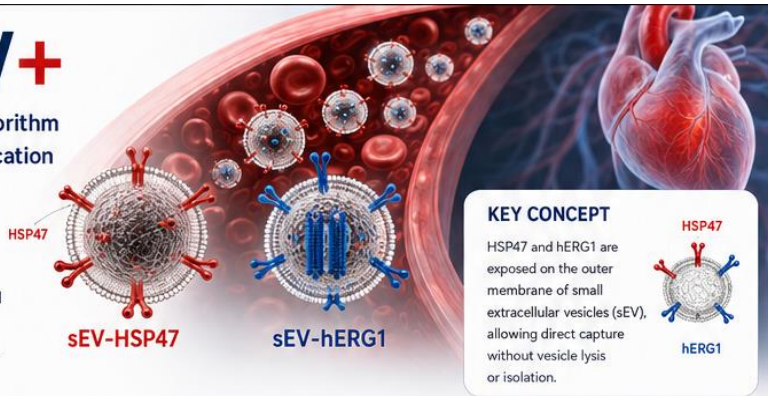


CARDIO-EV+

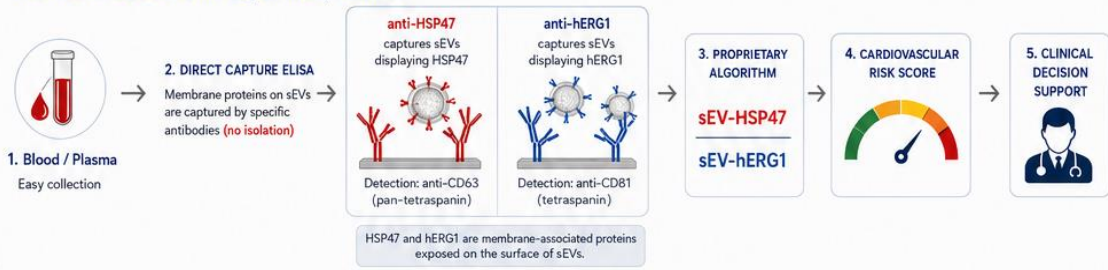
Extracellular Vesicle Biomarker Algorithm for Early Cardiovascular Risk Stratification

Detecting myocardial stress before irreversible cardiac injury

A first-in-class blood test that quantifies circulating extracellular vesicles displaying membrane-associated HSP47 and hERG1 through a proprietary algorithm to identify cardiovascular risk at an early, actionable stage.

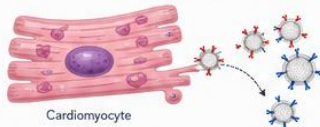


THE TECHNOLOGY: SIMPLE, DIRECT, ROBUST



BIOLOGICAL RATIONALE

Under ischemia or hemodynamic stress, cardiomyocytes release extracellular vesicles (sEVs) enriched in membrane-associated proteins.



HSP47 in sEV
Reflects myocardial stress and extracellular matrix remodeling triggered by hypoxia/ischemia and hemodynamic stress.



hERG1 in sEV
Represents cardiomyocyte membrane alterations and electrical stress associated with ischemia.

The combination of both biomarkers provides a robust signature of early cardiovascular risk independent of established cardiac biomarkers.

PERFORMANCE SUMMARY



ANALYTICAL PERFORMANCE (ELISA)

- Intra-assay CV **6.5%**
- Inter-assay CV (HSP47) **5.1%**
- Inter-assay CV (hERG1) **12.9%**
- Good linearity and LOD in pg/mL range



CLINICAL PERFORMANCE

- Stress-test cohort (n=153) **AUC 0.75**
- Heart failure cohort (n=51) **AUC 0.996**
- Independent of NT-proBNP

WHY THIS MATTERS

- ✓ Detects biological stress before tissue necrosis
- ✓ Early identification of high-risk individuals
- ✓ Improves risk stratification and patient management
- ✓ Complements and adds value to current biomarkers

COMPETITIVE ADVANTAGE

Feature	Current Biomarkers (Troponin, NT-proBNP)	CARDIO-EV+
What it detects	Established injury	Early myocardial stress
Biomarker type	Single protein	Dual biomarker algorithm
Source	Plasma proteins	Extracellular vesicles (membrane-based)
Timing	Late increase	Earlier detection
Clinical utility	Diagnosis / prognosis	Risk stratification, monitoring, prevention
Technology	Limited integration	AI-ready, multimodal platform

DEVELOPMENT STATUS & ROADMAP



INTELLECTUAL PROPERTY



PATENT PROTECTED

Methodology for In Vitro Diagnosis of Cardiovascular Disease
PCT/CL2024/050121
Priority Date: 2023 (Chile)



Universidad de los Andes



Clínica Dávila

CLINICAL APPLICATIONS



A scalable platform with broad applications in preventive, diagnostic and precision cardiovascular medicine.

CONTACT

Carlos E. Irarrázabal, PhD

Director, Laboratorio de Fisiología Integrativa y Molecular (LFIM)
Centro de Investigación e Innovación Biomédica (CiIB)
Facultad de Medicina, Universidad de los Andes
Santiago, Chile

cirrazabal@uandes.cl

www.uandes.cl

+562 2618 1607

ORCID iD

0000-0002-1264-7168



UANDES
Facultad de Medicina

LFIM

Laboratorio de Fisiología Integrativa y Molecular



Centro de Investigación e Innovación Biomédica