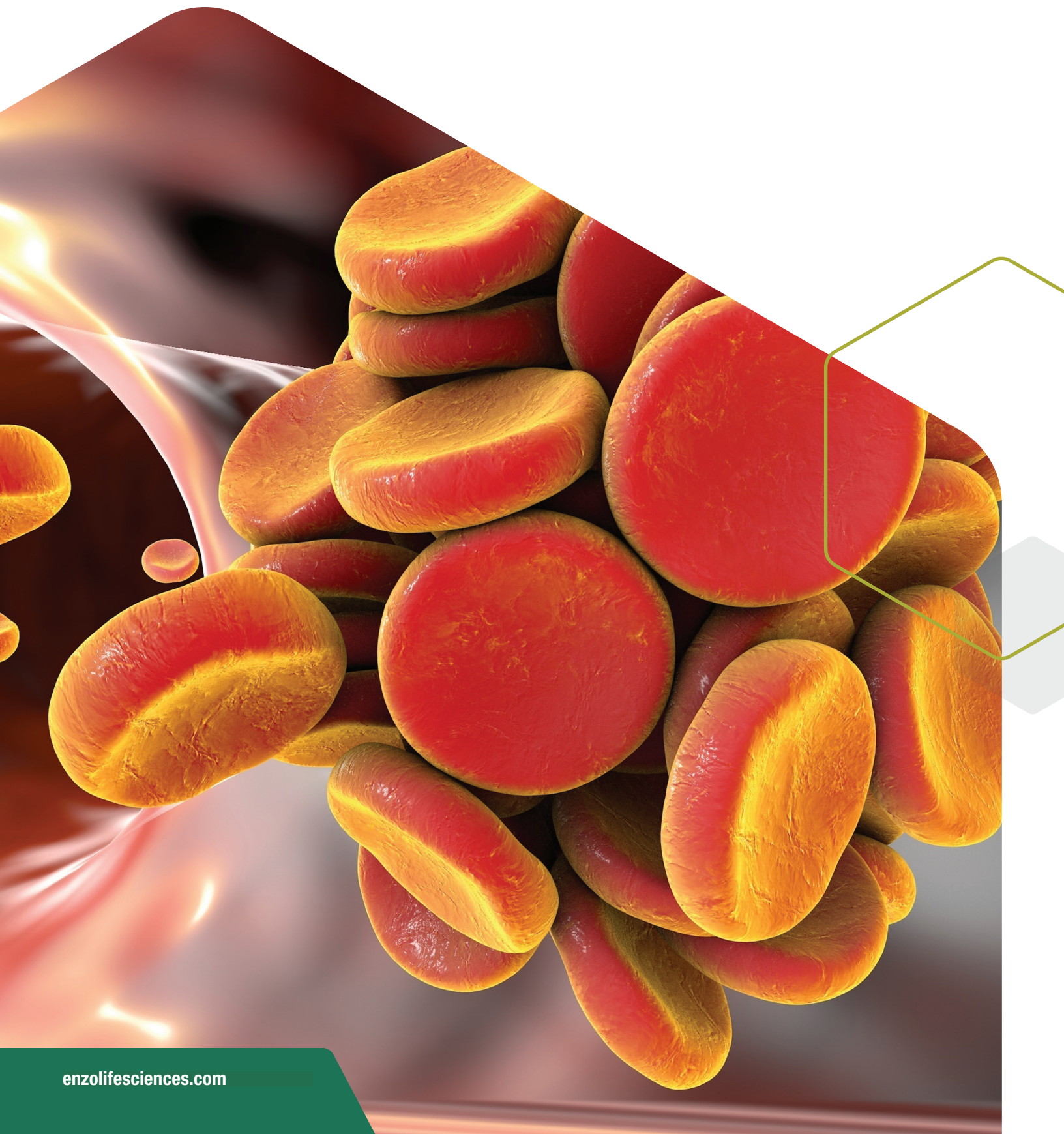




Cardiovascular Research

Enabling Transformative Discoveries



Introduction

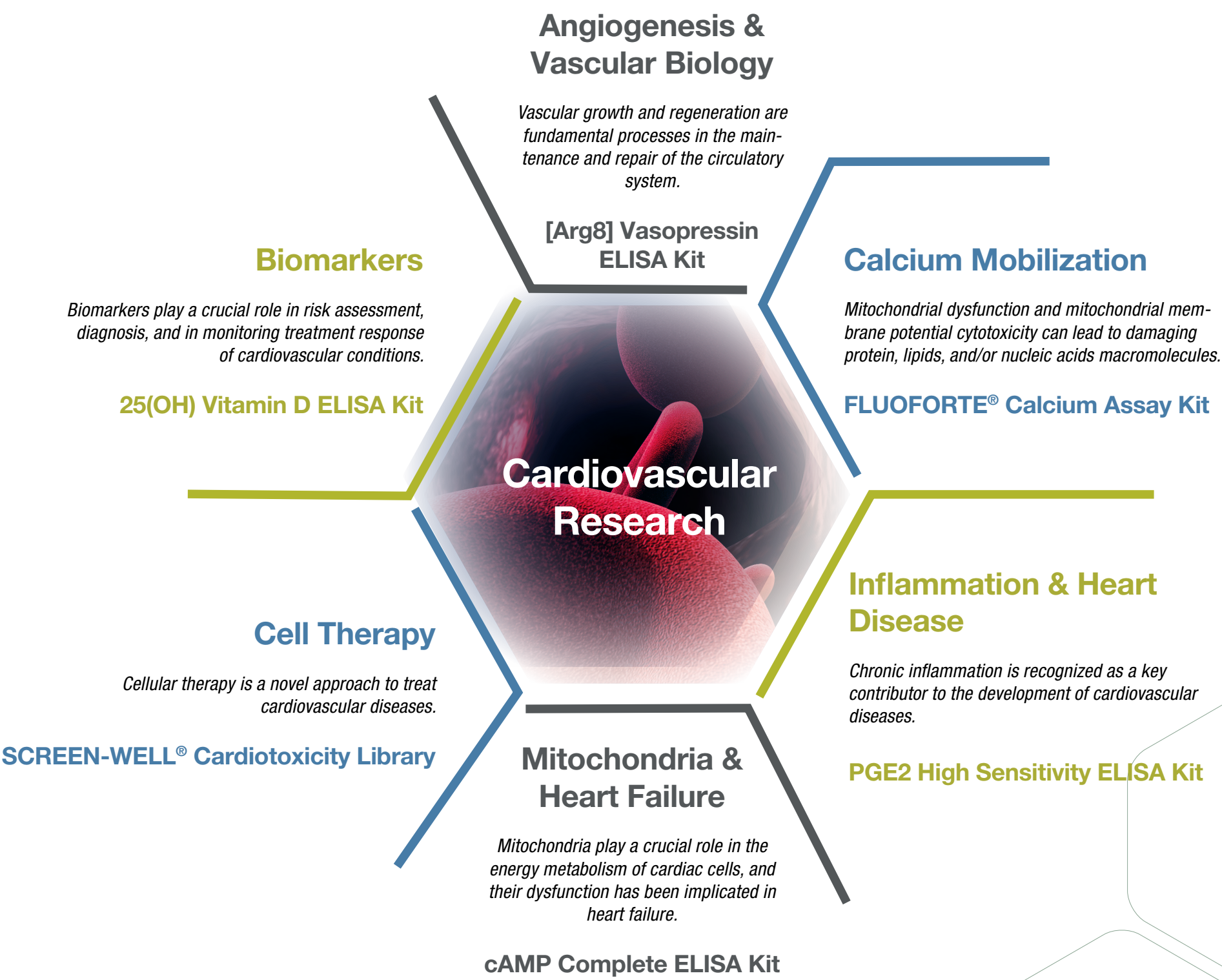
Enabling Cardiovascular Research

In the dynamic landscape of modern health, cardiovascular diseases rank as the foremost global causes of mortality. From exploring the intricate connections between chronic inflammation and the development of cardiovascular conditions, to investigating how impaired mitochondrial function contributes to the onset and progression of heart failure, researchers are navigating the complexities of cardiovascular disease progression to address critical aspects of cardiovascular health.

