

# Treating Post-Heart Attack Heart Muscle with microRNA Technology

**Mike Behr CEO**

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**2026**



**Experienced team driving biotech innovation**

**TECHNOLOGY**

**PRO302 is a proprietary technology combining miR302 with a hydrogel.**

This mixture is introduced into damaged heart muscle following a heart attack and can help proliferate heart muscle.

**Proven results in preclinical models**

**Foundational IP strategy in place**

**Clear pathway to human trials**

**Simple and scalable technology**

# Irreversible Damage: The Burden of Heart Failure

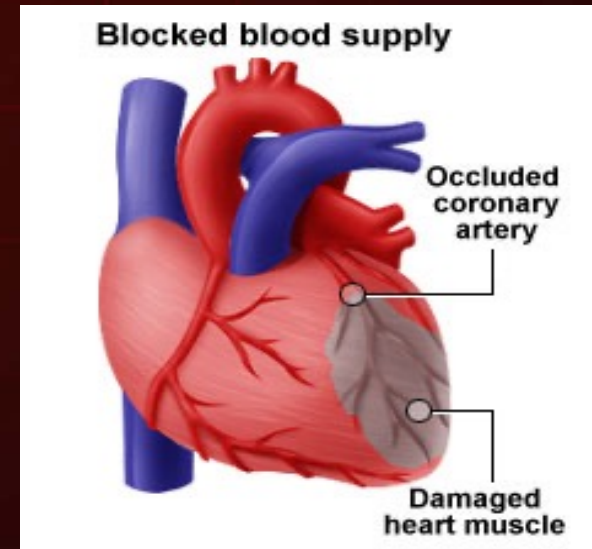
Heart disease is the #1 cause of death in US & globally

~800,000 heart attacks in the US annually

30% of those who suffer a heart attack  
proceed to heart failure

50% of patients with heart failure  
die within 5 years of diagnosis

**\$69.7B** Projected 2030 US heart  
failure cost burden



# SOLUTION



Today's therapies  
don't reverse heart  
muscle loss, only slow  
the process down.

Current therapies  
focus on symptoms,  
not true tissue  
repair.

