# illumina

## Fluorescent Labeling System [dUTP]

Prepare DNA probes for microarray hybridization.

## Description

The Fluorescent Labeling System [dUTP] enables preparation of fluorescent DNA probes. Labeled probes are suitable for *in situ* hybridization (e.g., to chromosome spreads) and microarray hybridization.

The Fluorescent Labeling System [dUTP] Part 1 contains the fluorescent labels, buffers, and enzymes required for performing the labeling reactions. Part 2 contains the Blocking Agent and Hybridization Buffer.

The complete Fluorescent Labeling System [dUTP] is included in CytoChip<sup>™</sup> Oligo microarray packs: CytoChip ISCA Packs, CytoChip Oligo 2×105K Pack, and CytoChip Focus Packs. It is suitable for 32 labeling reactions on 2× and 4× microarray formats, and for 64 labeling reactions on 8× microarray formats.

## Supply

The Fluorescent Labeling System [dUTP] Part 1 is supplied in a single box, shipped and stored at -20°C. The box is labeled with product name, catalog number, quantity, production lot number, storage conditions, and expiration date.

The Fluorescent Labeling System [dUTP] Part 2 is supplied in a single box, shipped and stored at ambient temperature. The box is labeled with product name, catalog number, quantity, production lot number, storage conditions, and expiration date.

The Fluorescent Labeling System is supplied with a minimum expiration date of 2 months.

## Storage

Upon receipt, the Fluorescent Labeling System [dUTP] Part 1 should be stored at -20 °C in a non-frost-free freezer until required.

Upon receipt, the Fluorescent Labeling System [dUTP] Part 2 should be stored at ambient temperature. After it is prepared, 10X blocking agent should be stored at -20°C.

## **Technical Specifications**

Random primers (9mers) are annealed to the denatured DNA template and extended by exonuclease-free Klenow fragment in the presence of Cy-dUTP conjugates. This reaction produces sensitive, fluorescent Cy-DNA probes for use in the non-radioactive detection of DNA and RNA. The Fluorescent Labeling System [dUTP] Part 2 contains Hybridization Buffer and Blocking Agent. These reagents are validated and optimized, in combination with Part 1, for use in array comparative genomic hybridization (arrayCGH) on an oligo microarray platform. The unique Blocking Agent delivers high signal-to-noise ratio and signal intensity for optimized kinetics that promote high sensitivity and reproducibility in the assay.

When used in accordance with the recommended protocol, the Fluorescent Labeling System [dUTP] is sufficient for 32 standard labeling reactions, 16 hybridizations. When using the 8× array format, only half the volumes of labeling reagents are required; therefore, one kit will provide 64 labeling reactions and 32 hybridizations.

## **Quality Control**

Each lot of Fluorescent Labeling System kits is tested through use in four standard CytoChip Oligo sex-mismatched, dye-swap hybridizations. Metrics, including signal-to-noise ratio, the spread of data points on the autosomal chromosomes, and the shift from 0 (log<sub>2</sub> scale) of data points on the sex chromosomes are used as measures of quality. They have to exceed a threshold set from historical data.

To make sure that components of the Fluorescent Labeling System kits are supplied with the correct quantities, three kits from each lot are checked for reagent fill volumes.

## Contents

See Table 1 for a complete list of kit contents and part numbers.

## Safety Information

Safety data sheets are available for download from www.cambridgebluegnome.com.

PR-30-413431-00- Fluorescent Labeling System (dUTP) Part 1 PR-30-413401-00- Fluorescent Labeling System (dUTP) Part 2

## **Additional Documents**

Additional documents available for download include:

- CytoChip Oligo Reference Manual
- CytoChip Oligo Summary Protocol

Item No.	Description	No. Rxns <sup>a</sup>	Part No.	Description	Size
15043143	Fluorescent Labeling System [dUTP] Part 1	32 (16 hybs.)	930431-52	Random Primers	180 µl
			930431-53	5X gDNA Reaction Buffer	345 µl
			930431-54	10X dNTPs	180 µl
			930431-55	Nuclease-Free Water	1,000 µl
			FB1311	Cyanine 3-dUTP	52 µl
			FB1312	Cyanine 5-dUTP	52 µl
			930431-51	Exo (-) Klenow	39 µl
15043142	Fluorescent Labeling	32 (16 bubs )	930101-14	2X Hi-RPM buffer	4,600 µl
	System [dUTP] Part 2	(TO Hyps.)	930101-15	10X Blocking Agent, lyophilized pellet	b

a. 64 reactions and 32 hybridizations when used with 8× format arrays

b. Reconstitute with 900 µl Nuclease-Free Water

#### Ordering Information

Product	Catalog No.	
Fluorescent Labeling System [dUTP]	PR-30-413401-00	
(32 reactions)		

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