Cardiovascular treatment is dependent on the cause and the extent of heart damage. While healthy lifestyle, medication and even surgery are common treatments, stem cell therapy development has been emerging as a dynamic frontier, where scientific investigation converges with therapeutic innovation. This multidisciplinary approach holds the promise of reshaping the landscape of cardiovascular care, offering novel strategies to enhance cardiac repair and improve patient outcomes.

Regardless of your focus within cardiovascular research, Enzo offers innovative tools designed to accelerate discoveries through our patented technologies and robust manufacturing capabilities. With over 45 years of expertise and collaboration with scientists across the globe, Enzo provides unique solutions that will propel the progress of cardiovascular research. Our extensive product catalog reflects our commitment to providing the necessary tools and support that enable your groundbreaking discoveries.

Understanding the Complexity of Cardiovascular Diseases to Enable Transformative Discoveries



Angiogenesis and Vascular Biology

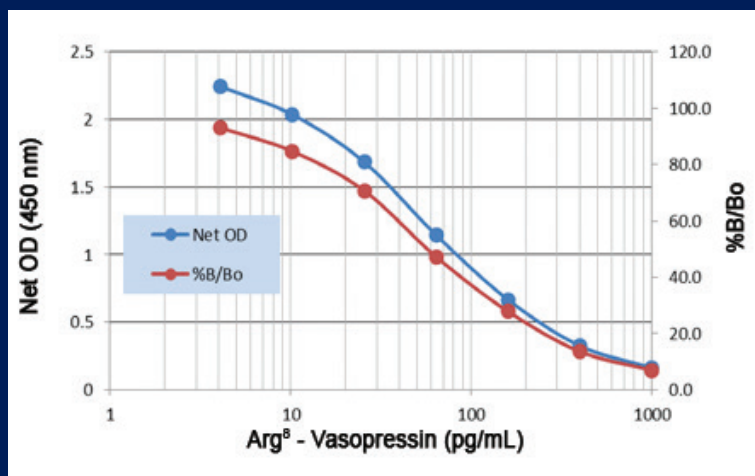
Vascular growth, or angiogenesis, is a complex and tightly regulated process that occurs during development, and under various physiological and pathological conditions. Vasopressin, also known as arginine vasopressin (AVP) or [Arg⁸]-Vasopressin, is a peptide hormone produced by the hypothalamus to regulate osmotic balance, sodium homeostasis, kidney function, and blood pressure. Recent studies explore the role of AVP as a pro-angiogenic factor that reduces cardiovascular damage.

[Arg⁸] Vasopressin ELISA Kit (ADI-900-017)

The highly sensitive [Arg⁸] Vasopressin ELISA Kit can measure AVP in serum, plasma, and in tissue culture media. In cases of ischemic cardiomyopathy elevated levels of AVP in plasma samples can be measured to study chronic congestive heart failure.

- High sensitivity, detecting as little as 2.84 pg/ml
- High specificity, with negligible reactivity towards oxytocin
- Widely cited and flexible to use with a variety of sample types

Detect as low as 2.84 pg/ml of [Arg⁸]-Vasopressin with this highly sensitive assay



Standard curve for the detection of [Arg⁸] Vasopressin. Fully quantitative results surpass semi-quantitative western blot analysis.