**PROLIFAGEN TARGETS THIS UNMET NEED  
WITH A FIRST-OF-ITS-KIND THERAPY**

# PRO302: Combines microRNA's Power with Localized, Controlled Hydrogel Technology

Precise, localized application and repair

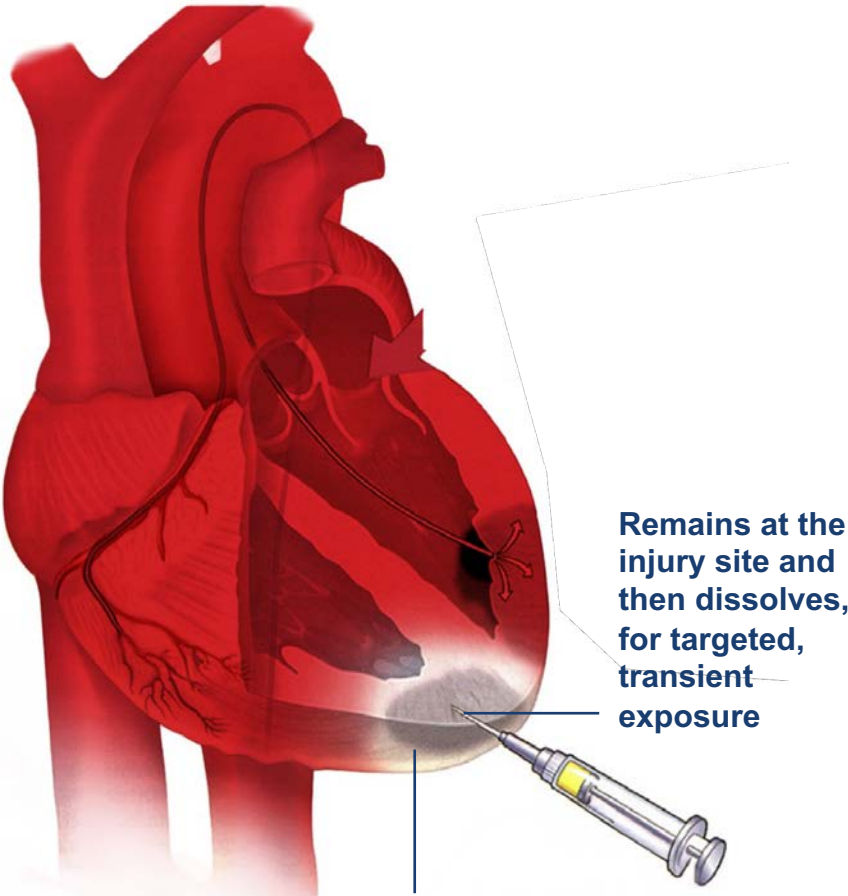
## miRNA-302

- Synthetic
- Controllable
- Switch on/Switch Off

## Hydrogel

- Hyaluronic Acid
- Shear Thinning
- Local & Transient

microRNA302 (Payload)	Hydrogel (Delivery Platform)	Combined Effect
Synthetic, controllable, safe	Localizes and times delivery	Direct heart muscle repair
Fine-tunes cell repair	Dissolves after therapy	Limits side effects & systemic exposure
"Switch on and off" as needed	Shear-thinning for easy injection	Only at the injury site

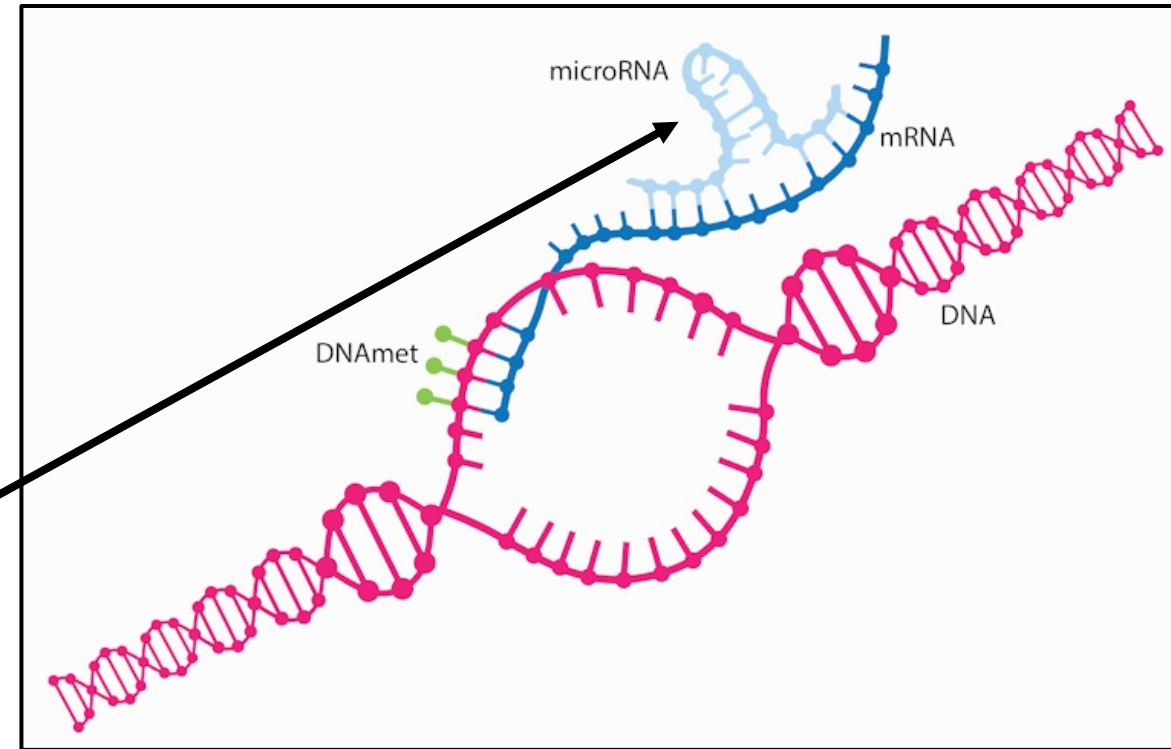


Applied directly to damaged heart muscle



# What is microRNA?

- **DNA**
  - Carries information needed to build protein
- **mRNA (aka: Messenger RNA)**
  - Carries information from DNA
  - Template for Protein Production
  - 400 to 400,000 Nucleotides long
- **siRNA**
  - Double Stranded / Exogenous
  - 19-23 Nucleotides
  - Regulate Gene Expression
- **miRNA (aka: Micro RNA)**
  - Single Stranded / Endogenous
  - 22-23 Nucleotides long
  - Regulate Cellular Processes



