

Patient NAME	DATE OF BIRTH	DISEASE	STAGE	Physician NAME
Mr John Doe	1983-Oct-28	Colorectal	II	Administrator
SPECIMEN	VIAL IDs			
20ml Blood	1			

REPORT SUMMARY

CTCs COUNT: Isolated 3.3 cells/ml , SD +/- 0.3 cells

Information

Laboratory Process

Isolation of malignant cells using flow cytometry with which the circulating tumor cells are enumerated and immunophenotyped

Index of circulating cells number

If over limit: Advanced or progression of disease.
If less than limit: Early disease or disease is responding to a treatment plan

Breast Cancer	< 5 cells / 7.5 ml
Prostate Cancer	< 20 cells / ml
Sarcoma	< 15 cells / 6.5 ml
Colon Cancer	< 5 cells / ml
Lung Cancer	(Lc=0, r=0.99):< 10 cells / ml
All cancer types other than those listed above should be < 5 cells / ml	

Disclaimers

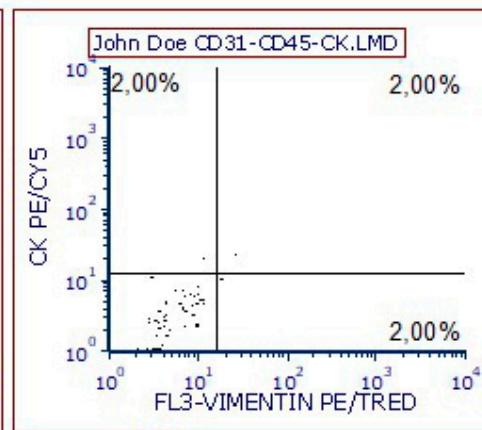
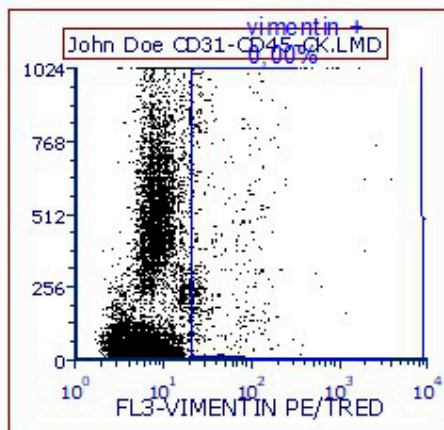
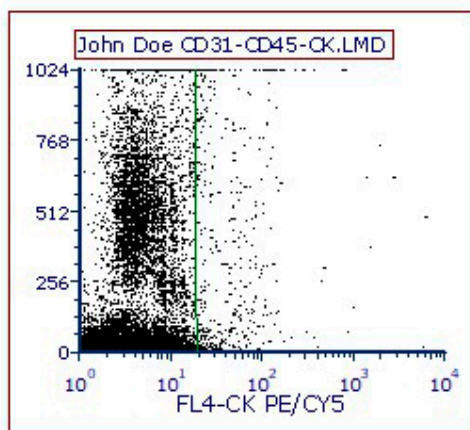
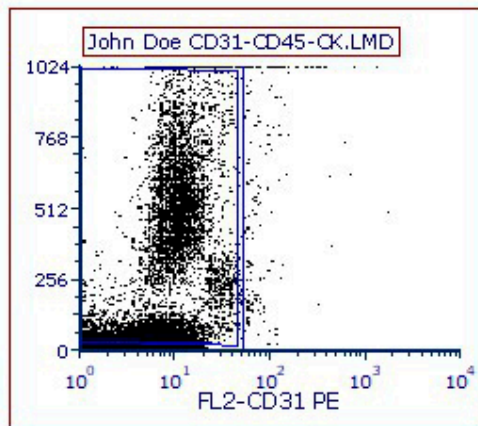
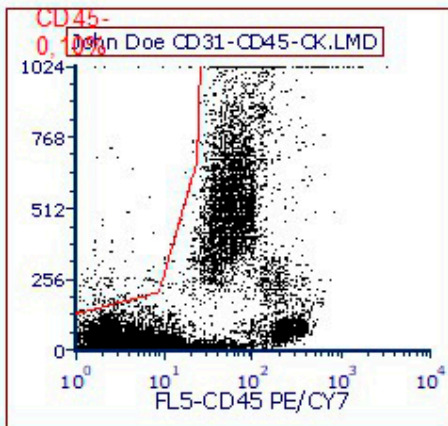
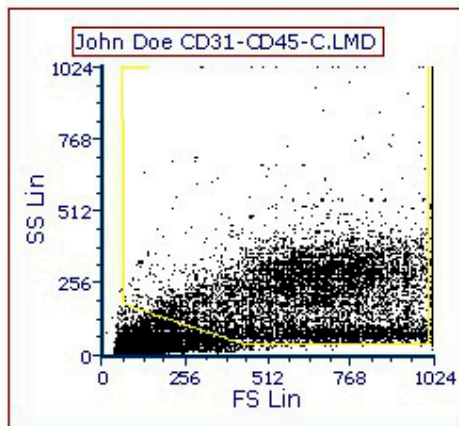
*This test will NOT DETECT cancers of the brain or other cancers that have been “encapsulated” by the body, not releasing circulating tumor or stem cells (CTC, CSC) into the blood stream or if any of these cells are dormant. We still recommend the use of biopsy, blood markers and/or various scans with this test when cancer is suspected or known to exist. No test is 100% accurate