Angiogenesis

VEGF (human) ELISA Kit

ENZ-KIT156

Angiotensin I ELISA Kit

ADI-900-203

CD31 Recombinant Monoclonal Antibody

ENZ-ABS347

Nitric Oxide (NO₂⁻/NO₃⁻) Detection Kit

ADI-917-010

ROS-ID® Hypoxia/Oxidative Stress Detection Kit

ENZ-51042

Renin-Angiotensin-Aldosterone System

ACE2 Polyclonal Antibody

ENZ-ABS822

Aldosterone ELISA Kit

ADI-900-173

Angiotensin II receptor AT2 Polyclonal Antibody

ADI-905-746

Calcium Mobilization

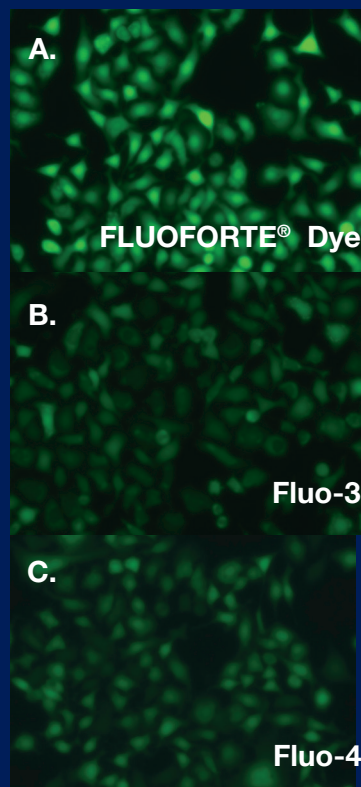
As calcium plays a crucial role in the contraction of heart muscles, the process of calcium mobilization in cardiac muscle cells is highly investigated. Dysregulation in calcium handling, whether due to genetic mutations or other factors, can lead to arrhythmias and impair cardiac function. Intracellular calcium levels can be monitored with fluorescent calcium indicators, allowing real-time visualization.

FLUOFORTE® Calcium Assay Kit (ENZ-51017)

Enzo's FLUOFORTE® dyes are optimized for high-throughput detection of intracellular calcium in living cells such as cardiomyocytes as well as characterized second messenger commonly used to monitor G-protein-coupled receptors (GPCR) activation in primary screening.

- Provides EC50 values comparable to Fluo-4 and Calcium 4
- Optimized for superior cell-permeability and retention
- Ultrasensitive dye that provides larger assay window allowing the detection of weak signal compound responses

2X brighter dye than Fluo-4 for Superior Detection of Calcium Mobilization



FLUOFORTE® exhibits significantly brighter fluorescence intensity than Fluo-3 AM and Fluo-4 AM. U-2 OS cells were seeded overnight, growth medium was removed, and cells were incubated with 100 μ L of FLUOFORTE® AM, Fluo-3 AM, or Fluo-4 AM in HHBS at 37 °C, 5% CO₂ incubator for 1 hour. The cells were washed twice with 200 μ L HHBS, and ATP (20 μ L/well) was added to achieve concentrations of 200 nM with dye efflux inhibitor. Cells were then immediately imaged with a fluorescence microscope (Olympus IX71) using FITC channel.

Related Products

FLUOFORTE® Calcium Assay Kit	ENZ-51016
FLUOFORTE® Reagent	ENZ-52015
GFP-CERTIFIED® FLUOFORTE® Calcium Assay Kit	ENZ-51020
GFP-CERTIFIED® FLUOFORTE® Reagent	ENZ-52016
Blebbistatin(+/-)	BML-EI315
Calcineurin Cellular Activity Assay	BML-AK816

Inflammation and Heart Disease

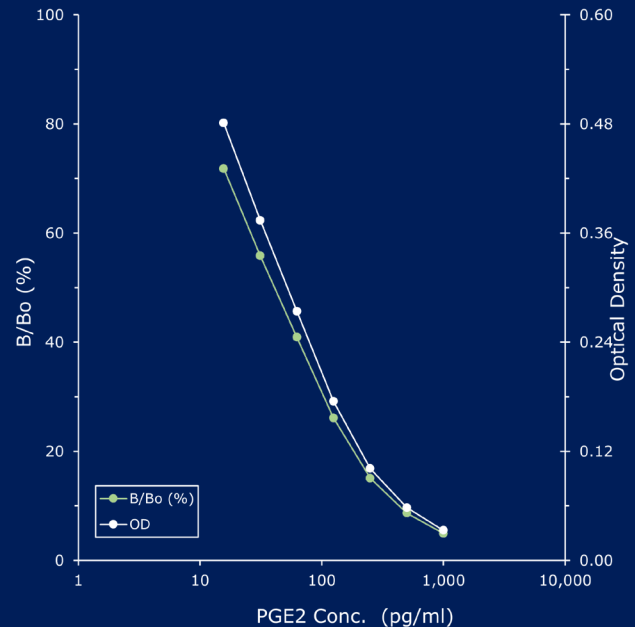
Chronic inflammation is recognized as a key contributor to the development of various cardiovascular diseases, including atherosclerosis and coronary artery disease. Inflammatory processes can lead to the formation and progression of atherosclerotic plaques in blood vessels, blocking blood flow and causing heart attacks and strokes.

