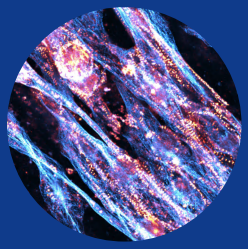
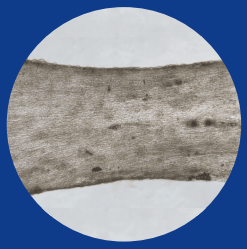
# Next-generation engineered heart tissue

MyoPod™ tissue scaffolds are made from decellularized cryosections of porcine myocarium. Each scaffold is precisely cut by laser and inserted by machine into a plastic cassette, ready for cell seeding.



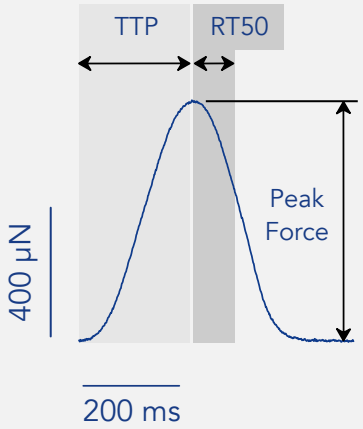
MyoPod™ scaffolds are seeded with a mixture of iPSC-derived cardiomyocytes and human cardiac fibroblasts to form beating tissues. Decellularized adult myocardial matrix quickly guides cells to orient into fibers and promotes maturation.



Within 3 weeks, Propria engineered heart tissues mature into ribbon-like beating constructs that exhibit >90% **β**-MHC content and adult-like twitch force kinetics. Their thin profile makes them ideal for delivery of drugs or gene therapies.

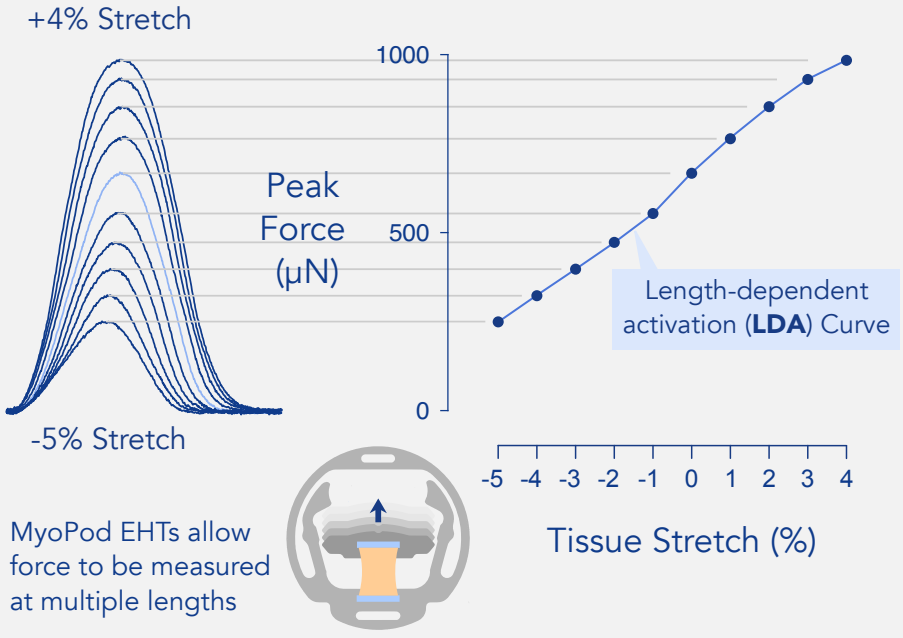
Isometric contraction force of MyoPod™ tissues is measured in realtime using Propria's MyoLab™ tissue analyzer. Continuous fluid flow allows responses to multiple drug concentrations to be measured and washed out in a single tissue.

