DataSheet

affymetrix
Biology for a better world

CytoScan® Optima Suite

Robust and streamlined analysis of prenatal and miscarriage samples

Approximately 60–70% of first-trimester miscarriages are caused by chromosomal abnormalities, including aneuploidies, triploidy, uniparental disomy (UPD), etc.[1,2] Traditional cytogenetic analysis of these samples is frequently challenging due to high rates of culture failure and maternal contamination, increasing the turnaround time for the results.[2] CytoScan® Optima Suite has been designed with input from cytogeneticists worldwide and empirically optimized from CytoScan® Cytogenetics Suite. CytoScan® Optima Array has whole-genome coverage and increased probe coverage targeting 396 regions relevant for prenatal and perinatal research applications.

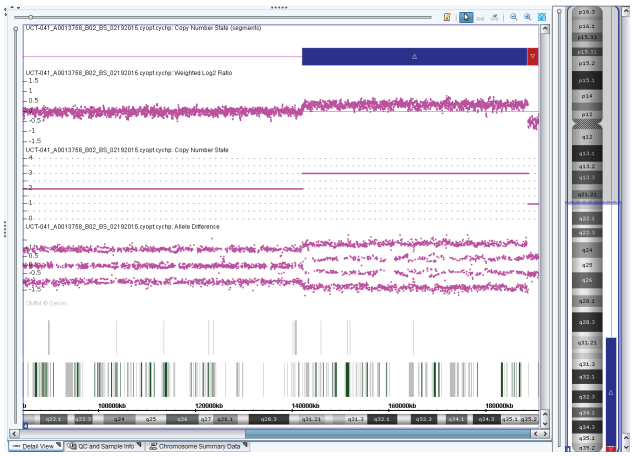
CytoScan Optima Suite includes arrays, reagents, and easy-to-use data analysis software for a cost-effective and streamlined analysis of your prenatal and miscarriage products of conception (POC) samples.

CytoScan Optima Suite is For Research Use Only. Not for use in diagnostic procedures.

CytoScan Optima Suite provides

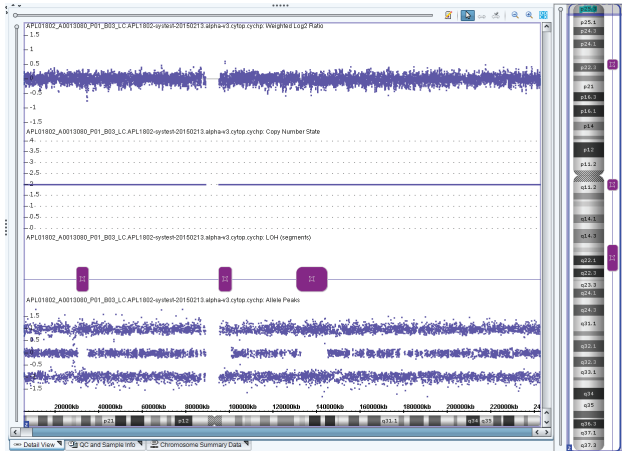
Whole-genome coverage and higher resolution in key genetic regions to enable the detection of the following:

Whole-chromosome aneuploidies and submicroscopic gains and losses.



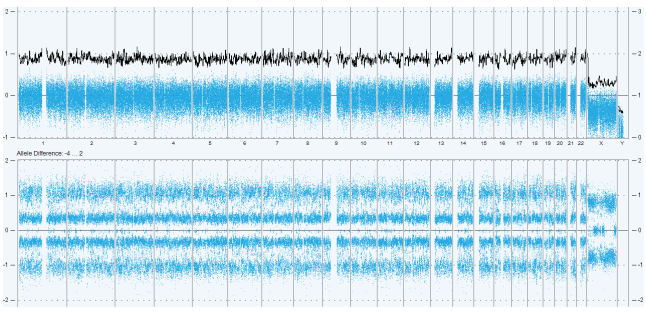
This POC sample shows a 46 MB duplication in blue followed by a submicroscopic 2.2 MB deletion in red.

Loss/absence of heterozygosity (LOH/AOH).



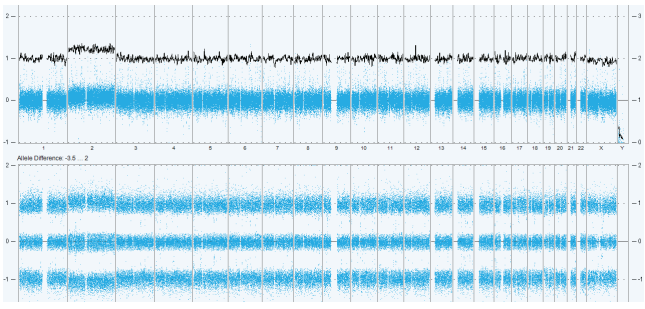
This sample shows three confirmed purple LOH/AOH segments of different sizes and locations.