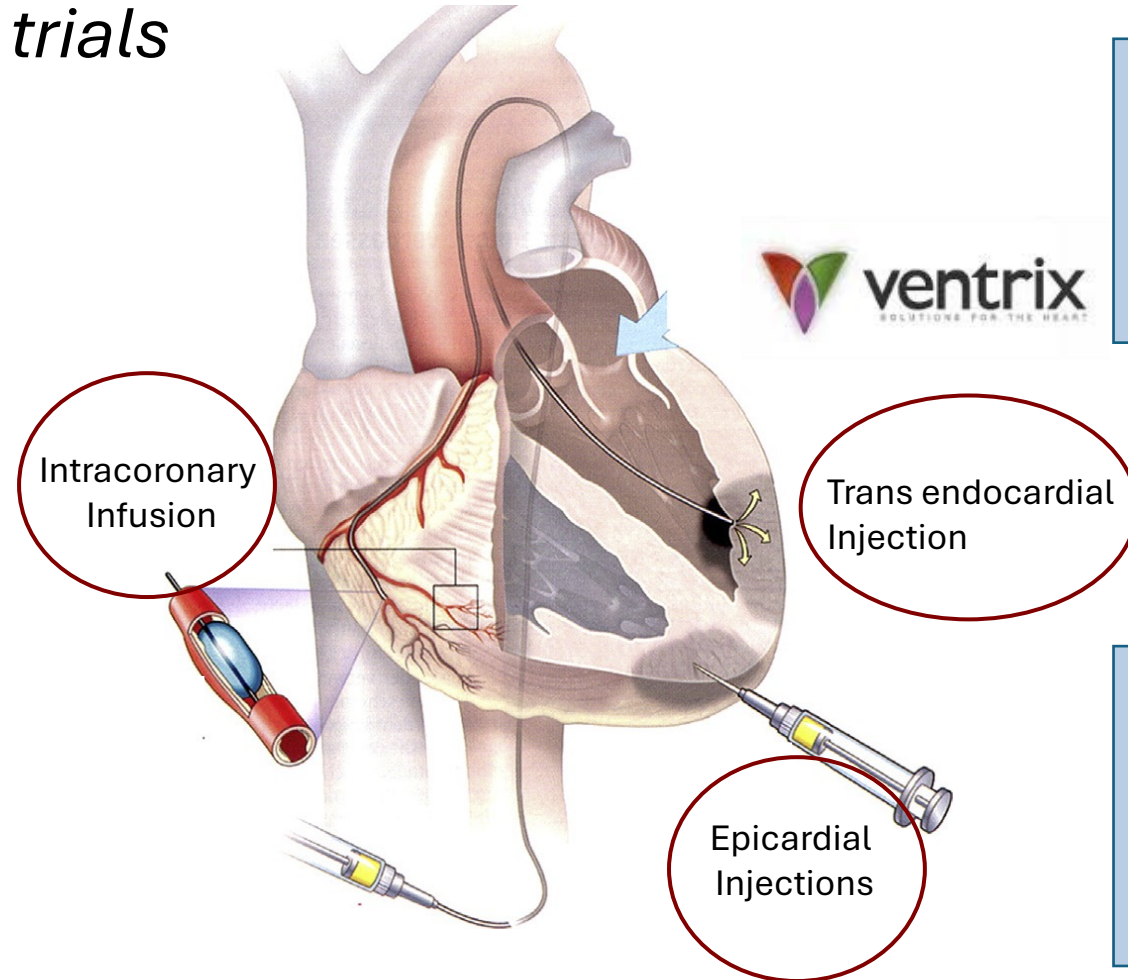
# Hydrogels in Cardiac Repair

## Hydrogels in clinical trials



### Phase II: NCT01226563 (PRESERVATION I)

Large MI patients (303),  
Safe, but not effective  
*Too little material that actually  
reaches infarct?*