PGE2 High Sensitivity ELISA Kit (ADI-930-001)

In chronic inflammation and cardiac physiology studies, the PGE2 ELISA Kit is used to detect and quantify Prostaglandin E2 (PGE2) as a marker of cardiac function.

- Ultrasensitive measurement, detecting as little as 8.26 pg/ml PGE2
- Compatible with culture supernatants, serum, saliva, urine, whole blood and more
- Widely cited in peer-reviewed publications

Ultrasensitive ELISA Kit That Can Detect As Low As 8.26 pg/ml of PGE2



Standard curve showing quantitative high sensitivity assay.

Related Products: PGE2 Research Tools

PGE2 CLIA (chemiluminescent) Kit

ADI-910-001

PGE2 ELISA Kit

ADI-900-001

PGE2 FPIA (fluorescent) Kit

ADI-920-001

PGE2 monoclonal antibody (BG8)

ADI-905-628

AH-6809

BML-RA110

F4/80 Recombinant monoclonal antibody (Recombinant Cl:A3-1) (Rat IgG2bk)

ENZ-ABS637

F4/80 Recombinant monoclonal antibody (Recombinant Cl:A3-1) (Rabbit IgGk)

ENZ-ABS638

Related Products: Inflammation Research Tools

CRP (human) ELISA Kit

ENZ-KIT102

IL-6 (human), High Sensitivity ELISA Kit

ENZ-ABS822

IL-8 (human) ELISA Kit

ADI-900-173

IL-1 Receptor Type I (human):Fc (human)(recombinant)

ADI-905-746

Mitochondria and Heart Failure

As mitochondria play a crucial role in the energy metabolism of cardiac cells, and their dysfunction has been implicated in heart failure.

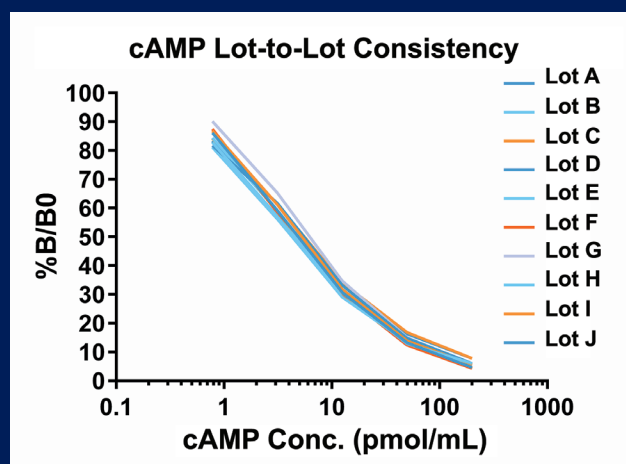
cAMP Complete ELISA Kit (ADI-900-163A)

Cyclic adenosine monophosphate (cAMP) is a signaling molecule that is involved in various cellular processes, including regulating cardiac contractility, heart rate, and other processes. Medications like beta-adrenergic receptor blockers and phosphodiesterase inhibitors modulate cAMP levels.

cAMP Complete ELISA Kit is a versatile colorimetric kit for intracellular and extracellular quantification of cAMP.

- Highly sensitive measurement of cAMP with an optional acetylation protocol increasing sensitivity >10-fold (0.006 pmol/ml and 0.027 pmol/ml) for intra- and extracellular cAMP, respectively
- Widely cited in peer-reviewed publications
- Reliable and consistent lot-to-lot performance

Reliable Manufacturing Ensures Lot-to-Lot Consistency



Graph demonstrates the robust and reproducible nature of the competitive cAMP ELISA Kit showing standard curves from 10 lots manufactured over 10 years..

