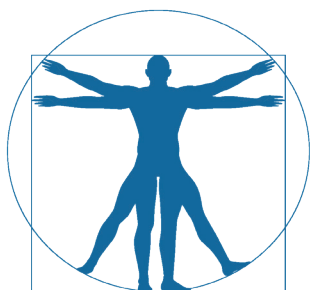


Adult Human Heart Cells



The AnaBios Advantage

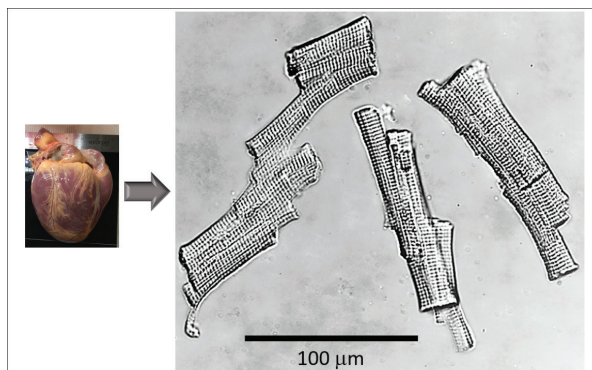
- High-quality human heart cells
- Ethically-consented donor samples
- Functional, translational tissue samples

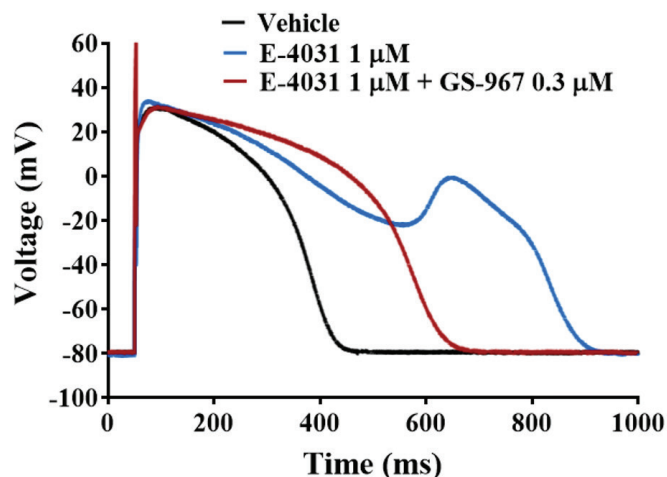
(858) 224-7360
info@anabios.com

AnaBios is the only contract research organization in the United States with direct access to a vast network of hospitals with human tissue and intact, functional human hearts from consented donors. We have more than 10 years of experience procuring ethically-sourced human tissue samples processed utilizing proprietary methods to maximize success in experimentation involving proteomics, metabolomics and gene expression analysis. These specialized tissue samples are ideally suited for supporting scientific research and drug discovery in several therapeutic areas.

ISOLATED CARDIOMYOCYTES FOR *IN VITRO* ASSAYS

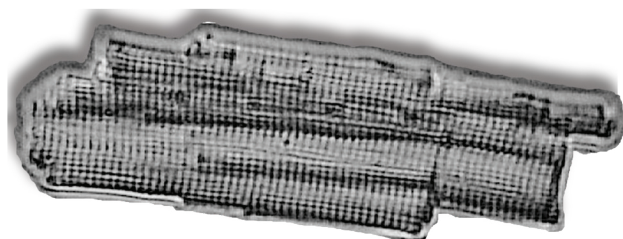
The figure below shows a typical human heart that AnaBios uses to isolate cardiomyocytes and phase contrast microscopy images of representative adult human primary cardiomyocytes. Isolated cardiomyocytes were found to be Ca^{2+} -tolerant, retain rod-shaped morphology and exhibit cross striations.





ACTION POTENTIAL DURATION

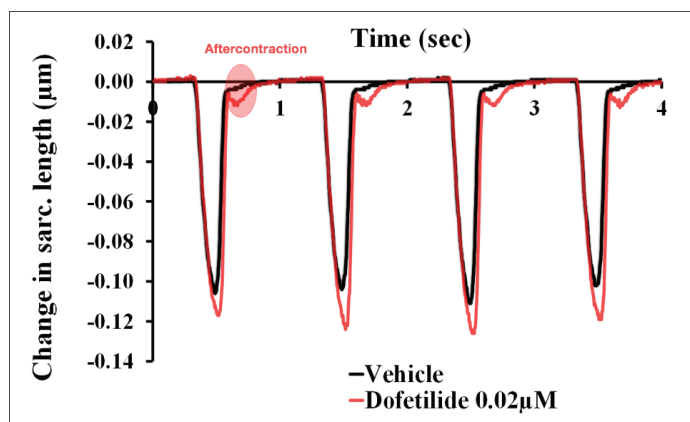
In the image above, GS-967 restores the action potential duration and prevents incidence of early afterdepolarizations. Representative action potential recordings are shown in the presence of Vehicle (0.1% DMSO), E-4031 (hERG channel inhibitor) and E-4031 + GS-967 (Late Na⁺ current inhibitor).



