



CYTAG[®] CGH Labeling Kits

Optimized Labeling for Microarrays



PIONEERS IN LABELING & DETECTION

Delivering Superior Results for Better Understanding of Genetic Disorders, Cancers and Other Diseases Caused By Genomic DNA Copy Number Variations



Enzo is a unique company with assay development know-how, backed by intellectual property, production, distribution, validation, and service capabilities. All of these skills combined in one company allow for the presentation to the market of open assay solutions that enable scientists to accurately and efficiently perform their cutting-edge research. Our extensive intellectual property portfolio allows us the freedom to operate, and our technical expertise enables us to provide optimized solutions to a multitude of platforms.

Included in our extensive IP portfolio are nucleic acid labeling chemistries that support Enzo's position as a recognized pioneer in labeling and detection in genomics. A pillar of our molecular biology portfolio is our array-based comparative genomic hybridization (array CGH) labeling kit.

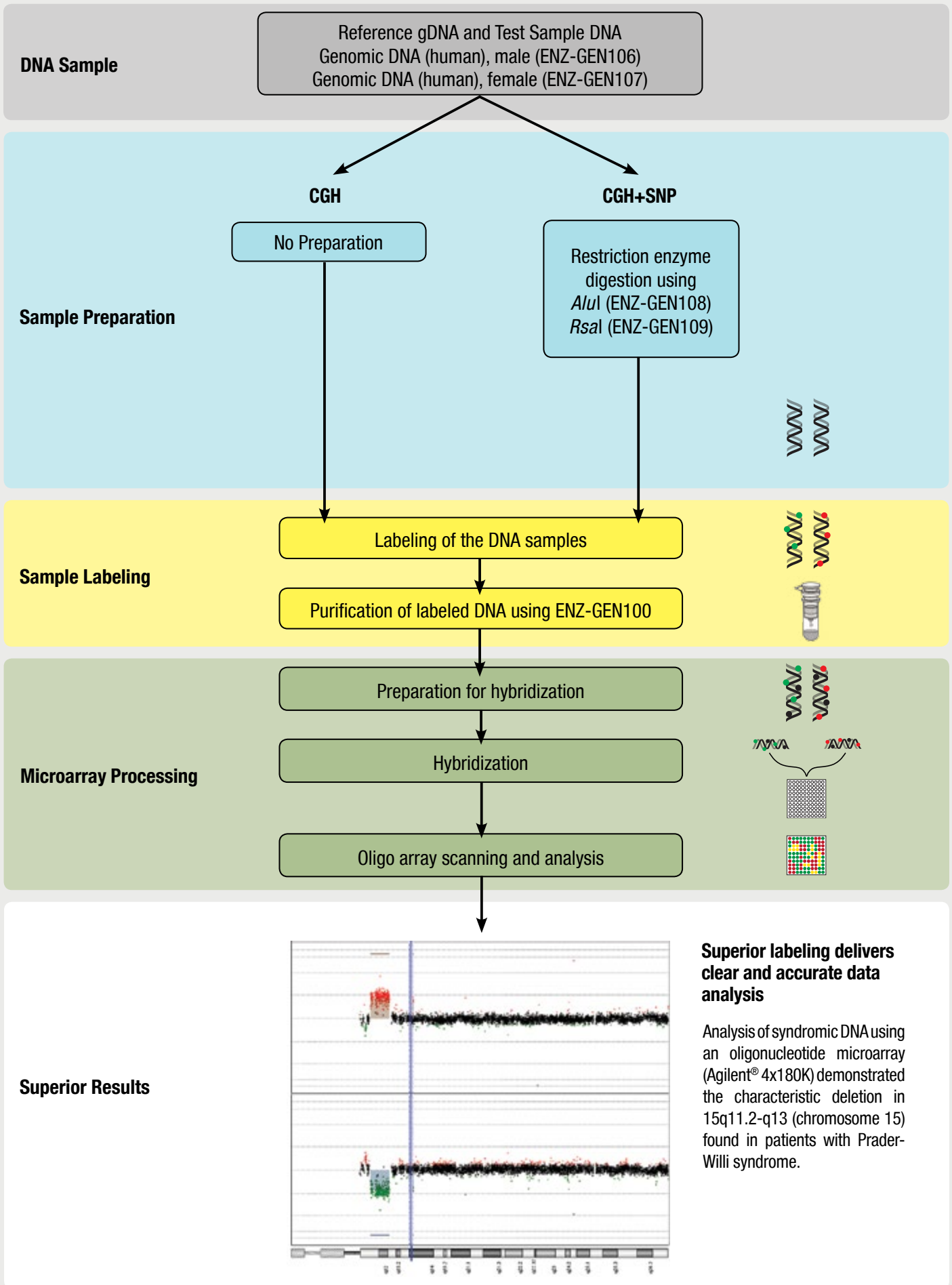
Array CGH is a powerful tool for detecting gene copy number gains and losses associated with chromosome abnormalities. Detecting chromosomal aberrations by array CGH is faster, more robust, and provides superior results over other technologies such as FISH and G-banding karyotyping, thus providing a greater understanding of the role of chromosomal changes in genetic diseases and cancers.

