EMPOWER
life changing decisions.

DxFLEX – System Overview

Beckman Coulter Life Sciences, Flow Cytometry

DxFLEX flow Cytometer is CE marked for up to 13-color in vitro diagnostic use. This device is not available in all countries. Please check with your local sales representatives before placing your orders.

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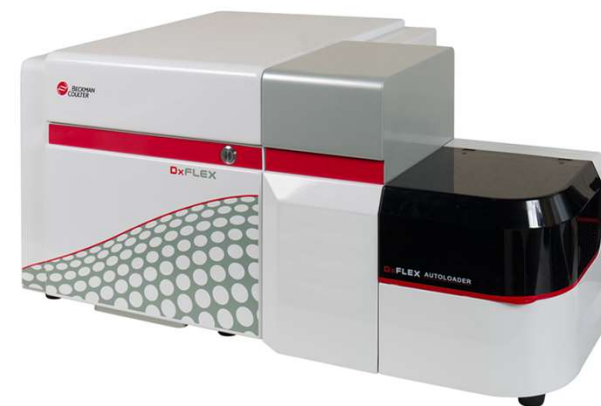
DxFLEX E-Roadshow, Oct 2020

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DxFLEX: Additional Features (over CytoFLEX*)

- Key features:
  - CE-marked for clinical use for up to 13 "colors"
  - 4 upgradable configurations: 1L5C, 2L6C, 2L9C, 3L13C
  - Optional Autoloader for 32 position MCL carousel

- New clinical **CytExpert for DxFLEX software**:
  - User and account management
  - Experiment and report templates
  - Panel experiments and flagging of out-of-range results
  - …

DxFLEX is based on the highly successful CytoFLEX* technology, but includes additional features needed for clinical work

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DxFLEX is not available in all countries. Not available in the US.

* For Research Use Only. Not for use in diagnostic procedures.

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What is different about DxFLEX compared to other clinical flow devices available on the market?

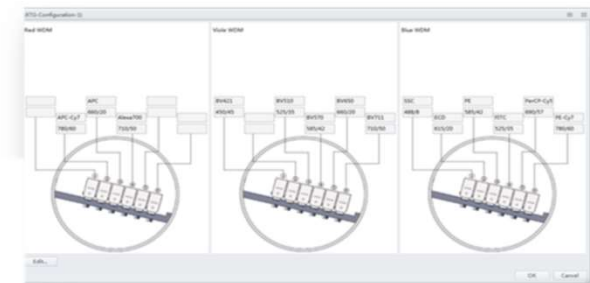- **Wavelength Division Multiplexer (WDM)**
  - Compact design with short travel distance of fluorescence detection between the detectors
  - High yield light transmission concept without dichroic filters

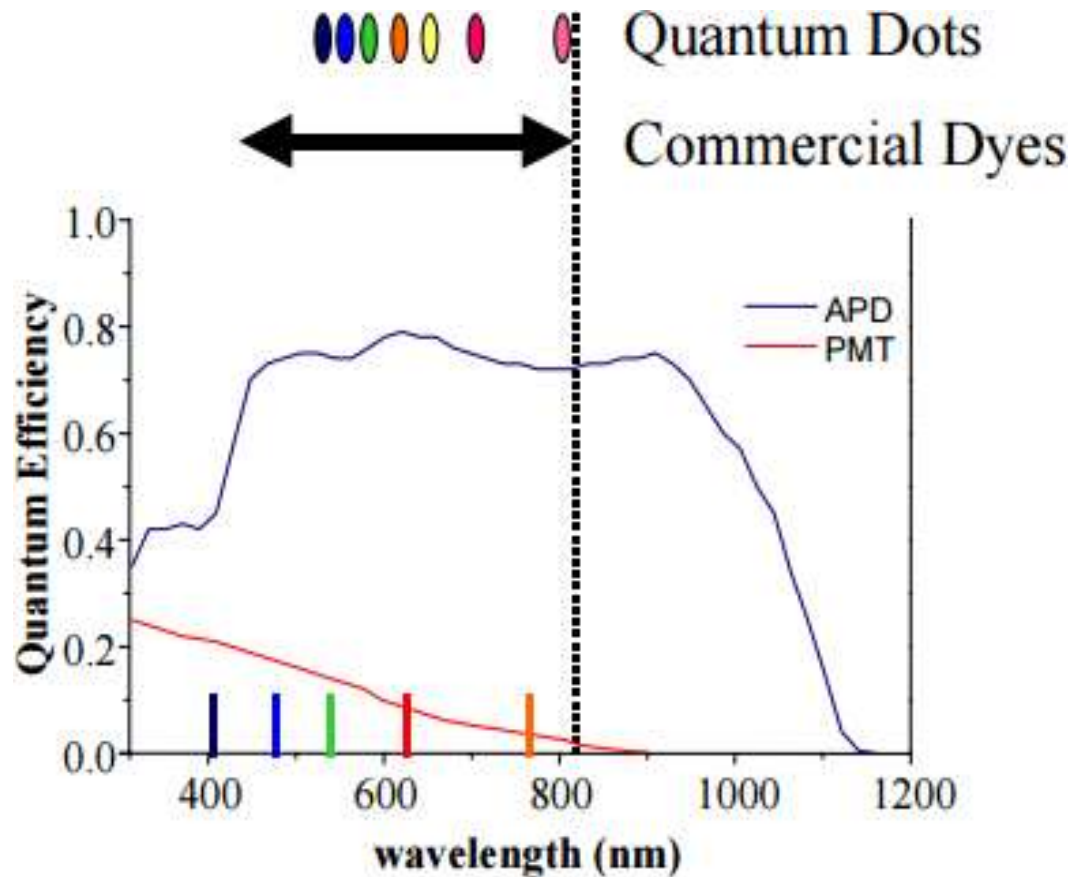Bandpass only for flexibility and efficiency

