

Some data taken from CytoVas website and other sites

CytoVas LLC Presents its Vesicle-based Prediction of Post-Surgical Cardiovascular Events at CYTO 2017 Conference

Posted on [June 10, 2017](#)

Philadelphia, PA — June 10, 2017— Wade Rogers, Ph.D., Chief Scientific Officer of CytoVas LLC, a clinical-stage diagnostic company focused on cardiovascular health, presented early results of the company’s EVENTS clinical trial in a presentation to physicians, scientists, and analysts today at the 2017 CYTO meeting in Boston, Massachusetts.

The purpose of the EVENTS study, funded by BD (Becton, Dickinson and Company), was to determine if cell- and extracellular vesicle-based biomarkers are useful prognostics for post-surgical cardiovascular events. Standard-of-care risk assessment tools such as the Revised Cardiac Risk Index (RCRI) provide only nominal value in predicting these events.

The study enrolled 225 subjects and analyzed samples using the 4-tube Vascular Health Profile™ (VHP) assay for extracellular vesicles (EVs), endothelial progenitor cells (EPCs), angiogenic T cells (T-ang), and Th17 cells.

PanoplyCF™, an algorithm designed by CytoVas LLC that enables prospective high-dimensionality flow cytometry data analysis, was used to identify cell or EV subsets that distinguish patients who experienced MINS (myocardial injury after non-cardiac surgery) or MACE (major adverse cardiovascular events) from those who experienced no event. This computational approach yielded a novel macrophage-derived EV subset (MEV) with highly significant discriminant power after correction for multiple comparisons. Patients experiencing post-surgical MACE/MINS are more than thirty-fold more likely to have a positive MEV test than those who did not.

“Not only did MEVs accurately predict who would have an event, but there is evidence to suggest that MEVs are a harbinger of the vulnerability of atherosclerotic plaques to rupture. The company is currently planning a clinical trial to validate this exciting prospect. We hope this simple blood test will usher in a new era in cardiology – the ability to know in advance who is at imminent risk of a heart attack in time to take aggressive preventive measures”, said Dr. Rogers.

About CytoVas LLC: CytoVas LLC is a leader in the development of clinical flow cytometry-based diagnostics for cardiovascular disease. Their lead diagnostic blood test, the Vascular Health Profile™ (VHP), is in clinical trials for the prediction of cardiovascular events following surgery. Headquartered in Philadelphia, Pennsylvania, CytoVas LLC was founded in 2010 as a spinoff from the University of Pennsylvania. For more information visit: cytovas.com

CytoVas Presents Poster at American College of Cardiology Meeting on Results of the EVENTS Trial Utilizing Monocyte-derived Extracellular Vesicles (MEV) to Predict Outcomes in Cardiovascular Disease

Posted on [May 11, 2018](#)

Philadelphia, PA — May 11, 2018 — CytoVas presented a scientific poster at the March 2018 annual meeting of the American College of Cardiology (ACC) meeting in Orlando FL. The results of the recently completed EVENTS clinical trial, sponsored by CytoVas, were presented by Scott Damrauer MD, a vascular surgeon at the University of Pennsylvania and Principal Investigator on the trial. Also present at the meeting was Wade Rogers, PhD, Chief Scientific Officer of CytoVas. Drs. Damrauer and Rogers met with several attendees, who expressed considerable enthusiasm for the prospect of extracellular vesicle-based biomarker for risk stratification of non-cardiac surgery patients specifically, and atherosclerotic disease in general, based in part on the findings that a one standard deviation increase in monocyte-derived EV resulted in a 680% increase in the odds of having a cardiac event.

Circulating Monocyte Derived Extracellular Vesicles Predict Post-Operative Myocardial Infarction is the title of the scientific poster presented by CytoVas at the 2018 meeting of the American College of Cardiology. This poster evaluated Monocyte-derived Extracellular Vesicles and concluded that the signature is a novel, highly predictive biomarker for post-operative cardiovascular events. “The results were statistically significant and validated the hypothesis that Monocyte-derived Extracellular Vesicles are instrumental in predicting outcomes and are a measure of the pathophysiology of vascular disease” stated Wade Rogers, who analyzed the data from the trial.

Of 212 individuals meeting enrollment criteria, there were 23 (10.8%) post-operative events. A one standard deviation increase in Monocyte-derived EV resulted in a 680% increase in the odds of having a cardiac event. The association of these particles with cardiovascular events provides new insights into heart disease and suggests a novel approach to pre-operative risk assessment. The patients were enrolled from the Hospital of the University of Pennsylvania, Temple University Hospital, Thomas Jefferson University Hospital and Cooper University Hospital, all in Philadelphia, PA. For more information please click on the link below for access to the poster.