Complete Solutions for CGH Analysis and CGH+SNP Analysis

- CYTAG CGH Labeling kits for labeling DNA for CGH microarray analysis. Available in 20 and 200 reactions format.
- CYTAG TotalCGH Labeling kits for CGH or CGH+SNP microarray analysis. Available in 20 and 200 reactions format.

KIT COMPONENTS	CYTAG CGH Labeling Kit		CYTAG TotalCGH Labeling Kit	
	ENZ-42671-K010 (2 x 10)	ENZ-42671-K100 (2 x 100)	ENZ-42674-0010 (2 x 10)	ENZ-42674-0100 (2 x 100)
Primers/Reaction Buffer	1 x 400 µL	4 mL	1 x 400 µL	4 mL
Cyanine 3-dUTP Nucleotide Mix	2 x 50 µL	1 mL	2 x 50 µL	1 mL
Cyanine 5-dUTP Nucleotide Mix	2 x 50 µL	1 mL	2 x 50 µL	1 mL
Klenow DNA Polymerase	1 x 20 µL	0.2 mL	1 x 20 µL	0.2 mL
Stop Buffer	1 x 100 µL	1 mL	1 x 100 µL	1 mL
Nuclease-free Water	1 x 1 mL	10 mL	1 x 1 mL	10 mL
<i>AluI</i>	–	–	1000 units	1000 units
<i>RsaI</i>	–	–	1000 units	1000 units
PCR & Gel Clean-up Columns	–	–	20 tests	200 tests

ARRAY CGH WORKFLOW



PROPRIETARY LABELING TECHNOLOGY

CYTAG CGH Labeling Kits (ENZ-42671)

Superior labeling assures confident aberrant calls and reduces the number of failed runs

- Lowest DLR scores (0.09 - 0.12) assure confident aberrant calls and reduces the number of failed runs
- Superior dye incorporation and high specific activity deliver better hybridization results
- Suitable for challenging samples including formalin-fixed paraffin embedded (FFPE) tissue
- Extensively tested on all commonly used array scanner platforms (including Agilent, Nimblegen, and Innopsys)
- Validated by customers on common microarrays (including Agilent and OGT)
- Wide range of input DNA (0.25 - 2.5 µg)

Enzo's proprietary labeling technology with superior dye incorporation leads to the highest specific activity.

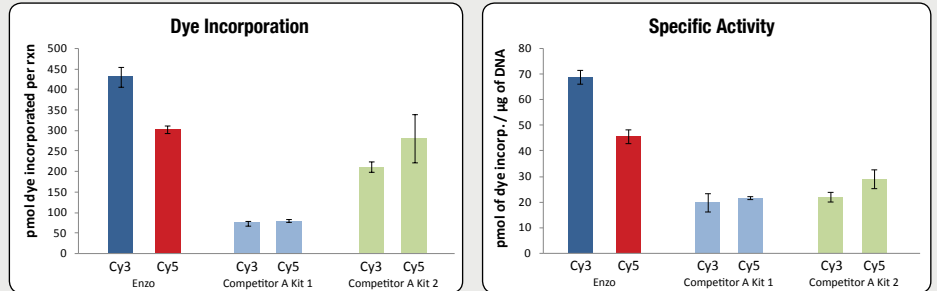


Figure 1: Four replicate 500 ng DNA samples were labeled with Enzo's CYTAG CGH Labeling Kit for Oligo Arrays or a leading competitor's kits. Enzo's proprietary labeling technology generates the highest specific activity of labeling.

