



Flowcytometry: Principle, Interpretation of result and its role in solid tumors

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Abstract:

Flowcytometer is equipment which has become an integral part for the diagnosis of hematolymphoid malignancies. The word 'flow' means to pass, 'cyto' means cell & 'metry' means measurement. The flowcytometry is the passage of cells in single file (line or row) in front of a laser to be detected, counted and sorted. Cells labeled with fluorochrome are struck by laser to emit light (fluorescence) at varying wavelengths. Fluorescence (photon) is filtered and collected to convert the result into a digitalized (numerical) value. The reading is done by specialized software. Cells of interest flow through a liquid stream. The speed of flow of cell is higher than the speed of fluid carrying the cell (sheath fluid). This results into arrangement of cells in a single line (single file). This mechanism is called Hydrodynamic focusing. Up to 50000 cells per second can be measured, but the normal throughput is 1000 - 10000 cells/ sec (1). Detectors of photons are called photomultiplier tube. The detector placed in the line of light beam measures Forward Scattering (FSC) [size] and that of placed perpendicular to the light stream measures Side Scattering (SSC) [granularity, nuclear structure]. For all practical purposes cells falling in the range of 3-20 μ in diameter can be analyzed (2). Identification of rare cells at frequencies as low as 0.0001% has been reported.

Biography:

Dr Amar Ranjan (MD, Pathology) is working as Assistant Professor in Lab Oncology in the top most Cancer Institute of India. He has keen interest in Hemato-oncology. He actively participates in oral and poster presentations at International and National levels.



Publication of speakers:

- Amar Ranjan Singh et al ; An Unusual Presentation of Esthesioneuroblastoma in a Young Pregnant Female, 2017 Nov 18
- Amar Ranjan Singh et al ; Clinicopathological Profile of Benign Soft Tissue Tumours: A Study in a Tertiary Care Hospital in Western India, 2014 Oct 20
- Amar Ranjan Singh et al ; Higher Contact Force During Radiofrequency Ablation Leads to a Much Larger Increase in Edema as Compared to Chronic Lesion Size, 2018 Aug 29.
- Amar Ranjan Singh et al ; Characterization of Gadolinium Contrast-Enhancement of Radiofrequency Ablation Lesions in Predicting Edema and Chronic Lesion Size, 2017 Nov 1.
- Amar Ranjan Singh et al ; Real Time MRI Guided Cardiac Cryo-Ablation : A Feasibility Study, Real Time MRI Guided Cardiac Cryo-Ablation : A Feasibility Study, 2016 May 27

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