From fiber optic cable
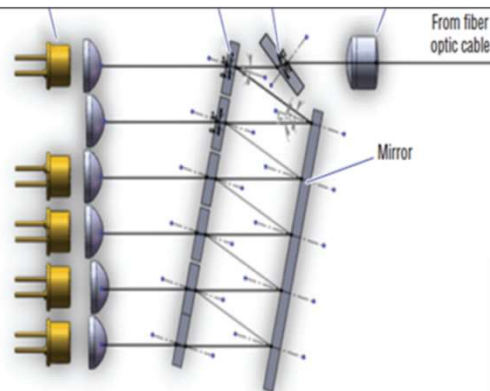
Mirror

Mirror band pass filters instead of dichroic/bandpass pairs

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Ad 1: Better sensitivity in the far red fluorescence channels

Why are APDs better than PMTs?

Because the quantum efficiency of APDs in the spectrum of commercial available dyes is higher

This is especially true for higher wavelength.

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Ad 1: What does it mean for your daily work?

Better sensitivity to analyze dim populations in all fluorescence channels

■ Blue – APD (DxFLEX)
■ Red - PMT (Navios)

Rainbow 8 peak beads analysis: FL5 (Blue Laser)

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Ad 1: What does it mean for your daily work?

Better sensitivity to analyze dim populations in all fluorescence channels

■ Blue – APD (DxFLEX)
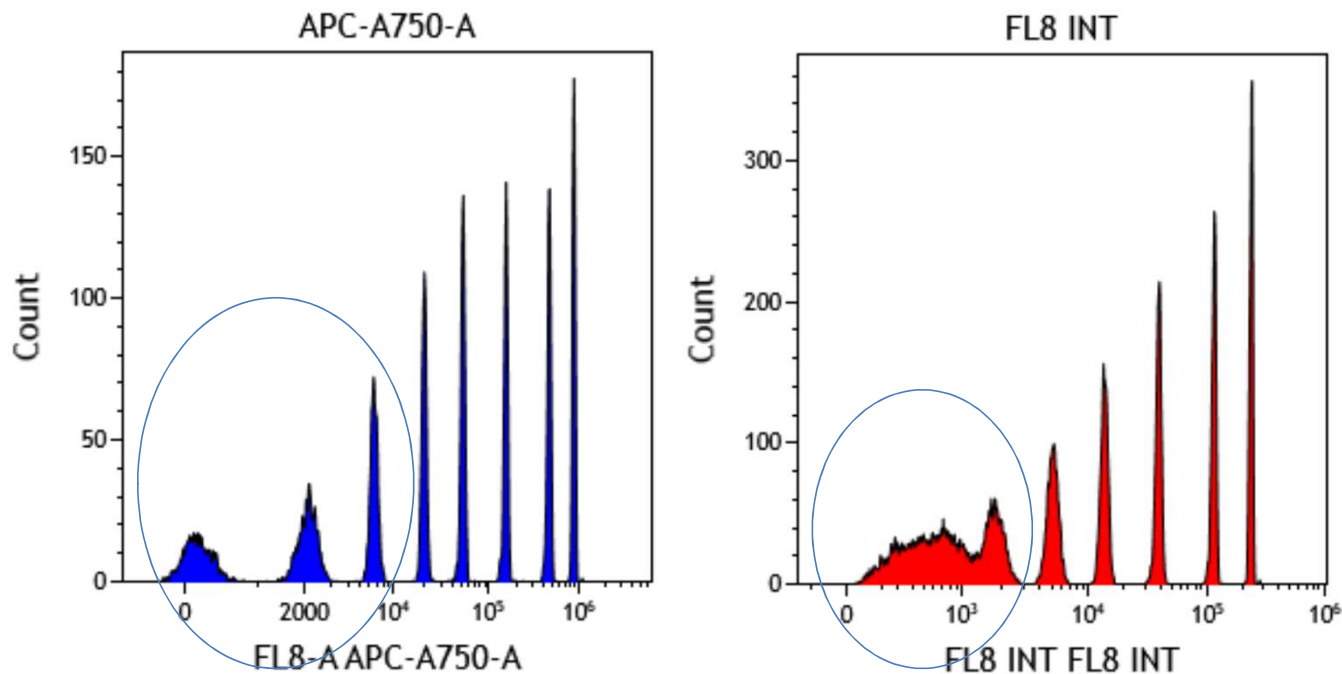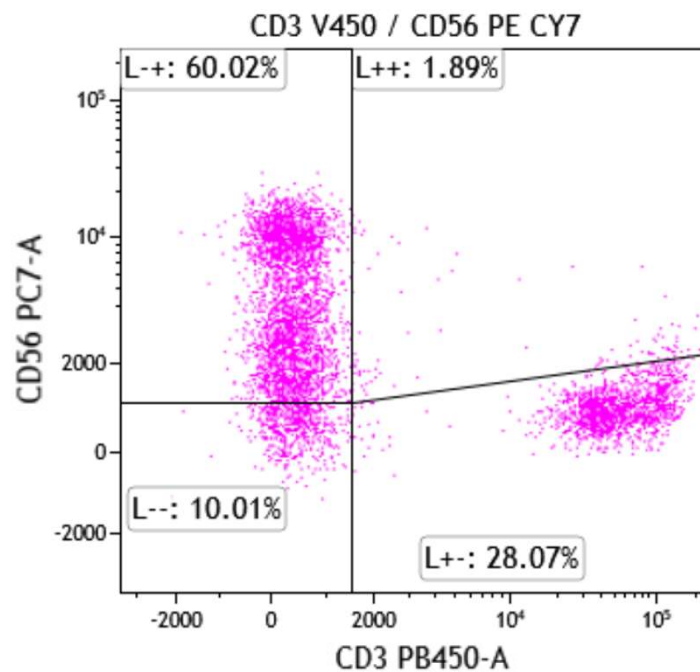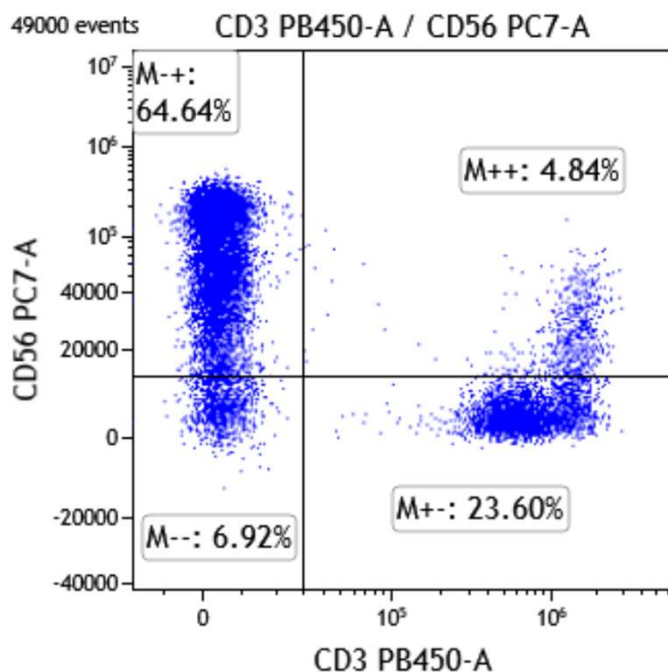■ Red - PMT (Navios)

Rainbow 8 peak beads analysis: FL8 (Red Laser)

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Ad 1: Sensitivity APD vs PMT Technology

Whole blood analysis of the same prepared sample to analyse NK cells

CD56-PC7 vs CD3-PB

■ Blue - DxFLEX
■ Purple - FACSCanto

Better APD sensitivity especially in the far red channels.

