

# Newsletter CTCTrap

In the CTCTrap consortium technology has been developed and tested to isolate and characterize tumor cells circulating in blood aiming to obtain a real-time liquid biopsy in all cancer patients with metastatic disease. Results of the CTCTrap program were presented and discussed at the final consortium meeting in August of 2016 in London. A validation study was conducted in which blood spiked with cells from cancer cell lines was sent to the participants. Results showed that EpCAM<sup>+</sup> & EpCAM<sup>-</sup> cells could be reliably enumerated by the participants. The use of these tools in 7.5ml of blood from metastatic breast and prostate cancer patients showed the presence of both EpCAM<sup>+</sup> & EpCAM<sup>-</sup> CTCs as illustrated in the table below.

%EpCAM <sup>+</sup> CTC	%EpCAM <sup>+</sup> CTC			
	n=43	0	≥1	≥5
	0	12	16	7
	≥1	26	47	26
	≥5	16	23	14

The implications of these findings will be further investigated by molecular characterization of the CTCs and by

following the patients for a longer period of time to determine a potential relation between clinical outcome and the different subsets of CTCs identified.

The presence of CTCs in large blood volumes was evaluated by means of Diagnostic LeukApheresis (DLA) representing ~1-2 liters of blood. Different approaches were evaluated to isolate, identify and characterize the CTCs in the DLA products.

Images of CTCs and leukocytes identified with different approaches in a DLA of a prostate cancer patient are illustrated in the figure. Although a significantly larger number of CTCs was detected in the DLA the recovery was less compared to CellSearch™ on 7.5 ml of blood.

A description of the tools and protocols developed during the CTCTrap program is available on the CTCTrap website. The Open-Source ACCEPT program to identify and characterize CTCs in image galleries being development in CTCTrap and CANCER-ID (<http://www.cancer-id.eu/>) will also be available on the website.

CTC in Diagnostic LeukApheresis

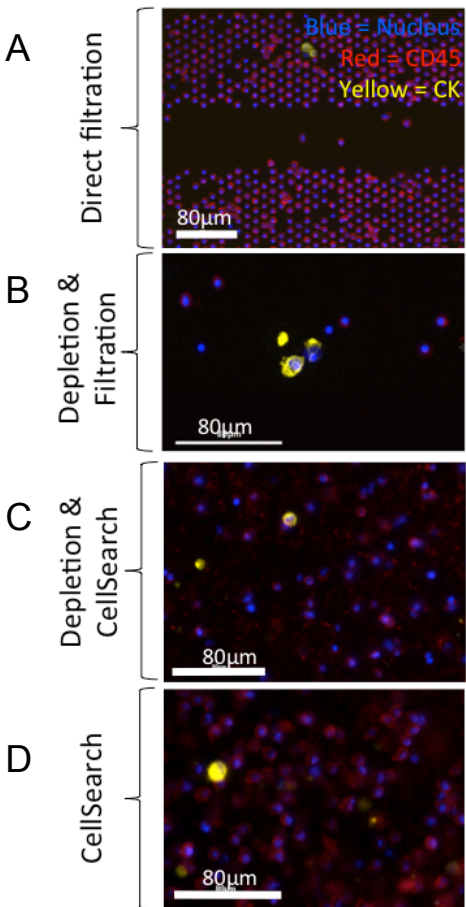


Image shows: CTCs identified in DLA after direct filtration (A), leukocyte depletion followed by filtration (B), leukocyte depletion followed by CellSearch (C) and CellSearch (D). CTCs are depicted yellow and leukocytes red. Frequency of CTCs with the different approaches can be observed.

For more information on CTCTrap please visit our website: [www.tnw.utwente.nl/ctctrap](http://www.tnw.utwente.nl/ctctrap) or contact [mcbp@tnw.utwente.nl](mailto:mcbp@tnw.utwente.nl)