Human Heart Tissue Regions

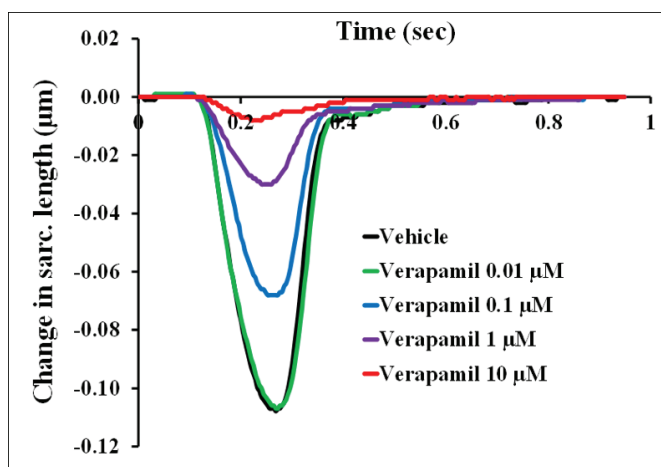
Aorta	Epicardium
Aortic Valve	Mitral valve
Aortic Semilunar Valve	Myocardium
Ascend Coronary	Papillary
Atrium Appendage	Pulmonary semilunar valve
Atrium Trabecula	Septum
Atrium Wall	Sinoatrial node
Bicuspid Valve	Subclavian artery
Brachiocephalic Artery	Tricuspid valve
Carotid Artery	Ventricle
Circumflex Artery	Ventricular Outflow Tract
Coronary	Ventricular Purkinje
Descend Coronary	Ventricular Trabecula
Endocardium	

PRO-ARRHYTHMIA MARKERS



Identification of Dofetilide arrhythmic risk: Compared to the black control trace, the contractility transients recorded in the presence of Dofetilide (0.02 μ M, red trace) induce episodes of “after-contraction” (AC, red shaded area) at a pacing frequency of 1Hz.

INOTROPY MEASUREMENTS



Identification of Verapamil’s negative inotropic potential: Compared to the black control trace, the contractility transients recorded in the presence of Verapamil at 0.01, 0.1, 1, and 10 μ M inhibit sarcomere shortening with no AC episodes at a pacing frequency of 1Hz.

AnaBios offers a wide range of high-quality human tissue types, including heart, brain and spinal cord. We offer both normal and diseased tissue, and provide demographic details, including sex, age, race and body mass index.

Tissue or Cell Model	Functional Parameter	Measured Endpoint	Significance
Adult Human Primary Atrial & Ventricular Cardiomyocytes	Contractility	<ul style="list-style-type: none">Myocyte contraction (sarcomere shortening)Changes in contractility transient's parameters	<ul style="list-style-type: none">Integrity of excitation-contraction couplingIdentification of drug-related contractility & arrhythmia risk
	Ion channel function	Ionic currents	Drug activity on cardiac ion channels
	Action potential generation	<ul style="list-style-type: none">Action potentialsChanges in action potential's parameters	Drug effects on cardiac excitability, depolarization & repolarization
Adult Human Primary Cardiac Fibroblasts	Fibrosis	Changes in collagen expression	Drug-related induction of fibrosis
Adult Human Ventricular or Atrial Trabeculae	Contractility	<ul style="list-style-type: none">Trabeculae contraction forceChanges in contractility transient's parameters	<ul style="list-style-type: none">Integrity of excitation-contraction couplingIdentification of drug-related contractility risk
Adult Human Ventricular Trabeculae	Action potential generation	<ul style="list-style-type: none">Action potentialsChanges in action potential's parameters	Drug effects on cardiac excitability, depolarization & repolarization (arrhythmia risk)
Adult Human Sinoatrial Node	Spontaneous action potential generation	<ul style="list-style-type: none">Spontaneous action potentials frequencyChanges in action potential frequency	Identification of drug-related chronotropic activity
Adult Human Coronary Rings	Force of contraction & relaxation	Contraction force	Identification of drug-related hypo-, hyper-tension risk