Data kindly provided by Dottoressa Bertaina, Hospital Bambin Gesù - Rome

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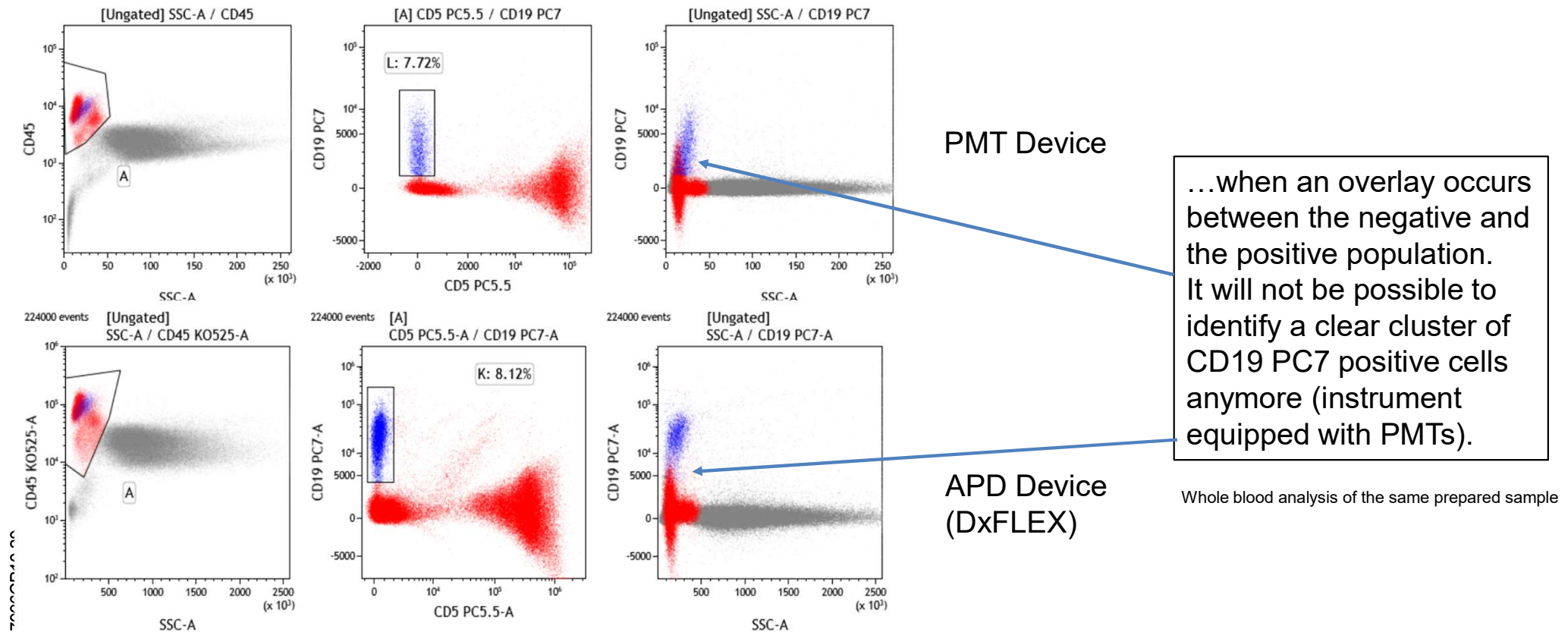
* The scales of representation of the axes cannot be set at the same values because the different number of logarithmic scales available for displaying the data by the systems (DxFLEX 7 decades VS FACSCanto 5 decades)

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Ad 2: Spreading comparison - DxFLEX Vs PMT device

PMT Device

APD Device
(DxFLEX)

…when an overlay occurs between the negative and the positive population. It will not be possible to identify a clear cluster of CD19 PC7 positive cells anymore (instrument equipped with PMTs).