## Isometric Twitch Force & Kinetics




Direct force measurement with millisecond resolution

## Length-Dependent Activation (Contractile Reserve)




MyoPod EHTs allow force to be measured at multiple lengths

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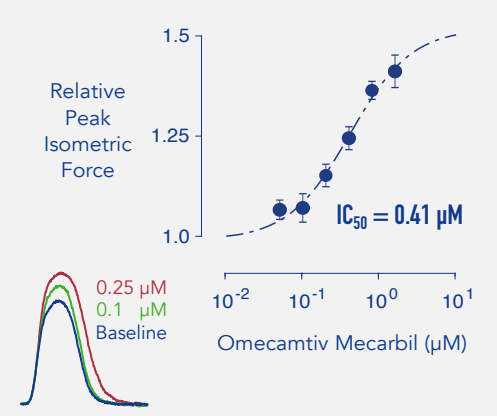
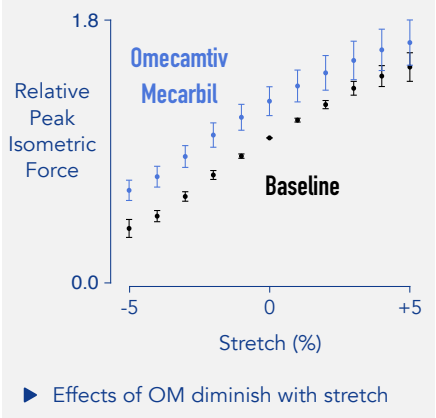
# Applications

PROPRIA™

## Compound Profiling

MyoPod™ EHTs can be used for either chronic or acute testing of small molecule effects on cardiac contractility. High-resolution measurements of contraction/relaxation kinetics and length-dependent activation reveal sarcomeric behavior in the context of mature contractile physiology.

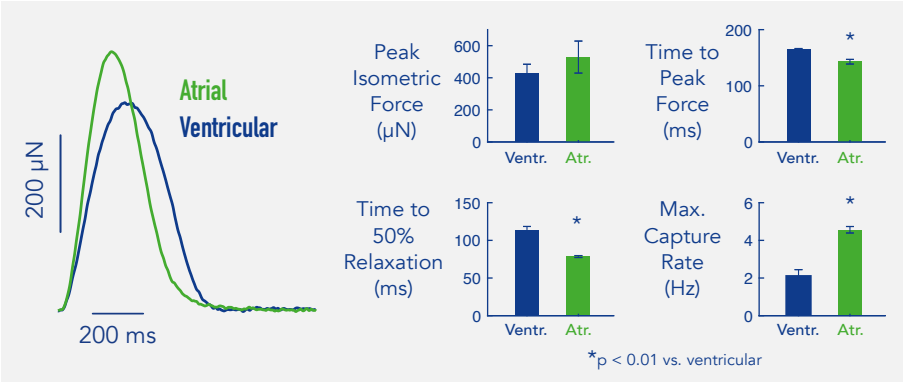



▶ Effects of OM diminish with stretch

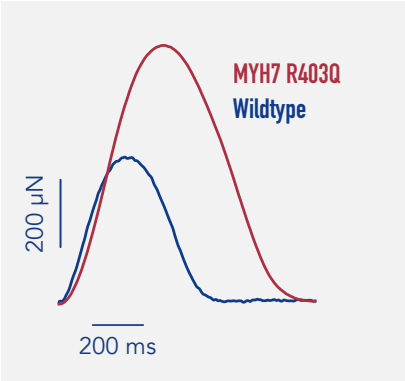
## Atrial vs. Ventricular

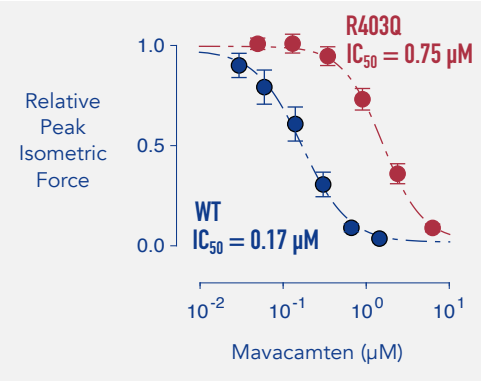
Chamber-specific responses to small molecules or other candidate therapies can be revealed by seeding MyoPod™ scaffolds with ventricular or atrial iPSC-derived cardiomyocytes. Atrial EHTs exhibit significantly faster contractile kinetics when compared with ventricular EHTs.




## iPSC Line Phenotyping / Disease Modeling

Propria has established in-vitro cardiomyopathy models by growing EHTs from genetically engineered iPSC lines. Tissues generated from an iPSC line heterozygous for MYH7 R403Q displayed significant hypercontractility, diastolic dysfunction, and desensitization to the myosin inhibitor mavacamten.




## Gene Therapy

MyoPod™ EHTs are readily transduced by viral vectors or other gene delivery methods. Gene therapy applications include proof-of-concept, target optimization, and quality control.

## Cardiotoxicity

MyoPod™ EHTs are stable for up to one year in culture and are ideal for acute or chronic cardiotoxicity studies. High-precision MyoLab™ contractility measurements can detect even minute toxic effects.

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