



# CTC enumeration: Parsortix™ and VyCAP

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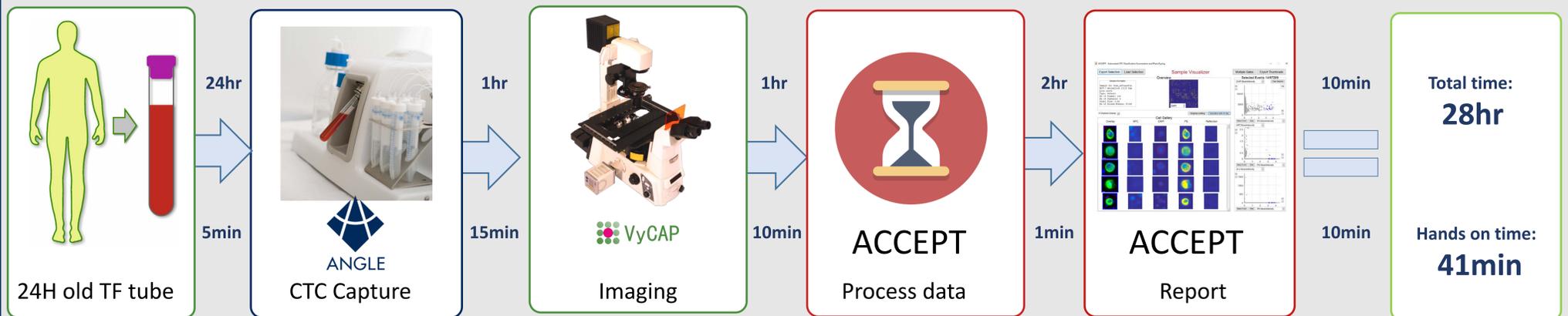


## Introduction

To automatically enumerate CTCs from whole blood with the Parsortix™ PR1 device, VyCAP's systems were modified to image the cells in the capture cassette with minimal hands on time. After imaging, the data was processed by the "ACCEPT" software to determine the number of CTCs. By combining VyCAP and Parsortix solutions, CTC enumeration is made easy.

## Automated CTC enumeration

Automated imaging of the Parsortix cassette is challenging due to the cassette's large surface area and non-planar surface. To overcome these challenges, VyCAP systems (Puncher and imaging system) were adapted to image Parsortix cassettes. Dedicated software, hardware and protocols were developed to automatically enumerate CTC. This resulted in a total flow which only takes 41 minutes hands on time and images are automatically processed by the ACCEPT software. The ACCEPT software was developed in the CANCER ID project to identify CTCs and runs on your own computer.



## CTC Enumeration work flow has been validated

MCF-7 and SKBR-3 cells were spiked into TransFix blood collection tubes and left overnight. The tubes were processed with the Parsortix PR1 system and labelled with an "in-cassette staining" protocol. Subsequently cassettes were transferred to the VyCAP system. A special software routine was available to image up to eight Parsortix cassettes at once. After calibration, images of the cassettes were taken, using a pre-defined imaging software protocol. The VyCAP system is equipped with an autofocus function and can change filter cubes by itself. It took around 10 minutes hands on time to setup the system. The data from the VyCAP system can be processed off-line by ACCEPT. Once processed, the captured CTCs can be identified, classified and enumerated on standard PCs and laptops.

adaptation for non-planar surface

VyCAP

Loading up to 8 cassettes at once on system

VyCAP

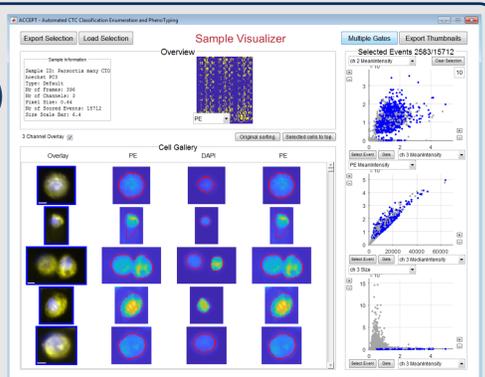
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Dedicated Parsortix software protocols

Transfix	Cell line	Recovery
1	SKBR-3	57%
2	SKBR-3	72%
3	SKBR-3	73%
1	MCF-7	49%
2	MCF-7	54%
3	MCF-7	37%

## Benefits

- Automated CTC identification (ACCEPT)
- Load 8 Parsortix cassettes at once
- Minimal hands on time
- Pre-defined software protocols
- Total solution



## Conclusion

By combining the Parsortix™ PR1 system with the VyCAP system, captured CTCs can be enumerated with minimal hands-on time. The use of the automated analysis software "ACCEPT" limits the inter-operator variability and saves valuable research time. The total workflow is simple and requires minimal user intervention.