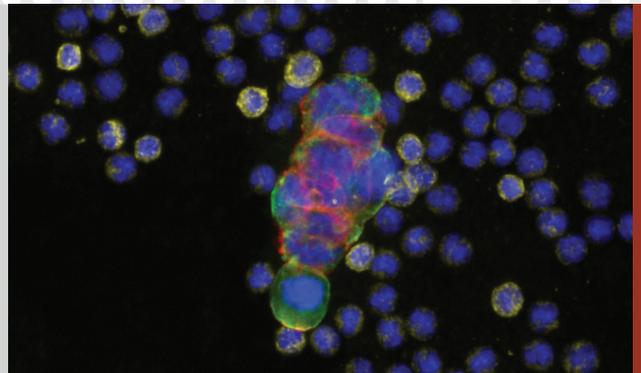
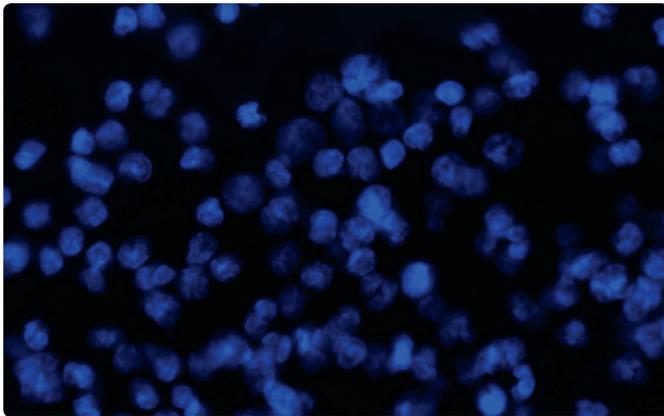


Advancing Liquid Biopsy to Single Cell Analysis

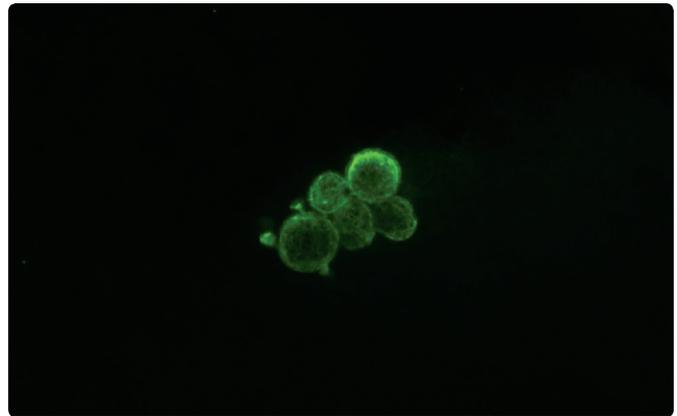
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 **RARECYTE**
One in a billion