Widely Trusted. Highly Cited.

Adenoid Cystic Carcinoma

Costa, AF *et al.* Analysis of MYB oncogene in transformed adenoid cystic carcinomas reveals distinct pathways of tumor progression. *A.F. Lab. Invest.* (2014) 94, 692.

Breast Cancer

Schouten, PC *et al.* Breast cancers with a BRCA1-like DNA copy number recur less often than expected after high-dose alkylating chemotherapy. *Clin. Cancer Res.* (2015) 4, 763.

Discovery of Tumor Suppressor Genes and Oncogenes

Protopopov, A *et al.* Full Complexity Genomic Hybridization on 60-mer Oligonucleotide Microarrays for Array Comparative Genomic. *Methods in Molecular Biology*, (2008) 439, 87.

Metastatic Melanoma

Moore, S *et al.* Detection of Copy Number Alterations in Metastatic Melanoma by a DNA Fluorescence *in situ* Hybridization Probe Panel and Array Comparative Genomic Hybridization: A Southwest Oncology Group Study (S9431). *Clin Cancer Res* 2927 (2008) 14, 2927.

Postnatal Testing for Genome Imbalance

Ahn *et al.* Validation and implementation of array comparative genomic hybridization as a first line test in place of postnatal karyotyping for genome imbalance. *Molecular Cytogenetics* (2010), 3:9.

Prenatal Testing for Chromosome Imbalance

Ahn, JW *et al.* A new direction for prenatal chromosome microarray testing: software-targeting for detection of clinically significant chromosome imbalance without equivocal findings. *Peer J.* (2014) 2, e354.

A.L. Mosca-Boidron, *et al.* (2013) An improved method to extract DNA from 1mL of uncultured amniotic fluid from patients at less than 16 weeks' gestation. *PLoS One* 8, e59956.

Salivary Gland Carcinosarcoma

Vékony, H *et al.* Salivary gland carcinosarcoma: Oligonucleotide array CGH reveals similar genomic profiles in epithelial and mesenchymal components. *Oral Oncology* (2009) 45, 259.

Solitary Median Maxillary Central Incisor Syndrome

Szakszon, K *et al.* Endocrine and anatomical findings in a case of Solitary Median Maxillary Central Incisor Syndrome. (2012) 55, 109.

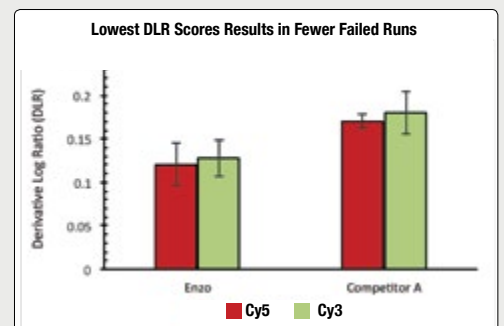
Uveal Melanoma

Worley, LA *et al.* Transcriptomic versus Chromosomal Prognostic Markers and Clinical Outcome in Uveal Melanoma. *Clin Cancer Res.* (2007) 13, 1466.

Optimized & Trusted Kit for Prenatal Samples

Learn how the CYTAG CGH Labeling Kit can be used to label small volume samples (300 ng in 20 µL labeling volume).