**Phase I: NCT02305602**  
60 days to 3 years after MI  
(15)  
MyoStar catheter  
*Safety shown*

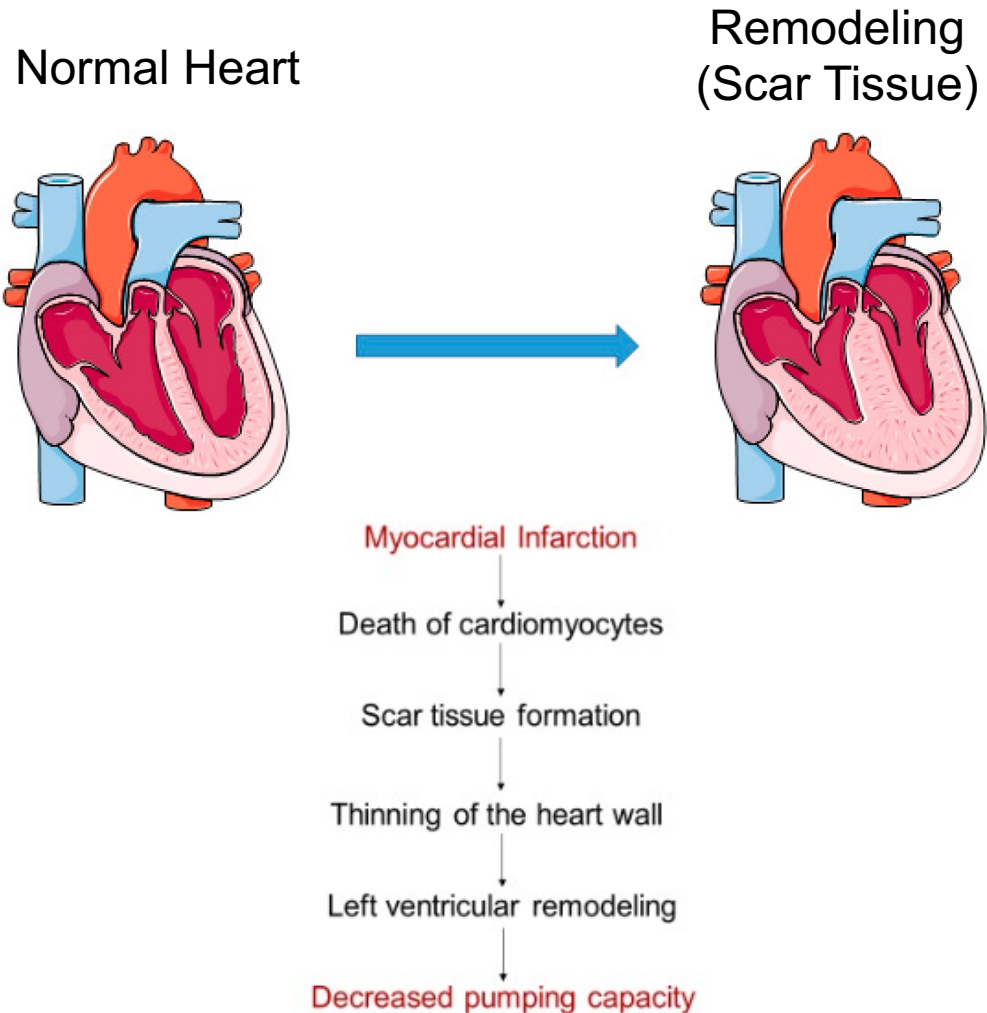
### Phase II: NCT01311791 (AUGMENT-HF)

Heart failure patients (78)  
Improved  $VO_2$  levels,  
No functional/remodeling changes  
*Delivered too late?*



# PRO302

- **Cardiomyocyte Proliferation**
- **Prevention of Scarring**



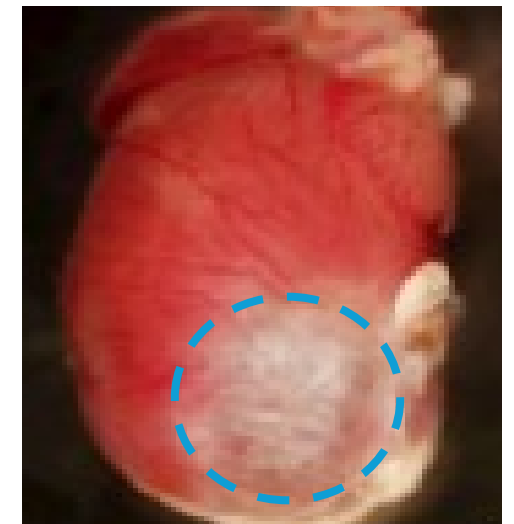
## Proof in Preclinical Models

### Preclinical Data

- Mice Study
- In-Vitro Human Data
- Two Pig Studies



Mouse heart *without* PRO-302 shows significant scarring



Mouse heart after heart attack treated with PRO-302 shows a reduced area of damaged tissue



# Billion Dollar Opportunity

\$1.1B



## Novo Nordisk Acquires Cardior Pharmaceuticals for \$1.112B in Effort to Bolster Cardiovascular Disease Pipeline

March 26, 2024  
By Don Tracy, Associate Editor



Deal includes the novel treatment CDR132L, which is currently in Phase II clinical trials for heart failure.

