

## Company Summary

Brava Diagnostics is developing diagnostic products for acute care, starting with cardiac markers. Our first tests will assess chest pain and shortness of breath in the emergency department.

### Unmet Need/Opportunity

Emergency physicians need accurate, fast lab results to guide treatment decisions.

- The market for cardiac markers will reach \$3.5 billion by 2021.
- New guidelines are driving a shift to high-sensitivity troponin assays for chest pain assessment.

### Superior Technology

Our fluorescence reader and planar waveguides deliver lab-quality results from whole blood quickly.

- Core lab turn-around time is >1 hour, when minutes count.
- Current point-of-care methods do not meet sensitivity and precision requirements.

### Competitive Advantages

- Precise results at low concentrations (pg/mL) guide urgent treatment decisions and safe discharge.
- Meets new American College of Cardiology guidelines.
- Multiplex testing improves performance and turn-around time.

## Customer Problem

Rapid triage of patients presenting with chest pain and diagnosis of heart attack is critical to saving lives and improving quality of care in the emergency department. There are 6.9 million visits to U.S. emergency departments for chest pain, with 1.3 million patients ultimately receiving a diagnosis of heart attack.

All patients receive an electrocardiogram (EKG), but this only detects approximately 6% of heart attacks, leaving the vast majority of patients in need of further assessment, including a troponin blood test. Diagnostic uncertainty, caused in large part by delays in obtaining blood test results, leads to an excessive number of chest pain patients being admitted to the hospital. Inappropriate admissions result in more than \$7 billion in excess cost to the U.S. healthcare system annually.

## Our Solution

Our initial product will be a high-sensitivity troponin assay for chest pain assessment. Our rapid results will help guide treatment decisions, whether it's administering a "clot buster," admitting the patient without delay for a stent or bypass surgery, observation or safe discharge. The LightDeck System offers these advantages:

- Analytical Sensitivity: Delivers precise results at very low concentrations (pg/mL), comparable to the core lab.
- Rapid, simple format: Whole blood assays report results in less than 15 minutes using a simple "load-and-go" workflow.
- Cost-effective: The design of the disposable cartridge is scalable and enables commercialization with high margins.



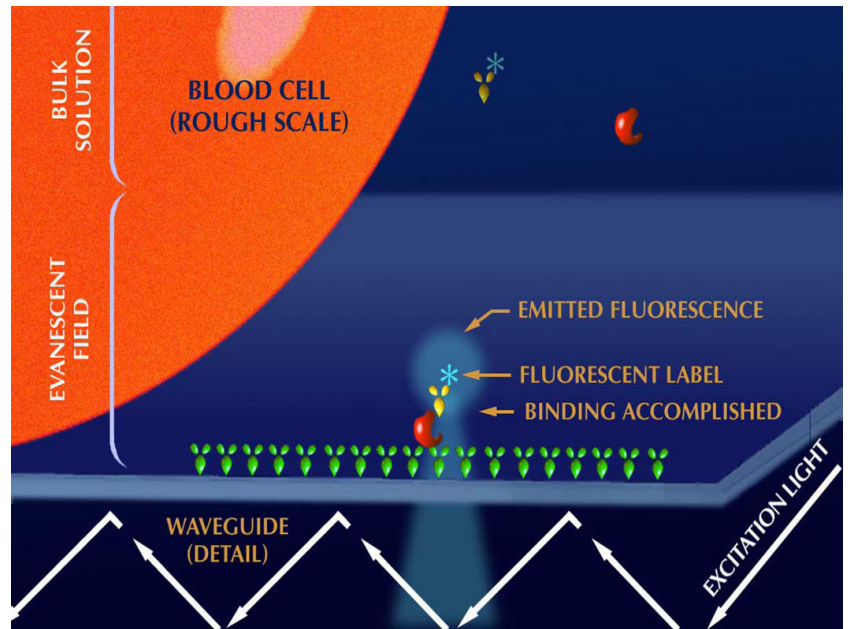
## Technology Overview

Enables whole blood analysis

- 0.1 micron evanescent field above the waveguide reduces interference from cells (~50 microns)
- Tune laser emission to minimize absorbance and autofluorescence associated with hemolysis
- Inherently low background
- A simple, low-cost imaging system can detect very low concentrations

Multiplex

- Replicates improve precision
- Positive and negative controls run simultaneously
- Multiple analytes improve turn-around time, may improve information value



## New Guidelines Drive Testing with High Sensitivity Assays

The American College of Cardiology issued new guidelines for implementing serial testing with high-sensitivity troponin (hs-cTn) assays. Troponin is a biomarker that indicates damage to the heart muscle and is the standard of care for diagnosis of heart attack. The guidelines require assays to have high precision at very low concentrations. Current core lab tests have a turn-around time of 60 minutes or more. Current point-of-care tests do not meet the new guidelines and traditional technology may make it difficult to meet this new standard. The Brava test will meet the requirements for precision and sensitivity and deliver results in less than 15 minutes.

	Core Lab		Point-of-Care		
	hs-cTn	cTn	Brava	i-STAT	Triage
High sensitivity	√	X	√	X	X
CV <10%	√	√	√	X	X
< 15-minute TAT	X	X	√	√	√
Whole Blood	X	X	√	√	√
Multiplex	X	X	√	X	√
Cost-effective	X	X	√	√	√

## Exit Strategy

Exit alternatives include sale to a large diagnostics company within four years, with valuation in >\$500 million.

## Accomplished Executive Team of Diagnostic Industry Veterans

**Byron Hewett**  
Co-Founder and  
Chief Executive Officer

CEO, SomaLogic  
Chairman and CEO, BioBDx  
CEO, Immunicon

Senior executive positions at Qiagen,  
Bayer, Chiron, Abbott

**David Okrongly, PhD**  
Co-Founder and  
Chief Operating Officer

President, OPKO Diagnostics  
COO, Exosome Diagnostics  
President and CEO, Quanterix

Senior executive positions at  
Siemens, Bayer

**Carrie Mulherin**  
Co-Founder and  
Chief Marketing Officer

VP Diagnostics, SomaLogic  
VP Marketing and Sales, BioBDx  
VP Marketing and Sales, Immunicon

Executive positions at Orasure,  
ThauMDx, Intracel, ITC

Please contact Byron Hewett to schedule a meeting. e-mail: BHewett@BravaDx.com • phone: 661-993-4085