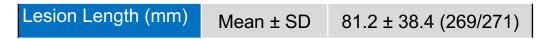
Subjects who are PATENT at DUS follow-up are censored at the end of follow-up window

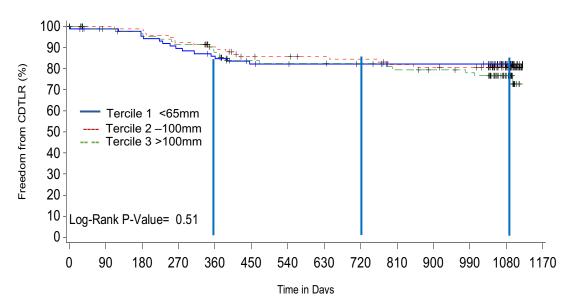
No statistically significant difference between both groups



#### MIMICS-2

# Freedom from Clinically-Driven TLR at 3 Years Tercile of Lesion Length





Tercile 1 = 82% Tercile 2 = 81% Tercile 3 = 77%

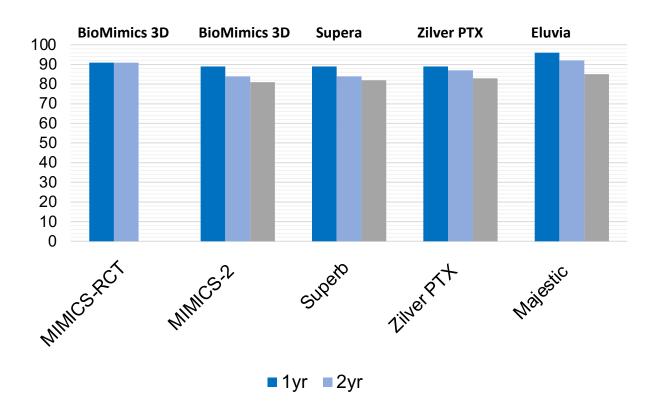
Subjects are censored at their last DUS follow-up, or at time of study exit (withdrawal or lost to follow-up) or death.

Subjects who are PATENT at DUS follow-up are censored at the end of follow-up window

No statistically significant difference between groups



# Mimetic/DES Study Comparisons-Freedom from CDTLR



Comparable outcomes to DES and Supera in challenging lesions without the need for lesion preparation (Not head to head)



## MIMICS-2 Results

#### **BioMimics 3D**

- Reproducible, rigorous, high quality data from US, Japan and Europe
- 81% freedom from CDTLR at 3 years
- Comparable outcomes to DCB, DES and Supera despite challenging lesions without the need for lesion preparation – providing ease-of-use simplici and long-term benefits (NOT HEAD TO HEAD)
- 0% stent fracture



MIMICS-2 study shows continuing benefit of BioMimics 3D at 3 Years, even in challenging cases

