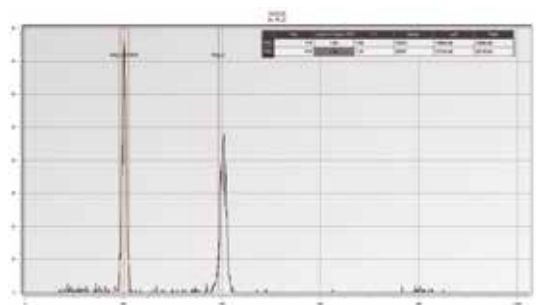


“ Flow cytometry is the state-of-the-art method in the breeding industry and in research for determining both the ploidy level and genome size in plants, animals and microorganisms. ”

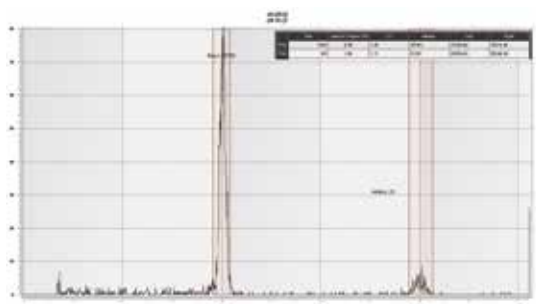


Based on the proof of concept of its predecessors in industry and research, Sysmex Partec is proud to offer you an up-to-date flow cytometry solution with its third-generation CyFlow Ploidy Analyser (CyFlow PA).

- Genome size determination requires stoichiometric DNA labelling and lowest coefficients of variation in DNA quantification. The CyFlow PA uses a 532 nm laser and the DNA fluorochrome propidium iodide, which produces superior results for genome size analysis compared to standard flow cytometers using lasers of 488 nm.
- Due to its superb high-resolution DNA histograms and its ease of use, the fluorescent dye DAPI is the most powerful, fast and economic solution for analysing ploidy level and detecting aneuploidy. Sysmex Partec's unique UV LED (365 nm) is the optimal light source to fully exploit this fluorochrome's features.



Zea mays, 2n – diploid, CyStain DAPI staining



Zea mays, 4n – tetraploid, CyStain DAPI staining

The CyFlow PA provides ploidy and genome size analysis in less than two minutes. The instrument is available in the three following versions: for the analysis of samples stained with (1) DAPI, (2) PI or (3) DAPI and PI.

Technical specifications

Instrument models and light sources

Model	Light source(s)
CyFlow Ploidy Analyser DAPI	■ UV LED (365 nm)
CyFlow Ploidy Analyser PI	■ green laser (532 nm, 30 mW)
CyFlow Ploidy Analyser DAPI + PI	■ UV LED (365 nm) ■ green laser (532 nm, 30 mW)

Optics	1 or 2 optical parameters with selected photomultiplier tubes (PMT) Standard set-up and filters for propidium iodide (PI) and/or DAPI/SSC
Flow system	Quartz flow cuvette for laminar sample transport and hydrodynamic focusing Sample port with biosafety cleaning function True Volumetric Absolute Counting (TVAC) based on mechanical volume measurement Computer-controlled syringe pump speed, adjustable from 0 – 20 µL/s Fluid and waste reservoirs with fluid level sensors
Electronics and signal processing	Selectable linear or 4-decade logarithmic scale 16-bit analogue-to-digital converters, selectable trigger parameter and individual threshold level settings
Software	Operating system: Microsoft Windows™ Sysmex Partec operating software for real-time data acquisition, display, analysis and reporting Data format: flow cytometry standard (FCS)
Computer system	Integrated Microsoft Windows™ PC with Microsoft Office® Integrated, foldable 15" colour LCD TFT display Ethernet and USB ports DeskJet colour printer Optional external screen (dual screen mode)
Weight	18 kg
Dimensions (W x H x D)	385 x 290 x 280 mm; with open display 528 mm height

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Flow Cytometer for High-resolution DNA analysis

CyFlow Ploidy Analyser

For Agrosience,
breeding and
aquaculture



A dedicated solution for ploidy analysis and genome size determination

Determining ploidy is a particularly important form of analysis in plant breeding and aquaculture: controlling the ploidy level is often essential for monitoring the outcome of breeding procedures and quality in seed and plant production.

As such, accurately determining genome size and ploidy levels plays a major role in today's evolutionary biology, taxonomy and ecology. It helps to characterise and understand how species develop and the details of population structures.

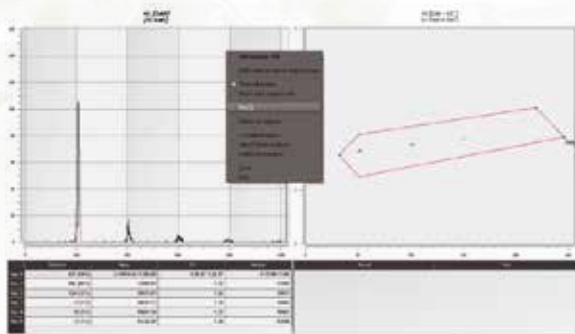
Counting chromosomes by classical light microscopy has been replaced by flow cytometry, i.e. determining fluorescently labelled nuclei and their analysis in a flow cytometer. This method is time- and cost-saving as it provides precise results quickly with an efficient and validated workflow.



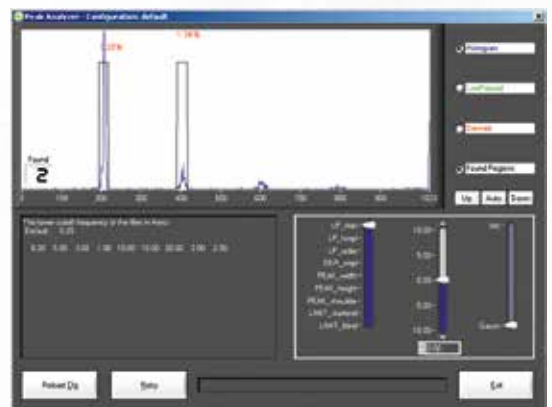
CyFlow Ploidy Analyser



Example of a ploidy analysis report



The CyView software integrates instrument control and complete data analysis for ploidy and genome size measurements. It combines a 1-parameter DNA histogram display for genome size and ploidy determination with a 2-parameter dot-plot display (64–4,096 channels) to gate and separate intact and fragmented nuclei.



CyView features two automatic peak-finding algorithms and manual peak definition. The software also lets you create user-defined peak-finding procedures to optimise this function in terms of the requirements of specific experiments. Results of data analysis are clearly represented on screen and can be directly exported together with the related DNA histograms to MS Excel worksheets for further analysis.

Optimal sample preparation

We offer a range of different Sysmex Partec reagent kits to prepare your samples for flow cytometry analysis on your CyFlow PA. The reagent kits include ready-to-use staining solutions and nuclei extraction for analysing absolute or relative genome size variation and ploidy level of plant cells and cells of different origin (e.g. leaf and root tissue, seed, *in vitro* material). The staining can be applied to various biological tissue specimens.

Order-No.	Reagents	Dye
05-5001	CyStain UV Ploidy	DAPI
05-5002	CyStain UV Precise P	DAPI
05-5003	CyStain UV Precise T	DAPI
05-5004	CyStain DNA 1 step	DAPI
05-5005	CyStain DNA 2 steps	DAPI
05-5007	CyStain UV OxProtect	DAPI
05-5022	CyStain PI Absolute P	PI
05-5023	CyStain PI Absolute T	PI
05-5027	CyStain PI OxProtect	PI



CyStain PI Absolute T reagent kit