IN A CLINICAL STUDY

70% OF PHYSICIANS CHANGED THEIR TREATMENT PLAN BASED ON PULS CARDIAC TEST™ RESULTS.[2]

Study conducted included physicians in the areas of cardiology, internal medicine, family practice, and obstetrics/gynecology.

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"I recommend the PULS Cardiac Test as a non-invasive way to detect the underlying causes of Heart Disease early-on, when prevention is most effective."

- Dr. Michael Wong
Cardiologist, HeartCare
Founder of Lipidologists of Los Angeles
Fellow of the American Heart Association
Member of the American Heart Association Speakers Bureau

"Despite advances in Heart Attack prevention, there are still hundreds of thousands in the US who die each year, without warning, from Heart Disease. Half of those who suffer Heart Attacks have normal cholesterol. The PULS Cardiac Test is a tool that identifies patients, even at a young age, who are likely to have a Heart Attack, though they may not have any signs or symptoms."

- Dr. Americo Simonini, FACC
Cardiologist, Cedars Sinai Heart Institute
Fellow of the American College of Cardiology

IDENTIFY THE VULNERABLE PATIENT WITH ASYMPTOMATIC, SUBCLINICAL DISEASE FOR WHOM EARLY INTERVENTION CAN HELP.[1,14,15,16]

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For more information, or to order the PULS Cardiac Test, call 1300 022 750 or visit www.smartdna.com.au

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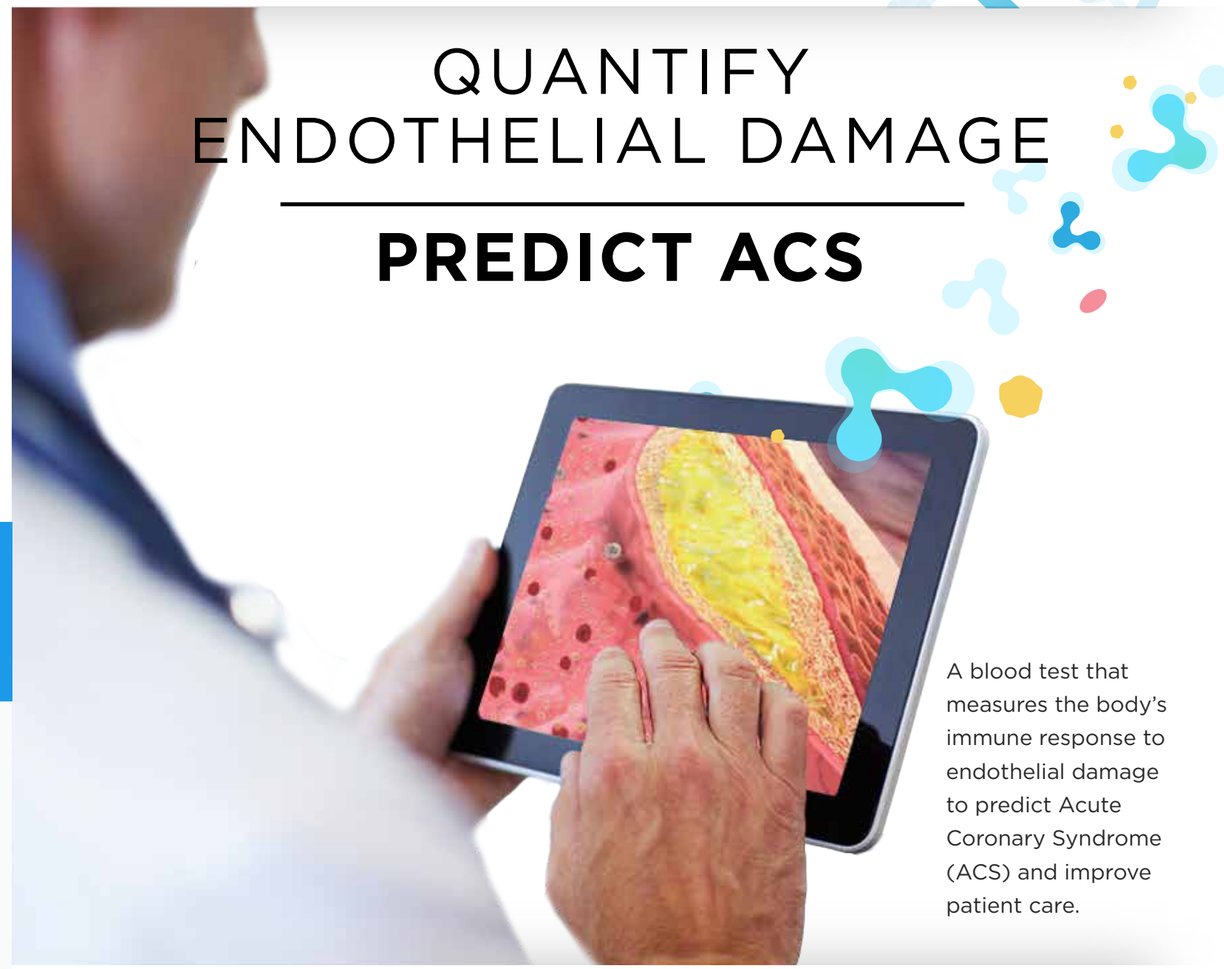
PRACTITIONERS CHOICE FOR GENOMIC SOLUTIONS



QUANTIFY ENDOTHELIAL DAMAGE

PREDICT ACS

A blood test that measures the body's immune response to endothelial damage to predict Acute Coronary Syndrome (ACS) and improve patient care.