CytoVas is a life science company with a unique cell-based informatics platform, CLOUD CYTOMIC[™], that is advancing precision medicine by providing clinicians and drug developers with actionable information on novel cellular markers of disease progression and individual treatment response. The company’s technology uniquely enables it to mine flow cytometry data to rapidly identify and automate interpretation of novel cellular biomarkers. This breakthrough approach enables clients to make critical decisions in their efforts to develop and deliver safer, more precisely targeted therapies for patients.

AHA's First "Accelerated" Project Headed for Development: American Heart Association Special Report

Posted on [April 25, 2013](#)

[DALLAS, April 25, 2013](#) – The first project to receive an investment from the American Heart Association's Science & Technology Accelerator Program will be jointly developed by CytoVas, LLC and BD Biosciences, the firms announced.

CytoVas and BD Ink Alliance to Co-Develop Personalized Diagnostic for Vascular Health: New Flow Cytometry Test Can Detect Individual Risk of Heart Attack and Stroke

Posted on [April 25, 2013](#)

[PHILADELPHIA, April 25, 2013](#) – CytoVas, LLC and BD Biosciences, a division of BD (Becton, Dickinson and Company), announced today they have formed a strategic alliance to jointly develop a new blood-based diagnostic test to predict individualized patient risk of heart attack and stroke.

CLOUD CYTOMICSTM

The How

Unlike traditional flow cytometry, CLOUD CYTOMICSTM enables data mining across patients and time points, allowing researchers to better identify common patterns and correlations using a proprietary Cytometric Fingerprinting process. The CLOUD CYTOMICSTM platform can be fully automated and applied by customers and partners, providing critical, actionable data:

- in less time
- with greater precision
- with lower bias and potential for human error

The Why

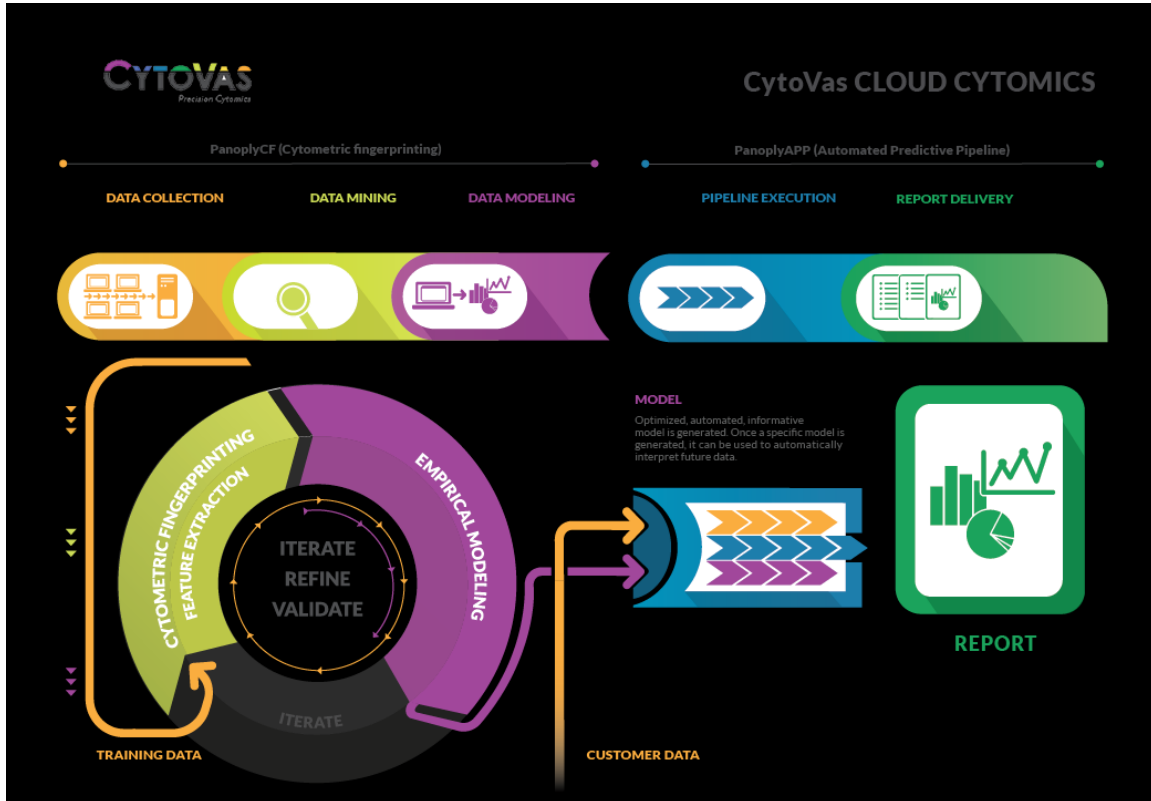
CytoVas CLOUD CYTOMICSTM provides actionable information on novel cellular markers of disease progression and individual treatment response, enabling clients to make critical decisions in their efforts to deliver on the promise of precision medicine by helping them to:

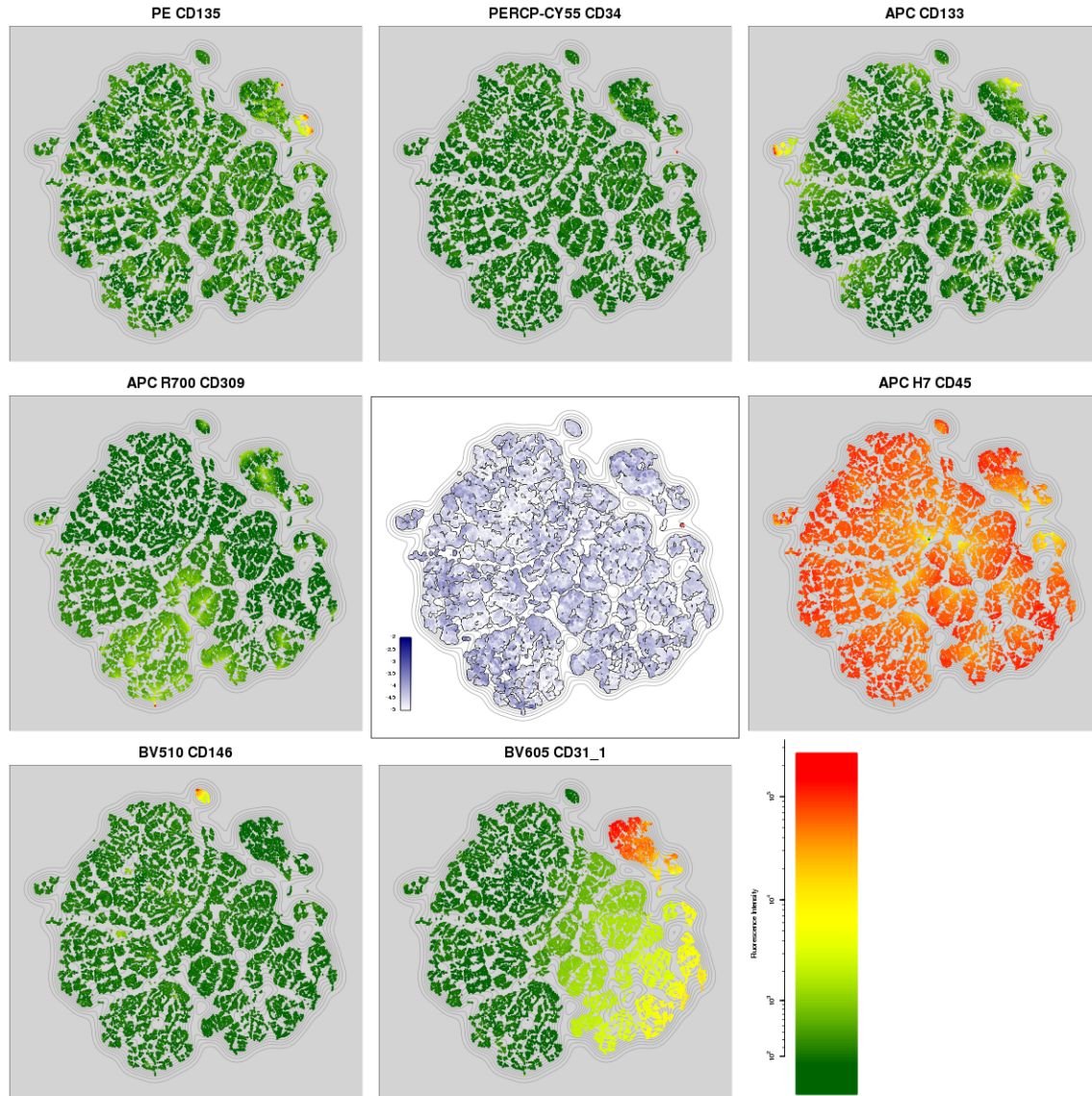
- Monitor response to drug therapy
- Monitor disease progression
- Elucidate disease pathways

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- Validate drug targets
- Determine drug MOA
- Develop companion diagnostics
- Stratify patients for clinical trials