Whole blood analysis of the same prepared sample

*The spreading effect can be evaluated only from a visual point of view. Because the different number of logarithmic scales available for displaying the data doesn't allow a comparable statistical analysis.
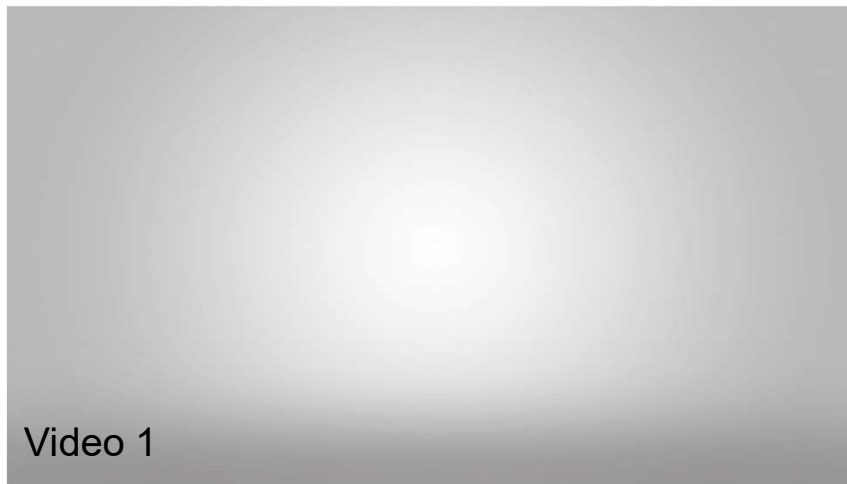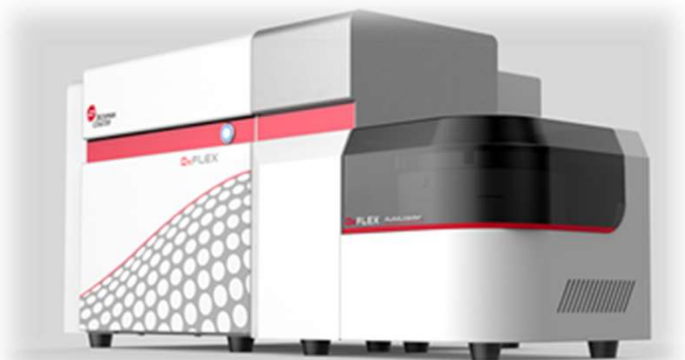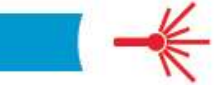
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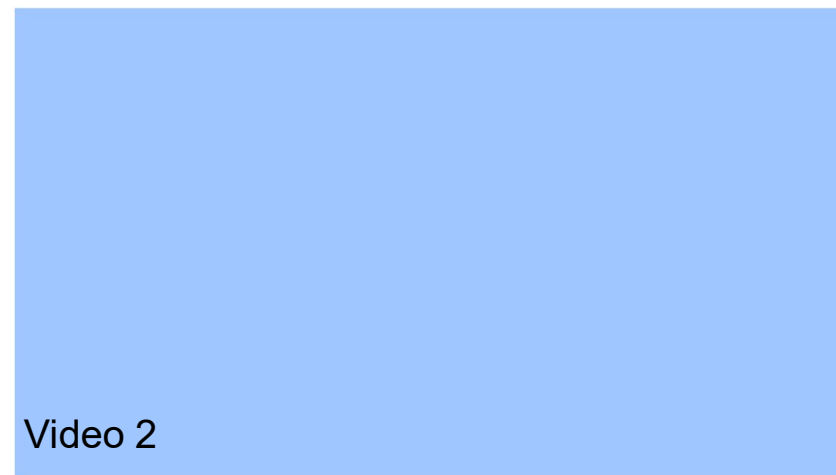
Conclusions

1. Better sensitivity due to the improved APD Quantum Efficiency.

   ➤ Better separation of dim populations especially in the Far Red channels.
   ➤ Less complexity in panel design.

2. Less fluorescence spreading

   ➤ Better resolution of dim fluorescent populations.

3. Linearity response to gain variation

   ➤ Gains can be changed at any time because compensations are automatically updated.
   ➤ Simplified workflow process for compensation setup.
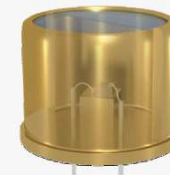
Avalanche Photodiode.
The DxFLEX flow cytometer uses Avalanche Photodiode detectors instead of PMTs. The low electronic noise contributes to the resolution capabilities of the instrument.

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Video 1

Video 2

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