- ✓ Outcome-based studies validated in a multi-ethnic population[1]
- ✓ Conforms to current ACC/AHA guidelines[1]
- ✓ Motivates patients to adhere to physician recommendations
- ✓ Recommended by physicians[2]

PULS™
CARDIAC TEST

Case study published online by the American College of Cardiology

CHD REMAINS THE

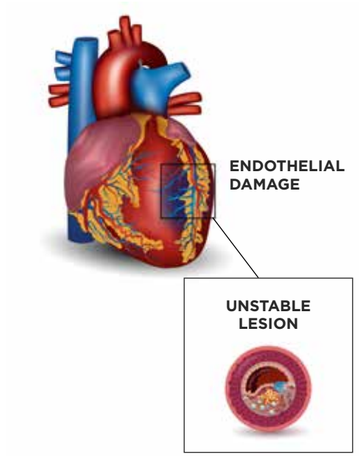
#1 CAUSE OF

MORBIDITY & MORTALITY

DESPITE RECENT

IMPROVEMENTS IN

DISEASE MANAGEMENT.[3,4]



CLINICAL CHALLENGES

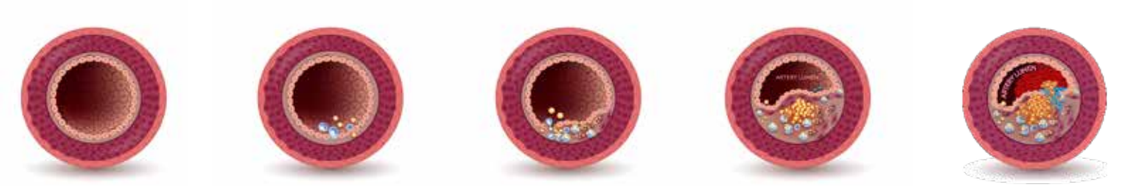
CURRENT CHD BIOLOGY & RISK ASSESSMENT

- Current diagnostic and clinical risk stratification tools that rely on established risk factors do not fully estimate the incidence and prevalence of CHD. In fact, 50% of individuals presenting with severe cardiac event have at most one risk factor or normal cholesterol levels.[5]
- The AHA Get-With-The-Guidelines® initiative analysis revealed over 70% of patients with a 1st cardiac event were well within guidelines targets for lipid values.[5]

CURRENT CLINICAL SITUATION

- Progression of Coronary Artery Disease is neither linear nor predictable. Recent data has shown arteriographically mild lesions may undergo significant progression to severe stenosis or total occlusion in just a few months.[6]
- 75% of Heart Attacks are caused by the rupture of an unstable cardiac lesion, not narrowing of the artery as is commonly believed.[7] Most artery flow-disrupting events occur at locations with less than 50% lumen narrowing. From clinical studies published in the late 1990s to IVUS (in-the-artery-ultrasound) to visualize disease status, the typical Heart Attack occurs at locations with about 20% stenosis (narrowing), prior to sudden lumen closure and resulting Myocardial Infarction.[8]
- Being able to detect the unstable lesion that is likely to rupture prior to a cardiac event is crucial in the area of clinical prevention and improved patient care.

ATHEROSCLEROSIS PATHOPHYSIOLOGY



NORMAL ARTERY

ENDOTHELIAL DAMAGE

Atherosclerosis is a process of chronic endothelial damage or inflammation that increases permeability of the arterial wall allowing oxidized lipid particles to bind and aggregate on the arterial surface, contributing to the formation of cardiac lesions (atheroma).[9]

CELL PROLIFERATION

The presence of such compounds stimulates the vessel cells to produce molecules and recruit leukocytes (monocytes, granulocytes, and T-cells) to the arterial walls, and stimulates the proliferation of smooth muscle cells.[10,11]

ANGIOGENESIS

The recruited leukocytes are transformed into lipid-laden foam cells and are responsible for the growth of the lesion.[12] Growth factors then are released and stimulate the generation of new capillaries through the process of angiogenesis providing the growing lesion with an adequate blood supply.