Novo Nordisk announced that it has acquired Cardior Pharmaceuticals in hopes of improving its pipeline in cardiovascular disease management. The acquisition includes Cardior's top drug candidate, CDR132L, which is currently in Phase II of clinical development



Image Credit: Adobe Stock Images/ckybe

\$1.7B



## Novartis to acquire Regulus Therapeutics and farabursen, an investigational microRNA inhibitor to treat ADPKD, the most common genetic cause of renal failure

Apr 30, 2025

- Regulus is a clinical-stage biopharmaceutical company developing microRNA therapeutics with a focus on autosomal dominant polycystic kidney disease (ADPKD), a severe renal disease
- Lead asset for ADPKD, farabursen, is a novel, next-generation oligonucleotide targeting miR-17 that recently completed a Phase 1b multiple-ascending dose clinical trial
- Transaction includes USD 0.8 billion upfront with a potential additional USD 0.9 billion payment upon the achievement of a future regulatory milestone; transaction is expected to close in the second half of 2025, subject to customary closing conditions

## The Fathers of microRNA— Received the 2024 Nobel Prize in Physiology or Medicine



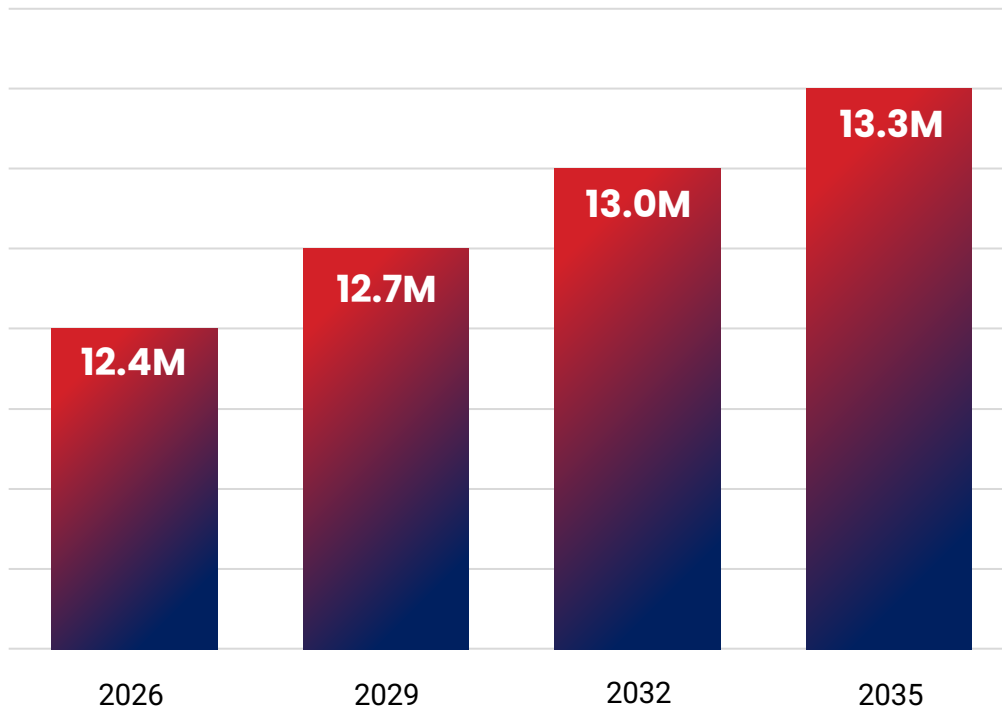
Victor Ambros



Gary Ruvkun

# Increasing Rate of Heart Attacks in US

## Estimated number of people living with prior MI in the US



22-30% OF HEART ATTACK PATIENTS ARE  
CANDIDATES FOR PRO-302  
**~240,000 patients per year**