Related Products




MITO-ID® Membrane Potential Detection Kit	ENZ-51018
MITO-ID® Membrane Potential Cytotoxicity Kit	ENZ-51019
MITO-ID® Red detection kit (GFP-CERTIFIED®)	ENZ-51007
Direct cAMP ELISA Kit	ADI-900-066
cAMP complete ELISA Kit (5x96 wells)	ADI-901-163A
cAMP Antibody	ADI-80-0606
cGMP Complete ELISA Kit	ADI-900-164
cGMP ELISA Kit	ADI-900-013

Cell Therapy for Cardiovascular Disease

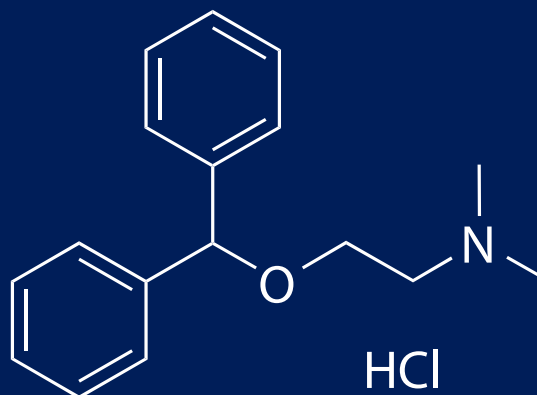
Cellular therapy become a critical approach to treat cardiovascular diseases. Stem cells, especially mesenchymal stem cells (MSCs) and induced pluripotent stem cells (iPSCs) are explored as a regenerative approach for cardiovascular conditions. Cell-based cardiovascular therapy research and development aim to refine techniques, expand indications, and establish the long-term safety and efficacy of these treatments.

SCREEN-WELL® Cardiotoxicity Library (BML-2850)

Our cardiotoxicity compound library is an essential tool used for high-throughput screening to identify potential targets for cellular therapy research, and as predictive toxicology screening to assess safety in cellular therapy development.

-  A focused collection of 130 compounds with defined and diverse cardiotoxicity: arrhythmia, cardiomyocyte apoptosis, carditis, mitochondrial toxicity, and more
-  Includes a variety of structurally and mechanistically different compound classes, as well as non-toxic controls
-  Consistent and dependable lot-to-lot performances

Diphenhydramine



Diphenhydramine, a compound included in SCREEN-WELL® Cardiotoxicity Library, acts as an antagonist of the histamine 1 (H1) receptors. Its cardiotoxicity effects are due to blocking hERG K channels, causing increased risk of cardiac arrhythmias and sudden death.

Related products

SCREEN-WELL® Stem Cell Library

SCREEN-WELL® Autophagy Library

SCREEN-WELL® FDA-Approved Drug Library

SCREEN-WELL® ICCB Known Bioactives Library

SCREEN-WELL® Epigenetics Library

ENZ-LIB103

BML-2837

BML-2843

BML-2840

BML-2836

Biomarkers for Cardiovascular Diseases

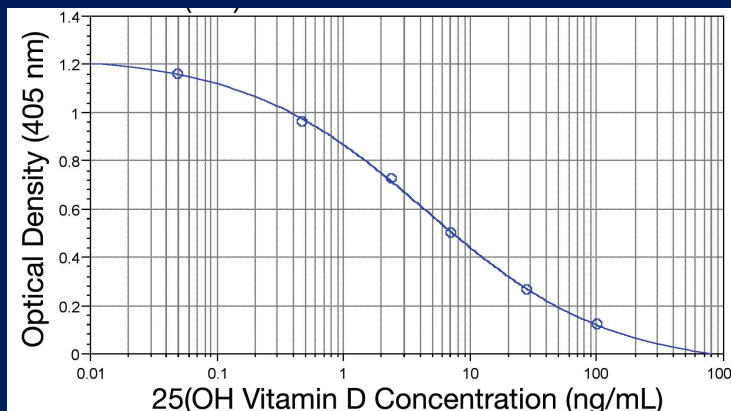
Cardiac disease biomarkers play a crucial role in diagnosis, risk assessment, and in monitoring treatment response of cardiovascular conditions. 25(OH) Vitamin D, also known as calcidiol, plays a role in various physiological processes, including cardiovascular health. Recent studies suggested that lower levels of vitamin D may be associated with an increased risk of heart disease and hypertension.