CELL ADHESION, PLATELET AGGREGATION & APOPTOSIS

The expression of adhesion molecules and chemokines (MCP-1 and others) participate in platelet aggregation, lymphocyte and monocyte adhesion, further activating the lesion damage. A physical change in the smooth muscle cells, and cell turnover (apoptosis), produce excessive amounts of collagen, elastin and proteoglycans transforming the lesion into a fibrous plaque comprised of a lipid core and thin fibrous cap creating an unstable lesion that is prone to rupture.[13]

THERE IS A GREAT NEED TO CORRECTLY IDENTIFY INDIVIDUALS WITH ACTIVE, YET UNDETECTED SUBCLINICAL DISEASE, WHO ARE AT RISK OF EXPERIENCING A CORONARY EVENT, & FOR WHOM EARLY INTERVENTION CAN HELP.[14,15]

DEVELOPMENT OF MULTIPLEXED SERUM PROTEIN ASSAYS TO ACCURATELY MEASURE DISEASE PROGRESSION

Multiple serum protein assays measure apoptosis, thrombosis, vascular remodeling, and other key processes underlying endothelial damage or inflammation, as well as cardiac lesion formation and progression.[16,17,18]

The measurement of protein biomarkers and established global risk factors yield a novel permutation algorithm that diagnoses endothelial damage/inflammation, and predicts the likelihood of an Acute Coronary Syndrome (ACS).[1]

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THE PULS CARDIAC TEST™ CLINICAL UTILITY & VALIDATION

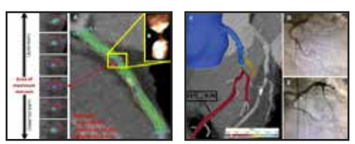
The PULS Cardiac Test™ has been validated in a multi-ethnic outcome-based study (MESA). The test measures biomarkers of the body's immune system response to endothelial damage/inflammation, leading to cardiac lesion formation, progression and rupture tied to the likelihood of ACS within a 5 year period (considered the optimal interval for intervention and change.)[1]

A permutation score of protein biomarkers and global risk factors demonstrates clinical utility that identifies the "vulnerable patient" missed by current modalities and guides physicians to improve patient care.[1]

Case study published online by the American College of Cardiology

CCTA SHOWING SIGNIFICANT CAD ASSOCIATED WITH HIGH BIOMARKER SCORE IN A 46-YEAR-OLD MALE WITH MULTIPLE CARDIOMETABOLIC RISK FACTORS

View case study online at www.acc.org



PROTEIN	DESCRIPTION
HGF	Hepatocyte growth factor (HGF) takes part in tissue regeneration after damage. It is a potent survival and regeneration factor after severe tissue damage. It promotes cell growth and protection from apoptosis (cell death), and regulates the cell migration and differentiation.
EOTAXIN	Eotaxin (also called CCL11 or C-C Motif Ligand 11) is a chemo-attractant for eosinophil granulocyte white blood cells that respond to inflammation by releasing reactive oxygen compounds and triggering a cascade of other chemokines and interleukins.
MCP-3	MCP-3 is Monocyte-Specific Chemokine 3, also known as CCL-7. It regulates macrophage function and acts as a chemo-attractant for monocytes to inflamed or infected tissues.
CTACK	CTACK is Cutaneous T-cell-Attracting Chemokine (also called CCL27 which refers to C-C Motif Ligand 27) that is primarily released by epithelial cells as part of the chemo-attraction of white blood cells and their activation-dependent adhesion at sites of inflammation.
IL-16	IL-16 is Interleukin 16, a cytokine protein that attracts and activates monocytes, T-cells, and eosinophils in response to inflammation and immunoreactions. IL-16 is released by lymphocytes and epithelial cells, such as those that line the wall of blood vessels.
FAS LIGAND	Fas Ligand is also called tumor necrosis factor ligand superfamily member 6 (TNFSF6) and is part of the cell death (apoptosis) pathways that clear the body of immune cells activated by inflammation and infection by binding to the Fas protein. Apoptosis is a key component of unstable lesion progression and rupture.
SFAS	sFas is the secreted form of tumor necrosis factor receptor superfamily member 6 (TNFRSF6). Fas binds to Fas Ligand triggering cell death (apoptosis) pathways that clear the body of immune cells activated by inflammation and infection. Apoptosis is a key component of unstable lesion progression and rupture.
HDL	HDL has a relevant role regarding vascular protection. Macrophages in the vessel wall take up (oxidized) LDL, turn into foam cells, and add to a pro-inflammatory environment that promotes atherosclerotic lesion formation and ultimately lesion instability. HDL has been shown to inhibit the expression of endothelial adhesion molecules and to inhibit LDL-induced monocyte transmigration.
HBA1C	Increasing levels of HbA1c in asymptomatic individuals are associated with the presence of coronary atherosclerosis, but more specifically with the presence and burden of mixed coronary lesion. Elements of lesion instability have been associated with mixed coronary plaque/lesion.