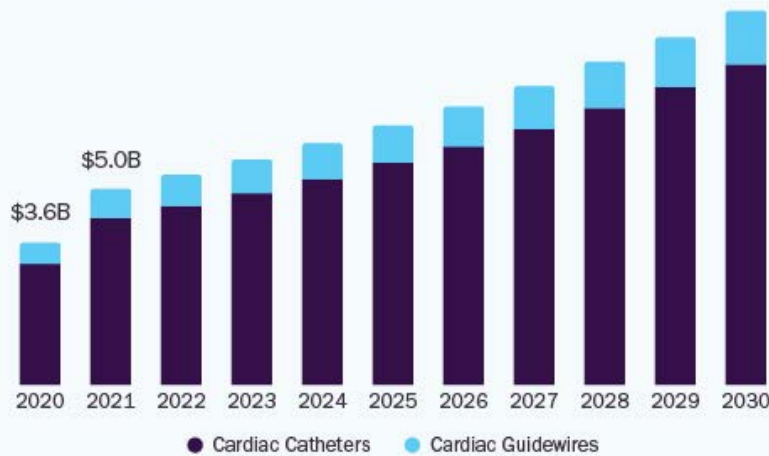
## Drivers for Increased MI in US

- Rising diabetes
  - over 35 million people older than 40 have diabetes
- Hypertension Rates
  - 45-50% of adults have hypertension
- Aging Population
  - 20% of US will be >65yo by 2030
- Obesity Epidemic
  - >40% of US

# Market Benchmarks Forecast Significant Growth

## U.S. Cardiac Catheters & Guidewires Market

Size, by Product, 2020 - 2030 (USD Billion)

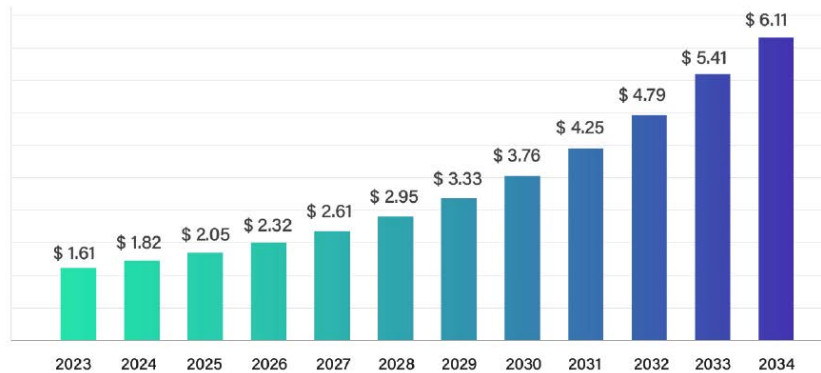


**7.5%**

U.S. Market CAGR,  
2023 - 2030

Source:  
www.grandviewresearch.com

## microRNA Market Revenue 2023 to 2034 (USD Billion)



Source: www.towardshealthcare.com



**11.8%**

U.S. Market CAGR,  
2024 - 2030

Source:  
www.grandviewresearch.com

**Chronic HF  
\$3.5B (US)**

**2018  
GROSS SALES**

**Chronic HF  
\$20.4B (US)**

**2035 FORECASTED  
GROSS SALES**

# PRO-302 Outpaces the Competition on All Key Success Factors

	EXISTING THERAPIES			NEW THERAPIES		
	Angiogenesis-focused approaches	Bio materials	Reperfusion injury prevention	Prolifagen miR-302	Gene therapy	Stem cells
<b>Transient</b> regeneration mechanism – safety	✓	NA	NA	✓	✗	✗
Timing: Opportunity for intervention outside of emergency situation	✓	✓	✗	✓	✓	✓
Single molecular entity (vs gene therapy or exogenous cells)	✓	NA	✓	✓	✗	✗
Direct regeneration of <i>functional cardiac muscle</i>	✗	✗	NA	✓	✓	✓



# Market Pipeline

Company	Investigational therapy	Therapy	Target Indication	Development phase
<b>Cardior Pharmaceuticals</b>	CDR132L	miR Inhibitor	Prevent secondary remodeling (Scarring)	Phase 2
<b>Bellerophon Therapeutics</b>	BCM	Injectable Gel	Prevent Cardiac Remodeling	Phase 2
<b>Medley / YAP Therapeutics</b>	YAP101	Short Hairpin RNA (shRNA)	Viral Vector to deliver shR to heart muscle and stimulate heart muscle regeneration	Phase 1
<b>Ventrix Bio</b>	ECM	Extracellular Matrix (ECM) hydrogel	Prevent secondary remodeling (Scarring)	Phase
<b>Longeveron</b>	Laromestrocel (Lomecel-B™)	Cell therapy	Hypoplastic Left Heart Syndrome (HLHS)	Phase 2a
<b>Braveheart Bio</b>	BHB-1893	Cardiac Myosin Inhibitors (CMI)	Hypertrophic cardiomyopathy (HCM)	Phase 3 in 2026