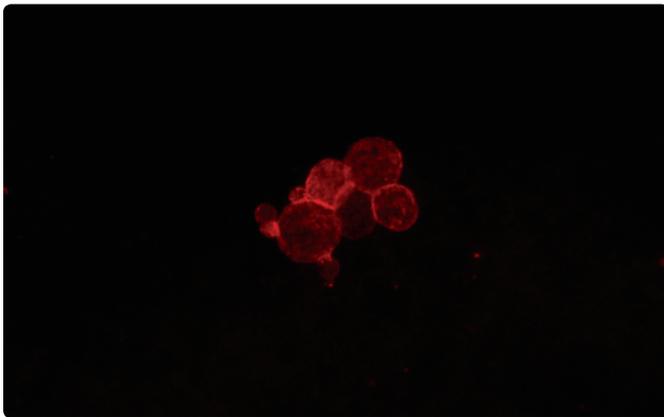




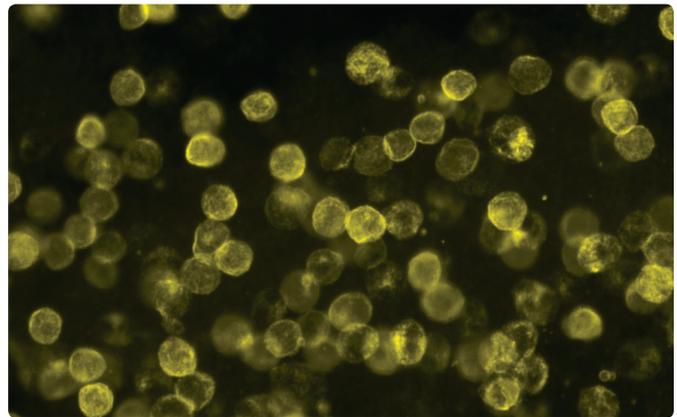
DAPI-Stained Nuclei in All Cells



Cytokeratin (CK) in Circulating Tumor Cells



Epithelial Cell Adhesion Molecule (EpCAM) on Circulating Tumor Cells



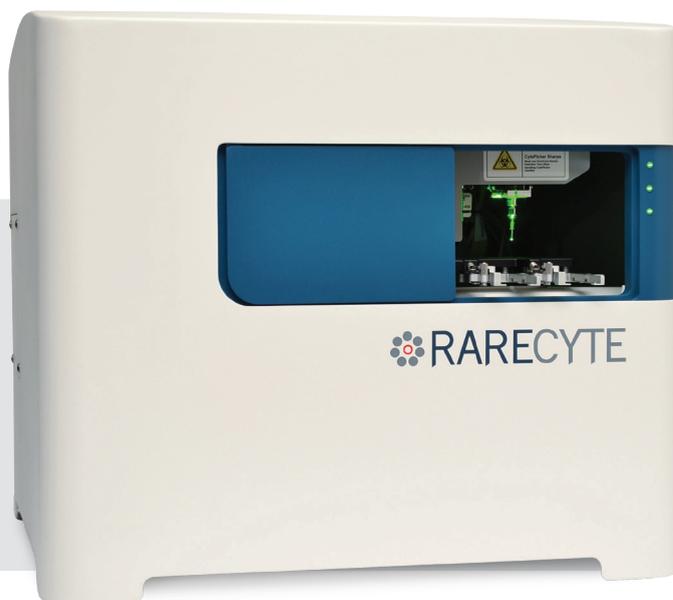
CD45 on White Blood Cells

From whole blood to single cells. RareCyte believes that the rapid, accurate and efficient isolation of single cells from liquid biopsy samples will open many new opportunities for diagnosis and treatment monitoring. RareCyte technology was created to help realize the full potential offered by liquid biopsy, particularly for the analysis of circulating tumor cells.

AccuCyte®

Blood Separation System

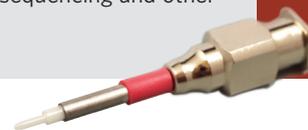
AccuCyte® is a novel patented density-based cell separation and retrieval system that allows simple and complete collection of nucleated cells (including CTCs) from blood onto microscope slides for imaging and analysis by CyteFinder®.



CyteFinder® with CytePicker®

Rapid Slide Scanning and Single-Cell Retrieval

The CyteFinder instrument locates rare cells for you, using fluorescence imaging and powerful image analysis algorithms. The CytePicker module integrates ultra-precise retrieval of individual rare cells from the slides for sequencing and other molecular analyses.



Combining rigorous analysis with a flexible platform



The first platform on the market to deliver a whole-blood to single-cell solution for your laboratory, RareCyte's novel technology platform consists of three major components:

1

AccuCyte® blood separation device and companion CyteSealer® instrument precisely separate blood into components, including plasma and nucleated cells. Easily prep slides with the CyteSpreader® slide prep device, which can be followed by manual or automated staining (with a commercial automated IHC/ISH stainer).

AccuCyte Blood Separation Device

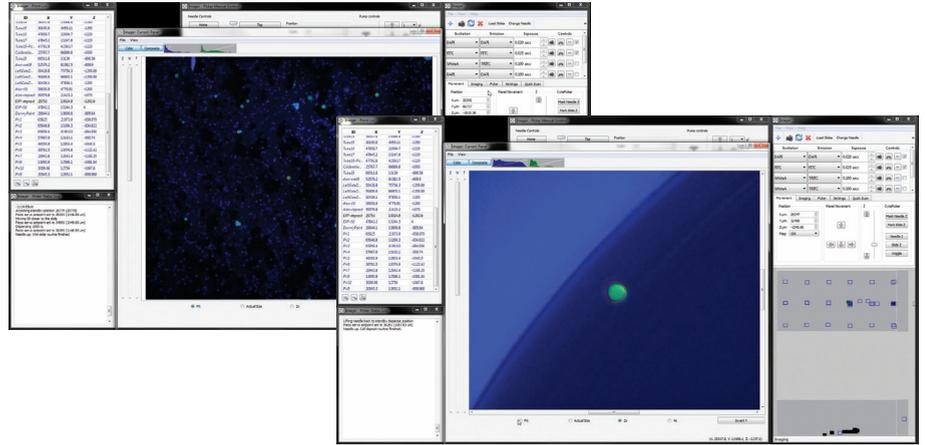
- Concentrates all nucleated cells from 7.5mL into 200µL transfer volume (30 to 50-fold volume reduction)
- Comprehensive collection of both plasma and circulating rare cells (e.g., tumor or fetal) from same blood sample
- Flexible, sequential density fractionation enables customized separation of differing cell types
- >90% CTC recovery from whole blood; recovery and enrichment is independent of biomarker expression
- One-cell detection in 7.5mL tube of whole blood