*The methodology has a sensitivity of 86,2% and specificity of 83,9%. Sensitivity and specificity is calculated on actual clinical cases and clinical samples and not on spiked artificial samples

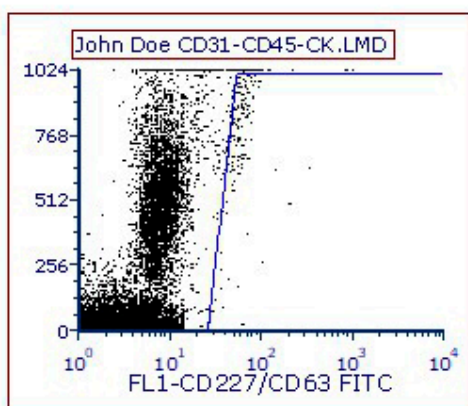
Markers

Category	Name	Results
Significant CD45 positive cells (Hematologic origin cells)	Nanog	Positive
	OKT-4	Negative
	Sox-2	Dim
	CD15	Positive
CD45 negative cells (non Hematologic origin)	Nanog	Positive (25% of all CTC)
	OKT-4	Negative
	Sox-2	Dim
	EpCam	Positive (50% of all CTC)
	CD133	Negative
	c-MET	Dim
	CD31	Positive (75% of all CTC)
	PanCK	Negative
	CK7	Dim
	EpCAM+ve	2.7 cells/ml

Plot



94.00%



Index of markers

CD44, CD133, Sox-2*, OKT-4*, Nanog*	Tumor stem cell marker
c-MET*	Membrane antigen that regulates the mesenchymal to epithelial transition
CD34*	Hematological stem cell and blast cell marker, epithelioid
CD45	Hematologic origin cell
BCR-ABL, CD30, CD15	Hematologic malignancy marker
CD19 (CD45 negative cells)	Lung neuroendocrine malignancy
CD19 (CD45 positive cells)	Hematological malignancy
CD31	Endothelial cell membrane antigen
CD63	Melanoma cell marker
CD99	Sarcoma marker
EpCam	Epithelial origin marker
MUC-1	Breast cancer antigen
PSMA	Prostate specific cancer stem cell membrane antigen
VHL mut	Renal carcinoma marker
panCK	Epithelial origin cell marker

*Significant markers

Sincerely,

Dr. Ioannis Papisotiriou MD, PhD, SCym

- a. Ntanovasilis DA, Apostolou P and Papatotiriou I. Flow Cytometric Detection of Circulating Tumor Cells in Breast Cancer Patients: A Blinded Study. *Journal of Cancer Therapy*, 10, 708-715. doi: 10.4236/jct.2019.108058.
- b. Hatzidaki E, Iliopoulos A, Papatotiriou I. A Novel Method for Colorectal Cancer Screening Based on Circulating Tumor Cells and Machine Learning. *Entropy (Basel)*. 2021 Sep 25;23(10):1248. doi: 10.3390/e23101248. PMID: 34681972; PMCID: PMC8534570.
- c. Vidlarova M, Rehulkova A, Stejskal P, Prokopova A, Slavik H, Hajduch M, Srovnal J. Recent Advances in Methods for Circulating Tumor Cell Detection. *Int J Mol Sci*. 2023 Feb 15;24(4):3902. doi: 10.3390/ijms24043902. PMID: 36835311; PMCID: PMC9959336.
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- g. Deng Z, Wu S, Wang Y, Shi D. Circulating tumor cell isolation for cancer diagnosis and prognosis. *EBioMedicine*. 2022 Sep;83:104237. doi: 10.1016/j.ebiom.2022.104237. Epub 2022 Aug 27. PMID: 36041264; PMCID: PMC9440384.
- h. Castro-Giner F, Aceto N. Tracking cancer progression: from circulating tumor cells to metastasis. *Genome Med*. 2020 Mar 19;12(1):31. doi: 10.1186/s13073-020-00728-3. PMID: 32192534; PMCID: PMC7082968.
- i. Lin D, Shen L, Luo M, Zhang K, Li J, Yang Q, Zhu F, Zhou D, Zheng S, Chen Y, Zhou J. Circulating tumor cells: biology and clinical significance. *Signal Transduct Target Ther*. 2021 Nov 22;6(1):404. doi: 10.1038/s41392-021-00817-8. PMID: 34803167; PMCID: PMC8606574.

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