Application Note: [CGH Labeling Protocol for Prenatal Small Volumes of DNA](#)



TOTAL SOLUTION FOR CGH+SNP ARRAYS

CYTAG TotalCGH Labeling Kits (ENZ-42674)

Superior labeling efficiency and better dye incorporation results in more confident calls for CGH+SNP arrays

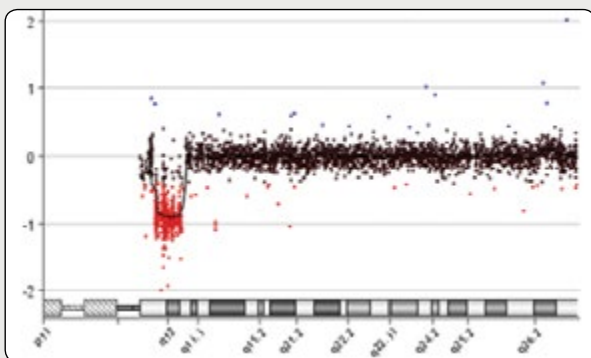
All-inclusive kit containing optimized CGH labeling reagents and ancillary products for CGH+SNP arrays.

Kit includes:

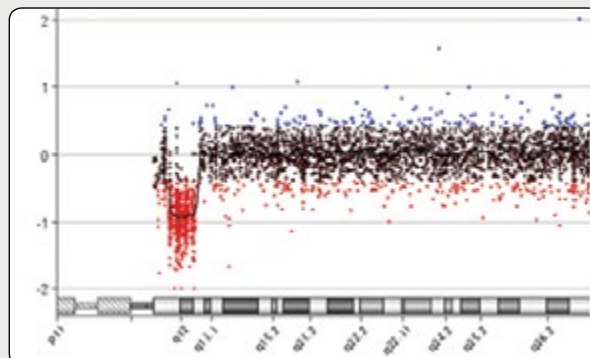
- CYTAG CGH Labeling Kit
- Restriction enzymes *AluI* and *RsaI*
- PCR & Gel Clean-up Columns

Enzo's Superior Labeling Results in Less Background

Enzo



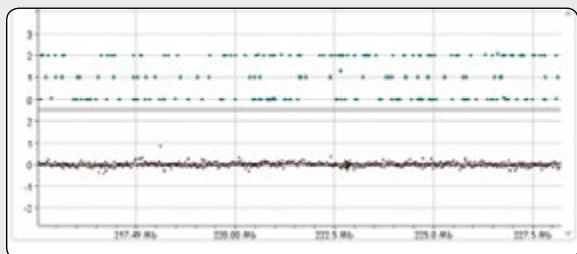
Competitor A



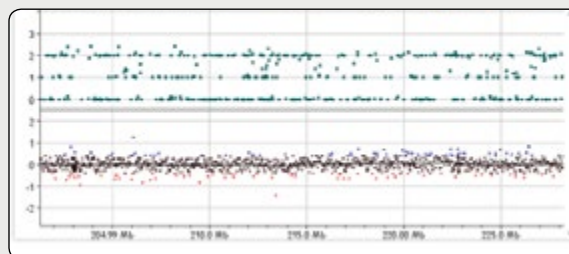
Comparative analysis of chromosome 15. Upon scanning, the quality of the labeling in DNA samples was visually inspected to demonstrate detection of known deletion in the Prader-Willi DNA. This demonstrates the superior labeling obtained with Enzo's CYTAG TotalCGH Labeling Kit when compared with Competitor A.

Enzo's Kit Clearly Identifies SNPs

Enzo



Competitor A



SNP analysis of a segment of chromosome 2 of DNA labeled with the Enzo's CYTAG TotalCGH Labeling Kit or with Competitor A's kit. Enzo's kit clearly identifies the sequence at single nucleotide polymorphisms (SNPs). Quantification of the SNP analysis of DNA labeled with Competitor A's labeling system are not as clean.

RELATED PRODUCTS	PRODUCT #	SIZE
BIOSCORE® Screening & Amplification Kit	ENZ-42440	20 reactions
PCR & Gel Clean-up Kit	ENZ-GEN100-0020, -0050, -0200	20, 50, 200 tests
Genomic DNA (human), male	ENZ-GEN106-0100	100 µg
Genomic DNA (human), female	ENZ-GEN107-0100	100 µg
Human Cot DNA	ENZ-GEN116-0500	500 µg
<i>AluI</i>	ENZ-GEN108-1000	1000 units
<i>RsaI</i>	ENZ-GEN109-1000	1000 units



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Put our experience to work for you!

Our broad range of scientific expertise and manufacturing capabilities enables us to provide innovative tools for CGH analysis to save you time and money!