MIRTH Ventriculoplasty
(Myocardial Intramural Remodeling by Transvenous TeTHer)

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I, Chris Bruce, DO NOT have any relevant financial relationships to disclose.
I am co-inventor, on patents assigned to the NIH, for MIRTH related devices.
MIRTH

Target
• Dilated cardiomyopathy

Unique feature
• Device within the left ventricular walls

Aim
• Reduce chamber dimensions and wall stress

Advantages
• Transvenous
• Implant at any level
• No anchors = No avulsion
• Away from conduction tissue
• Does not constrain the right ventricle
• Papillary muscle approximation

C.G. Bruce et al, Reshaping the Ventricle from Within; MIRTH (Myocardial Intramural Remodeling by Transvenous Tether) Ventriculoplasty in Swine, JACC BTS 2023
Intramyocardial Guidewire Navigation

- An angioplasty guidewire with ‘CTO’ tip bend is easily navigated within the walls of the beating heart.
EDEN (Electrocardiographic Radial Depth Navigation)


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EDEN Assisted Intramyocardial Guidewire Navigation

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Reshaping the Ventricle From Within

MIRTH (Myocardial Intramural Remodeling by Transvenous Tether) Ventriculoplasty in Swine

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MIRTH Improves LV Performance

Contractility
Preload recruitable SW
Remote myocardial strain
Myocardial efficiency
LV diameter
LV volume
Interpapillary distance
Myocardial oxygen demand

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MIRTH has Global Impact

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MIRTH has Global Impact

Before MIRTH

After MIRTH

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Transmural Systems’ MIRTH Ventriculoplasty

Implant & Delivery System

Flexible and radiopaque

Controlled cinch
Thickens with shortening

Implant

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First-In-Human MIRTH (“off-the-shelf” equipment)

- FIH MIRTH procedures performed using the same equipment as in animal studies
- Myocardial access, guidewire navigation and implant delivery successful

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First-In-Human MIRTH ("Off-the-shelf" equipment)

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Summary

• MIRTH is the first device implanted entirely within the wall of the ventricle

• Improves ventricular performance in dilated cardiomyopathy

• Enabled by novel concepts of intramyocardial guidewire navigation and EDEN depth guidance

• Pre-clinical testing led to successful First-In-Human implantation using “off the shelf” tools

• Purpose-built Transmural Systems MIRTH Ventriculoplasty devices developed

• First-in-human Early Feasibility Study planned for Q1 2024 in USA

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