# Foundational IP strategy in place

## Patents Covering

- Mechanism
- Composition
- Delivery



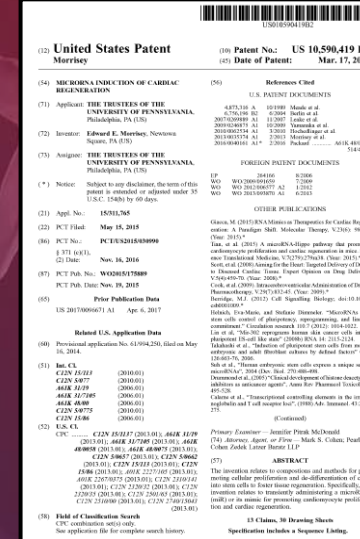
PROLIFERATE. REGENERATE. RESTORE.

## University of Pennsylvania Favorable Licensing Terms Exclusive License



### US Patent 9,115,345

- "Micro RNA Induction of Pluripotential Stem Cells"
- Issue Date: 8/25/2015
- Priority Date: 3/25/2011



### US Patent 10,590,419

- "Micro RNA Induction of Cardiac Regeneration"
- Issue Date: 3/17/2020
- Priority Date: 5/15/2015



### US Patent 12,128,136

- "Compositions of Methods for Cardiac Regeneration"
- Issue Date: 10/29/2024
- Priority Date: 4/2/2018

# Experienced Team Driving Biotech Innovation

Decades of biotech and commercialization success, first-in-class RNA science, and major exits

**30+** Successful launches

**\$\$\$** Multiple exits

 Scientific expertise



**Mike Behr**  
CEO-BOD

- 30+ Years in Life Science Industry
- Multiple Ground-Up Start Ups
- Successful Exit & No Liquidations



**Kiernan Seth, PhD**  
CDO

- 25+ Years in BioPharma Industry
- Lexicon, Pfizer, BMS
- Cardiovascular Electrophysiology



**Andreas Bader, PhD**  
Consulting CSO

- 20 Years Biotech R&D
- Phase I & II Clinical Trials
- Multiple Start-Up Exits
- Co-Founder of Mirna: 1st miR Clinicals



**Will Houston, CFA**  
CFO

- CFO to Multiple LS Start-Ups
- Financial Model Strategies



**Claudine Bruck, PhD**  
BOD-Founder

- 30 Years GSK
- Multiple BOD Seats



**Alex Shaw, PhD**  
BOD

- Multiple LS Start-Ups
- Multiple Exits



**Dave Pfeiffer, MBA**  
BOD

- Multiple Life Science CEO
- Multiple BOD Seats



# Renowned Scientific and Clinical Advisors

A team of experts specializing in:



**Cardiovascular medicine  
and research**



**microRNA  
technology**



**Bioengineering**



**IP patent  
protection**



**Ed Morrissey, PhD**  
Scientific Founder  
SAB Chair  
Univ of PA



**Jason Burdick, PhD**  
Univ of Colorado



**Gordana Novakovic,  
PhD**  
Columbia University



**Jose Oberholzer, MD**  
Univ of Illinois  
Zurich Univ Hospital



**Leo Wang, MD, PhD**  
Univ of PA



**Errol Taylor, JD**  
IP Consultant



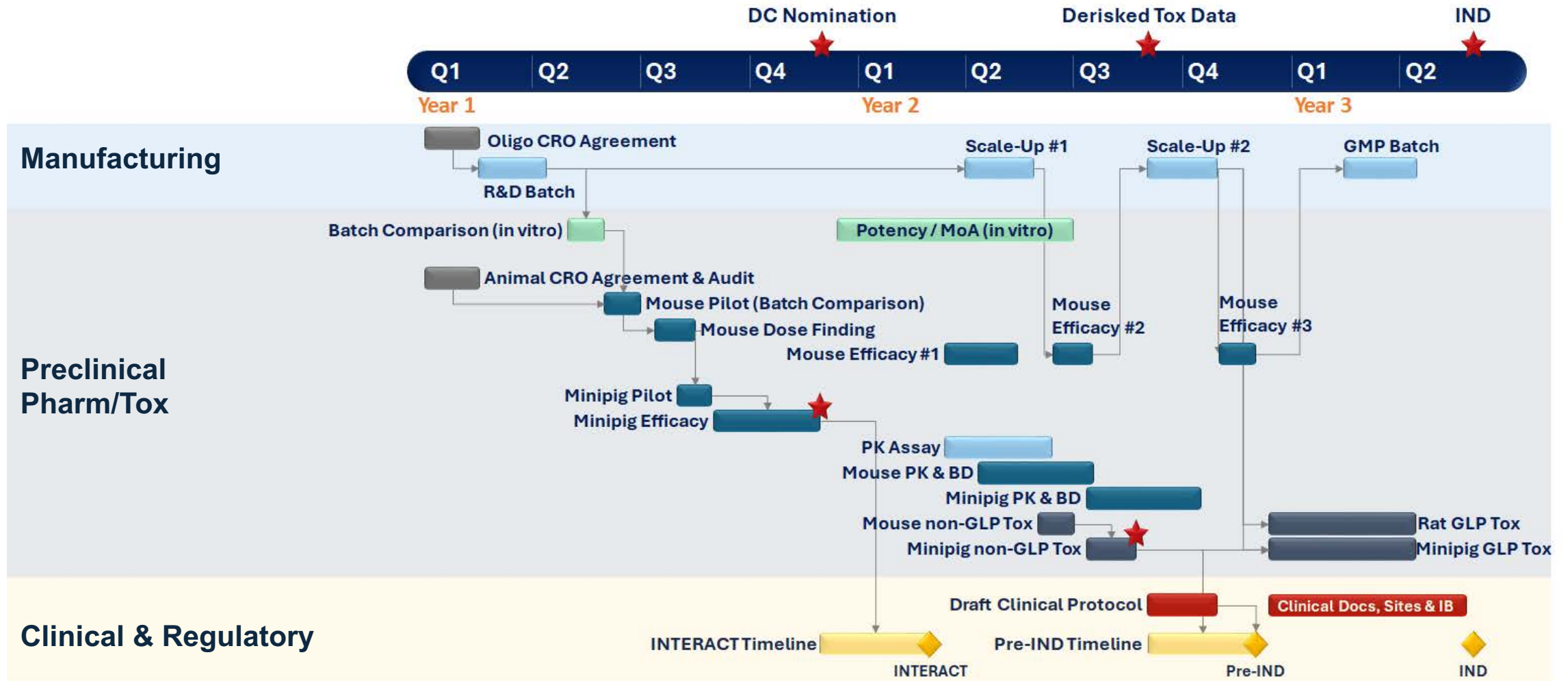
**Howard Herrmann, MD**  
Univ of PA



**Rob Gorman, MD**  
Majoro Cardiac  
Innovations



# Accelerated Path to IND and First-in-Human Trials



1.9 million

3.1 million

Funding

February 10, 2026

Series A raise begins

# Fueling the Next Milestone: Expanding a Strong Foundation



**\$5M**

**Pre-Clinical  
Funding**

**\$1.9M**

## **IND-Enabling Studies**

Expanded Pig Study

Pharmacology & Toxicology Models

## **Manufacturing Readiness**

Chemical Manufacturing Controls (CMC)

Delivery Mechanism of PRO302

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## **Complete IND-Enabling Studies**

PK/PD Analysis

## **Manufacturing Scale-Up**

## **Regulatory and Clinical Prep**

Regulatory Analysis

## **Strategic Expansion**

Expansion of Prolifagen IP Portfolio

**\$3.1M**

# Financial Plan

	Months 1-12	Months 13-18	Months 19-24	Total
Pharmacology	\$47K	\$342K	\$89K	\$525K
PK / Pig Study	\$606K	\$519K	\$0	\$1.13M
Toxicology	\$50K	\$50K	\$300K	\$400K
CMC Characterization	\$150K	\$50K	\$0	\$200K
Clinical Prep	\$0	\$0	\$100K	\$100K
Regulatory / Reimbursement	\$70K	\$36K	\$21K	\$127K
Manufacturing	\$571K	\$379K	\$0	\$950K
Business Development	\$81K	\$27K	\$27K	\$135K
Salaries and GA	\$728K	\$403K	\$403K	\$1.53M
Misc	\$19K	\$10K	\$10K	\$39K
<b>TOTAL:</b>	<b>\$2.37M</b>	<b>\$1.82M</b>	<b>\$949K</b>	<b>\$5.13M</b>

# Join Us in Leading the Next Transformation in Cardiac Care

**Experienced  
Team with a  
Proven  
Record of  
Success**

**Solution for  
a Significant  
Unmet Need**

**Ahead of the  
Curve with  
miRNA  
Technology**

**Cardiology  
Existing  
Market**

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**miRNA  
Emerging  
Market**

**Exit  
Potential**





*A Pennsylvania Biotechnology Center Company*

# Thank you

**Mike Behr CEO**

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