25(OH) Vitamin D ELISA kit (ADI-900-215)

The 25(OH)-Vitamin D assay is quick and accurate, making it the tool of choice for 25(OH)-Vitamin D detection.

- Ultra-sensitive measurement of 25(OH) Vitamin D, detecting as little as 1.98 ng/ml
- Easy-to-use and simple protocol with rapid dissociation step to reduce errors and labor
- Reliable results through consistent lot-to-lot performance

Detect as little as 1.98 ng/ml of Vitamin D with 25(OH) Vitamin D ELISA Kit



Standard curve for the detection of 25(OH) Vitamin D.

Related products

25-Hydroxyvitamin D3

BML-DM100

1 α ,25-Dihydroxyvitamin D3

BML-DM200

ACE1 (human) recombinant

ENZ-PRT156

ACE2 Polyclonal Antibody

ENZ-ABS822

ADMA (human) ELISA Kit

ALX-850-323

Bufalin

ML-AP303

COX-2 (human), ELISA Kit

ADI-900-094

GLP-1 (7-37, 7-36, amide, free NT) Monoclonal Antibody

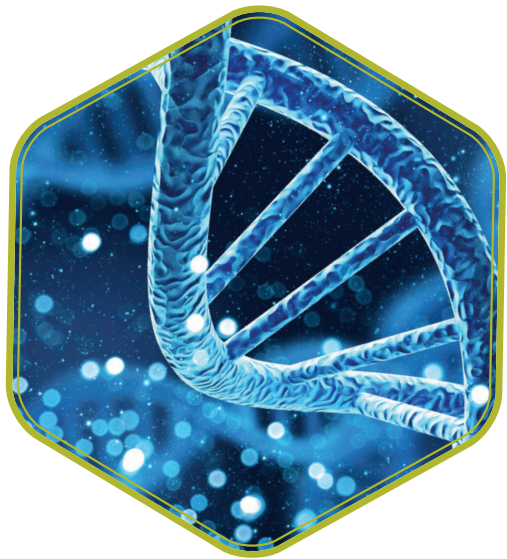
BPD-ABS-033-04

PLAQPRO™ Lp-PLA2 Assay

ENZ-KIT179

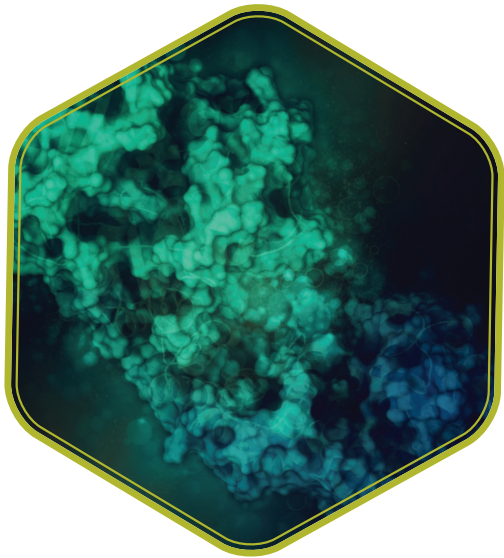
Enabling Your Cardiovascular Research

Cardiovascular disease is consistently ranked as the single largest cause of death in the world, and it may be caused by heart damage or vascular problems. Challenges in cardiovascular clinical development have caused researchers to take a closer look at cardiac function and metabolism. Enzo Life Sciences offers a comprehensive portfolio of products to enable discovery of cardiac risk factors as well as analysis of the cellular response to novel therapeutics for cardiovascular medicine. Trusted, validated, and highly-cited products made with the strictest quality standards are our promise to you, to help you achieve accurate, consistent results. From target discovery and validation to formulation and manufacturing, Enzo offers a line of products and services that will accelerate your cardiovascular program. Our comprehensive Life Sciences Contract Services support the development of customizable, unique, and efficient solutions for all your research needs.