Triploidy and maternal cell contamination.



This whole-genome view shows four lines in the allelic difference track concordant with a triploidy in this first-trimester POC sample.

Low-level mosaicism.



An increase in the signal in chromosome 2 shows a ~20% mosaic trisomy in this chorionic villi (CVS) sample.

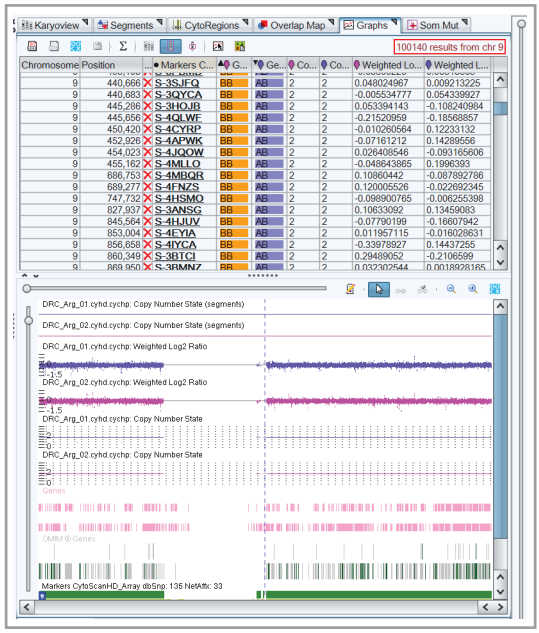
Arrays and an optimized reagent kit for streamlined workflow

CytoScan® Optima Kit contains the arrays and all the reagents (including the Taq polymerase) required to perform the CytoScan® Optima assay. Results can be obtained in as few as 2.5 days. The protocol also contains stopping points to accommodate your schedule.

An intuitive and flexible workflow for accurate analysis

Chromosome Analysis Suite (ChAS) enables you to easily view and summarize chromosomal aberrations across the genome. ChAS also includes

- A database for storing data
- Trio tool analysis
- Flexible reporting tools
- Updated external annotations



Specifications

CytoScan® Optima Array content has been empirically selected from CytoScan® HD Array and consists of a total of 315,608 features covering control, copy number (CN), and single-nucleotide polymorphism (SNP) probes. There is a total of 18,018 CN and 148,450 SNP markers uniformly spaced over the genome with enhanced interrogation of 396 regions of prenatal interest. Cumulatively, through the collection of SNPs and non-polymorphic probes, the application provides the ability to support detection of CNVs, enable the elucidation of allelic imbalance, identify copy number neutral abnormalities such as AOH or LOH, and characterize unbalanced translocation events in the samples of interest.

CytoScan® Optima Suite offers

- A minimum resolution of 1 MB for losses, 2 MB for gains, and 5 MB for LOH/AOH
- Increased coverage density (25 markers/100 kb) in 396 empirically selected regions relevant for prenatal research
- A built-in reference file made of CVS, amniocytes, cultured cells, POC, and blood samples

References

1. Levy B., *et al.* Genomic imbalance in products of conception: single-nucleotide polymorphism chromosomal microarray analysis. *Obstetrics and Gynecology* **124**(2 Pt 1):202–209 (2014).
2. Wang B. T., *et al.* Abnormalities in spontaneous abortions detected by G-banding and chromosomal microarray analysis (CMA) at a national reference laboratory. *Molecular Cytogenetics* **7**:33 (2014). eCollection 2014. doi:10.1186/1755-8166-7-33

Ordering information

Part number	Product	Description
902533	CytoScan® Optima Kit	Arrays and reagents sufficient for 24 reactions
902534	CytoScan® Optima Training Kit	Arrays and reagents for 24 reactions plus training materials

Affymetrix, Inc. Tel: +1-888-362-2447 ■ **Affymetrix UK Ltd.** Tel: +44-(0)-1628-552550 ■ **Affymetrix Japan K.K.** Tel: +81-(0)3-6430-4020
Panomics Solutions Tel: +1-877-726-6642 panomics.affymetrix.com ■ **USB Products** Tel: +1-800-321-9322 usb.affymetrix.com

www.affymetrix.com Please visit our website for international distributor contact information.

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

P/N GCL05267 Rev. 1