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CytoScan HD Suite

Comprehensive cytogenetic analysis of lymphoid and myeloid cancer samples

Both copy number aberrations (CNAs) and somatic mutations are important drivers of hematological malignancies. Cytogenetic investigation of these malignancies has become an integral part of disease evaluation, prognosis, and prediction of response to therapy. Current analysis of hematological malignancies involves multiple sequential tests and laborious workflows. However, implementation of high-resolution copy number microarrays in research laboratories has created an unprecedented opportunity to profile multiple relevant driver events in hematological malignancy samples.

The Applied Biosystems™ CytoScan™ HD Suite—comprising microarrays, reagents, and analysis software—is a comprehensive, high-resolution whole-genome solution designed to assist in the understanding and characterization of biomarkers in hematological malignancies (Figure 1). The Applied Biosystems™ CytoScan™ HD assay interrogates all relevant CNAs associated with lymphoid and myeloid disorders using a single microarray-based assay. The assay covers all the major lymphoid disorders associated with acute lymphocytic leukemia (ALL) and chronic lymphocytic leukemia (CLL) as well as myeloid disorders associated with acute myeloid leukemia (AML), myeloid dysplastic syndrome (MDS), chronic myeloid leukemia (CML), and multiple myeloma (MM).

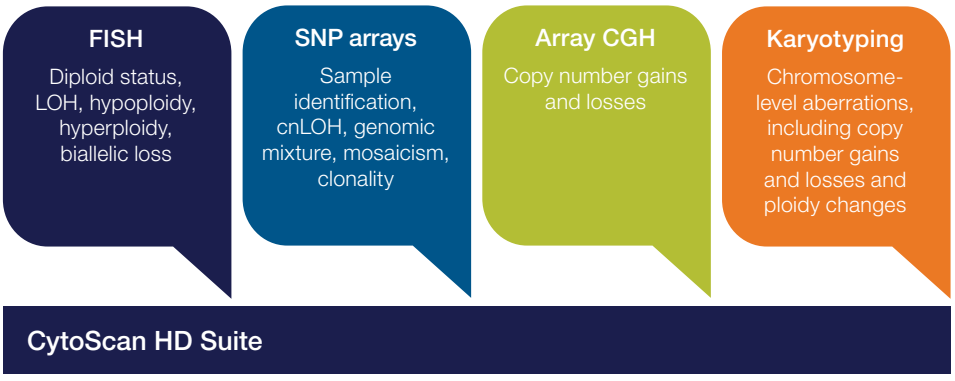

Figure 1. CytoScan HD Suite provides data otherwise only obtained from four different technologies.

Highlights

- Comprehensive coverage—amplifications, deletions, loss of heterozygosity (LOH), copy neutral (cn)LOH, ploidy changes, chromothripsis
- From nucleic acid sample to report in as little as 3 days
- Automated sample preparation using the Applied Biosystems™ NIMBUS™ Target Preparation Instrument
- Accurate analysis of markers for disease evaluation, prognosis, or prediction of response to therapy, in one assay

"The genetic complexity of cancer cells in hematological malignancies requires a comprehensive approach for detection of relevant changes. The identification of copy number gains and losses, LOH, cnLOH, clonal heterogeneity, and ploidy status as well as mosaicism are all critical for evaluating blood cancer samples to discover new biomarkers. The CytoScan HD assay has enabled us to accurately analyze many aberrations in blood cancer samples."

—Dr. Alka Chaubey
Greenwood Genetic Center

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Simple and integrated workflow

The CytoScan HD Suite presents an integrated sample-to-answer workflow, as shown in Figure 2. Sample preparation can be automated on the NIMBUS Target Preparation Instrument or can be performed manually. The entire workflow, from sample preparation to data analysis, can be achieved in as little as 3 days depending on the sample type. Data analysis is powered by Applied Biosystems™ Chromosome Analysis Suite (ChAS) software (Figure 3). For myeloid cancers, ChAS output can be integrated into Ion Torrent™ Oncomine™ Knowledgebase Reporter software, which links variants to labels, guidelines, and clinical trials.

- **Sample types**—blood or bone marrow
- **Sample input**—200 ng DNA
- **Sample preparation**—automated on the NIMBUS Target Preparation Instrument, or manual preparation

- **High throughput**—whole-genome copy number analysis on the Applied Biosystems™ GeneChip™ Scanner 3000 7G System

- **Data analysis**—identification of amplifications or deletions, LOH, cnLOH, ploidy, and breakpoint determination
- **Automated reporting**—Oncomine Knowledgebase Reporter for myeloid cancer

Figure 2. A comprehensive microarray workflow provides streamlined detection and analysis of copy number changes in lymphoid and myeloid malignancies—go from sample to answer in as little as 3 days, including analysis time.

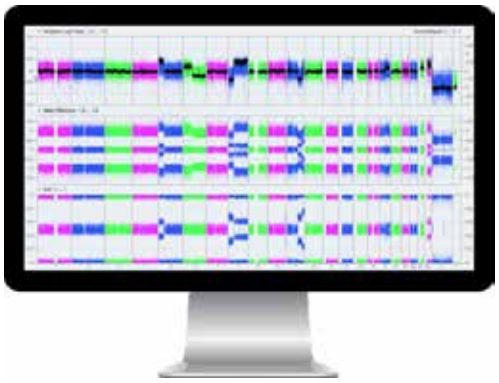

Figure 3. View and summarize genome-wide chromosomal aberration data from the CytoScan HD Suite with just a few clicks using ChAS software.

Features

- **Comprehensive coverage**—providing whole-genome analysis of genes with established significance as well as those with emerging evidence, thus helping to eliminate future revalidation burden
- **High detection sensitivity**—elucidating patterns of clonal diversity, heterogeneous samples, and structural inconsistencies in low-level mosaics
- **All-in-one assay**—detecting chromosomal arm aberrations, focal changes, LOH, and cnLOH in one assay, reducing cost and processing time
- **Fast turnaround time**—enabling sample to answer, including data analysis, in as little as 3 days

Ordering information

Product	Cat. No.
CytoScan HD Array Kit and Reagent Bundle, 24 assays	901835
CytoScan HD Kit Plus 24, 24 assays + *Taq* polymerase for 96 assays	905824
CytoScan HD Kit Plus 96, 96 assays + *Taq* polymerase for 96 assays	905896

Find out more about the CytoScan HD Suite at
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