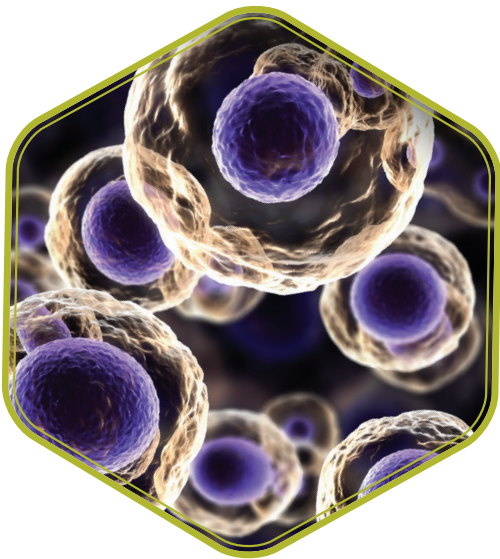
GENOMIC ANALYSIS

Nucleic Acid Extraction, PCR, qPCR, and NGS



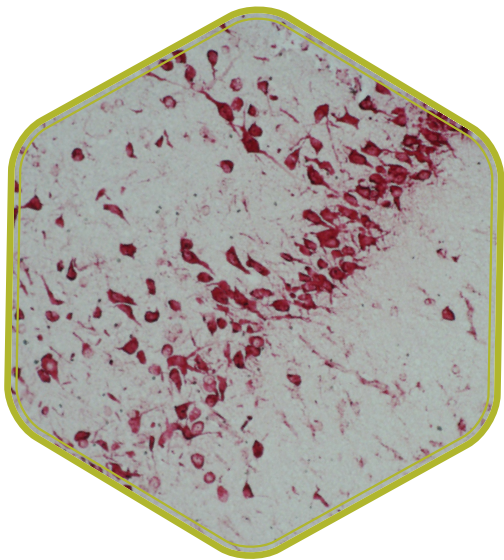
PROTEIN ANALYSIS

ELISA, Western Blot, Proteins, Peptides, and Enzymatic Assays



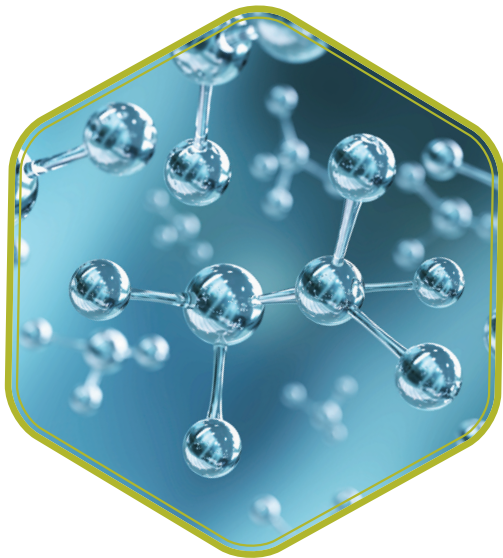
CELLULAR ANALYSIS

Cell-based Assays, Fluorescent Dyes, and Antibodies



TISSUE ANALYSIS

IHC, ISH, and FISH



SMALL MOLECULE CHEMISTRY

Small Molecules and Compound Libraries

Enabling Cardiovascular Advancements

We are driven by our commitment to serving our customers, and enabling their pursuit of innovation. Our customer-focused approach enables us to be true scientific partners. Our technological expertise enables our customers to achieve their next great discoveries. With over 500 patents, rigorously validated products, world-class R&D and manufacturing, and teams of highly specialized expert scientists, we fuel the cardiovascular advancements that lead the way to a healthier world.

Learn More at: enzolifesciences.com/cardiovascular

SCIENTISTS ENABLING SCIENTISTS™



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