PanoplyCFTM





Using Extracellular Vesicle (EV) communication pathways, cells are the engines that integrate genetic, proteomic and environmental causes of disease and are biomarkers of the future.

evPREDICT™ and CLOUD CYTOMICS™ are novel, proprietary technology platforms that can discover and mine flow cytometry data to identify cellular and EV biomarkers for health and disease using a simple, minimally invasive liquid biopsy. This technology can significantly improve the speed, scalability, accuracy and resolution of biomarker discovery by helping to:

- Stratify patients based on outcomes
- Monitor response to drug therapy

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- Elucidate disease pathways
- Determine drug MOA
- Develop companion diagnostics

CytoVas is offering its services for assay development, capture and sorting of EVs in a variety of disease states, including oncology, cardiovascular disease, traumatic brain injury, diabetes and other areas where the cargo of the EVs is of value. CytoVas can sort and present the EVs of choice for further 'omics analysis.

evCardioPREDICT™ (evPREDICT™ platform)

exosome-diagnostics

<http://www.exosomedx.com>

<https://www.crunchbase.com/organization/exosome-diagnostics>

Microvesicles and Exosomes in Cancer Detection Researchers have found that highly active cells, including tumor cells, shed fragments called [microvesicles](#) from the cell membrane into the circulation as another form of communication between cells. These microvesicles were originally thought to contain lipids (fats) and proteins that come from the cell membrane, which protects the cell structure. However, recent findings reveal that they also contain components found in the cytoplasm inside the cell, such as infectious particles and nucleic acids (RNA and miRNA), which when harvested, can aid in the diagnosis of disease, such as cancer. Special microvesicles (exosomes) that are formed inside the cell and extruded out in a process called [exocytosis](#), in particular, have been the subject of new research at the Massachusetts General Hospital, where the core development team of Exosome Diagnostics was able to demonstrate that exosomes contain an abundant amount of nucleic acids. RNA or ribonucleic acid molecules are single-stranded proteins that perform multiple roles in the coding, decoding, regulation, and gene expression while miRNA or microRNA are small non-coding RNA molecules that are associated with disease when deregulated.

Previous research has shown that diseases such as [leukemia](#), [lung cancer](#) and [glioblastoma](#) may be diagnosed by employing a simple blood test that detects the presence of specific mutant RNA found in circulating exosomes. These diagnostic biomarkers can be easily detected in biofluids (blood, urine, and cerebrospinal fluid) without having to do the traditional tissue biopsy, which is a more invasive method of establishing a concrete diagnosis. In addition, these biofluid diagnostic tests may be done repeatedly to monitor a patient's condition and may be used to guide targeted therapy at a lower cost and reduced patient risk.

The evPREDICT™ platform is the outgrowth of CytoVas' Vascular Health Profile™ (VHP). **evCardioPREDICT™**, CytoVas' lead product from the evPREDICT™ platform, uses a flow cytometry liquid biopsy to measure cell-specific extracellular vesicles (EVs) in the blood that are produced by diseased arterial endothelium. This test provides a sensitive and pathologically specific signature profile indicating that status of the patients' vasculature. The sensitivity and specificity of the **evCardioPREDICT™** has demonstrated enhanced accuracy in predicting heart attack and stroke when compared to other standard-of-care tests such as stress tests, CT angiography, intravascular ultrasound, gene expression, inflammatory markers (hsCRP, BNP, LP-PLA2), cholesterol markers (LDL/HDL), troponins, CKMB and myocardial perfusion imaging.

evCardioPREDICT™ offers clinical researchers and the biopharmaceutical industry an earlier and more accurate method to detect and monitor the effect of a compound on the

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patient's vascular health. This knowledge is critical to both clinical trials and drug development to accelerate and improve accuracy of safety assessments, as well as predicting positive or negative responses to treatments.

evCardioPREDICT™ utilizes state-of-the art rare event detection and a unique cytometric High Dimensional Small Particle Detection™ method to provide a deep phenotyping of extracellular vesicles, identifying multiple populations of EVs to provide sensitive and specific information on the status of the vasculature. These measures are analyzed using proprietary computational analysis algorithms to yield a unique signature that can identify vascular status as an indicator of disease diagnosis and progression, response to therapy or prognostic risk. **evCardioPREDICT™** can be combined with other **evPREDICT™** cellular assays under development to enhance the specificity of the signature for particular target responses. These cytomic assays comprise a powerful liquid biopsy platform capable of delivering unprecedented pre-clinical and potential clinical value.

Expanding on the **evPREDICT™** platform, CytoVas currently has in development similar EV based liquid biopsies for detection of traumatic brain injury, acute heart failure, chronic kidney disease, and solid organ transplant rejection.