CyteSealer Instrument

- Proprietary system for sealing off parts of the AccuCyte blood separation device
- Compartmentalizes blood fractions (red blood cells, nucleated cells, plasma)

CyteSpreader Slide Prep Device

- Produces slides compatible with commercial automated stainers (Dako, Leica, Ventana)
- Forms consistent monolayer of cells for repeatable sample preparation and analysis
- Samples on slides can be archived



2

Image and analyze cells using the CyteFinder® instrument.

CyteFinder Instrument

- Six spectrally-discrete fluorescent channels for multiple biomarker imaging and analysis
- Twelve-minute 4-channel scan time to image entire slide
- Two slide holders for precise positional repeatability
- Positional repeatability of <5 microns, essential for single cell picking
- Small bench footprint of 54 cm x 56 cm (PC and monitor approx. 73 cm x 69 cm additional)
- High resolution 2560 x 2160 pixel sCMOS camera for precise quantitative imaging
- Automated 10X and dual 40X objectives for imaging with and without cover slips

3

Use the CytePicker® instrument with disposable ceramic needle tips to pick and collect automatically identified rare cells for further single-cell genomic or proteomic analysis. The entire RareCyte platform is controlled by advanced software including the CyteMapper® analysis software suite.

CytePicker Instrument

- Precision hydraulic cell retrieval system
- Delivery of cells into imageable PCR tubes confirms cell presence
- Replaceable, precision-engineered ceramic picking needle tip
- User-friendly “click-and-pick” cell isolation using advanced capacitive auto-sensing for precise positioning



CyteMapper Analysis Software Suite

- Advanced multi-parameter (395) analysis for automated ranking of candidate cells
- Four-channel multi-parameter CTC scoring
- Side-by-side comparison of all high resolution images along with the low magnification data

Advantages

Consistent, repeatable results for clinical and research settings

- Complete product solution integrating sample preparation, staining, imaging/analysis and cell retrieval
- Slide-based sample analysis
 - Microscope slides are the standard of care in clinical tissue diagnostics, making the RareCyte platform ideal for clinical adoption
- The most comprehensive visual phenotyping
 - Six channel rare cell analysis capability allows both sensitive rare cell identification and interrogation of relevant disease biomarkers and drug targets
 - Machine learning and image processing software reduces hands-on time and improves sensitivity
- Unique rare single cell capability
 - Only system that integrates visual identification of rare cells with their retrieval, enabling individual cell molecular analysis
- The most flexible system
 - ‘Developer’ kits allow users to build their own assays that incorporate their own biomarkers of interest

“Rare cells in the blood are an accessible window into many disease processes, from cancer to infection. Finding and characterizing them can be valuable for diagnosing disease, predicting disease outcome, or for selecting treatment.

With this platform, any tissue-based analytic test now becomes possible on individual cells in blood.”

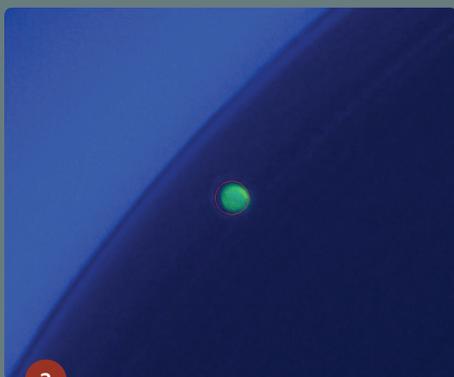
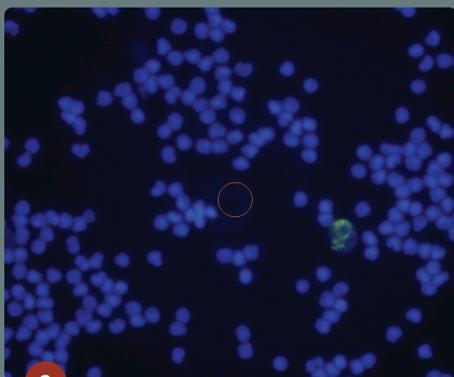
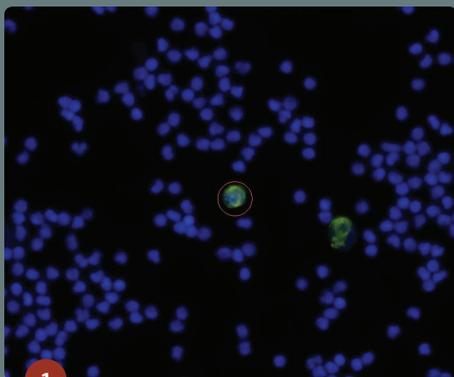
Anthony Blau

*Professor of Medicine, Division of Hematology,
University of Washington School of Medicine*

*Co-Director, University of Washington Institute
for Stem Cell and Regenerative Medicine*

Director, Center for Cancer Innovation

Applications

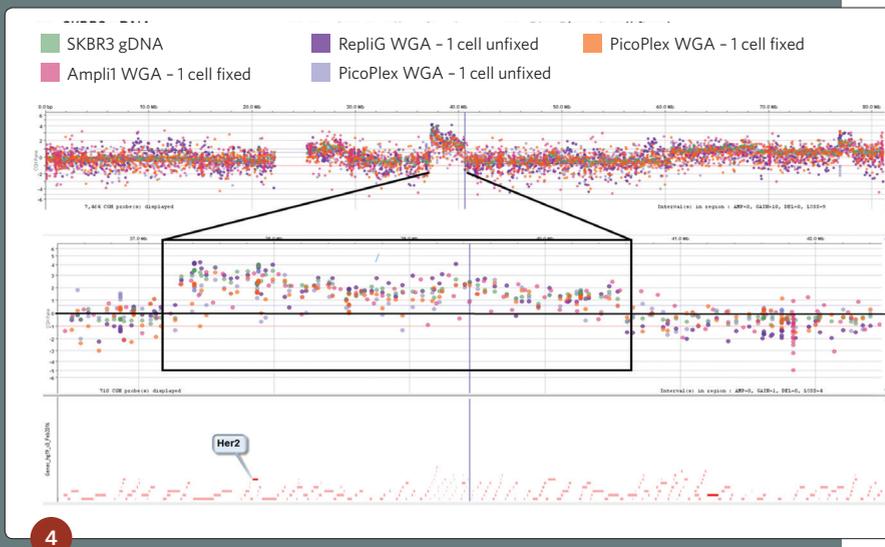


RareCyte uniquely provides the most comprehensive and reliable information about CTCs crucial for cancer treatment:

- For example the enumeration, characterization, and the retrieval of individual CTCs for deep analysis
- Phenotypic biomarkers, such as drug targets, can be visualized within CTCs to help guide therapy

Additional applications of RareCyte single rare cell technology:

- Cell-Based NIPT: Single-cell prenatal testing of fetal cells from maternal blood
- Circulating Immune Cell Testing: Early work on complete elucidation of the real time immune-profile of the patient



CytePicker enables single-cell analysis

With RareCyte's integrated whole-blood to single-cell platform, rare cells can be detected, isolated, and analyzed for genomic changes. Counterclockwise from top: **1.** A Circulating Tumor Cell detected with Cytokeratin (Green) with red circle indicating the CytePicker location; **2.** The same field of view showing the cell having been removed with the CytePicker; **3.** The target cell deposited into RareCyte's Imaging PCR tube; **4:** Array-CGH following WGA data demonstrating Her2 amplification in a single cell.



VIDEO LIBRARY

The RareCyte Video library offers a collection of videos on the applications and operation of the AccuCyte-CyteFinder platform.

<http://info.rarecyte.com/rarecyte-video>

PUBLICATIONS AND POSTERS

RareCyte Advance provides quick access to RareCyte conference posters, presentations and peer-reviewed publications. Register on site for advance notification of new content.

<http://info.rarecyte.com/pub-sub>

PRODUCT SPECIFICATIONS

The AccuCyte-CyteFinder product documentation provides up-to-date specifications for the platform.

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