

CytoChip™ Focus Constitutional Pack

Reagents for array comparative genomic hybridization with challenging samples.

Description

A CytoChip Focus Constitutional Pack provides the reagents that are required to perform array comparative genomic hybridization experiments (arrayCGH). A pack includes CytoChip Focus Constitutional microarray slides, Fluorescent Labeling System, COT Human DNA, and AutoSeq G50 columns and tubes. This product information sheet provides details of the CytoChip Focus Constitutional microarrays. For detailed product descriptions of other pack components, see www.illumina.com.

CytoChip Focus Constitutional microarrays are for use in arrayCGH where fluorescently labeled test and reference DNAs are competitively hybridized to immobilized probes on glass slides, to identify regions of copy-number imbalance.

CytoChip Focus Constitutional microarrays are designed for use in applications where the amount or quality of starting material is low and not suitable for microarrays with standard designs.

Supply

Reagents required to perform arrayCGH experiments with CytoChip Focus Constitutional microarrays are available in packs. For detailed information, see the *Contents* section.

CytoChip Focus Constitutional microarrays are supplied at room temperature, desiccated, and protected from light in a sealed foil bag. In a CytoChip Focus Constitutional Pack, two boxes of four slides are each packaged inside a vacuum-packed foil bag. Each slide is labeled with a unique barcode. The foil bag is labeled with product name and version, expiration date, product number, lot number, and barcodes for each slide and the pack.

The Fluorescent Labeling System [dCTP] (32 reactions) contains fluorescent labels, buffers, and enzymes and is shipped on dry ice. AutoSeq G50 columns and tubes (32 units) are supplied at room temperature.

COT Human DNA is supplied in a single, 1.5 ml, screw-capped tube labeled with quantity (0.4 mg), order reference number, production lot number, storage conditions, and expiration date.

All components of a pack are supplied with a minimum expiration date of 2 months.

Storage

CytoChip Focus Constitutional microarrays should be stored desiccated, protected from light, and at room temperature until required.

The Fluorescent Labeling System and COT Human DNA should be stored at -20°C in a non-frost-free freezer until required.

AutoSeq G50 columns and tubes should be stored at ambient temperature until required.

CytoChip Focus Constitutional microarrays and all reagents should be used before the expiration date.

Technical Specifications

CytoChip Focus microarrays are designed for use in applications where the amount or quality of starting material is unsuitable for traditional arrayCGH. This design has involved the selection of bacterial artificial chromosomes (BACs) that perform well in arrayCGH experiments and avoid regions of known copy-number variation. In addition, the selected BACs are replicated to a high degree—3x in backbone regions and 4x in disease regions—providing more robust signals for each data point.

Each CytoChip Focus Constitutional microarray slide contains two hybridization areas or subarrays. The DNA probes that make up each CytoChip Focus Constitutional subarray are derived from BAC DNA clones from the Roswell Park (RP-nomenclature) human genome collection. This enables investigation of 143 disease-specific loci at approximately 100 Kb resolution and screening of the genomic backbone at approximately 1 Mb resolution. BAC clones are PCR-amplified and immobilized on coated glass microarray slides. The design aims to cover disease regions with at least three different clones where possible, more for longer regions.

CytoChip Focus Constitutional microarrays are analyzed with Illumina BlueFuse® Multi software.

The key elements of the CytoChip Focus Constitutional array design are summarized in Table 1.

Table 1: Key Elements of the CytoChip Focus Constitutional Array

Catalog No.	Description	Version	Unique Clones	Disease Regions	Average Spacing/ Replication
PR-22-409501-00	CytoChip Focus Constitutional	v1.1	3,366a	143	900 Kb/×4 disease regions, ×3 backbone

Software Specifications

The annotation databases used by BlueFuse Multi software during microarray analysis are regularly updated with new array types and annotation information, and can be downloaded from the customer area of the Illumina website.

Quality Control

Each lot of CytoChip Focus microarrays undergoes a thorough quality control procedure to make sure that the arrays perform to the highest standard. Slides from the beginning, middle, and end of each lot are hybridized with sex-mismatched DNAs using the CytoChip protocol and analyzed for performance (signal, noise, dynamic range) and physical integrity (including feature number, morphology, and merging).

Sophisticated bioinformatics are used to identify any features that have consistently failed to print across the lot. If these features only impact one of the replicates, the feature is removed from the GAL file. In all cases, a lot-specific GAL file is produced and is available for download from www.cambridgebluegenome.com.

Each lot of Fluorescent Labeling System and COT Human DNA are checked for performance in hybridizations. Metrics, including signal-to-noise ratio, the spread of data points on the autosomal chromosomes, and the shift from 0 (log₂ scale) of data points on the sex chromosomes are used as a measure of quality. They have to exceed a threshold set from historical data.

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

Stock Control, Delivery Dates, and Expiration

Illumina operates a sophisticated stock control procedure to ensure reliable supplies of critical components while maximizing useful life. To achieve this, each microarray model number is classified as a

volume, high-volume, or special product. For each product, Illumina commits to a target delivery date and a guaranteed delivery date as summarized in Table 2. The information in this table is relevant to the microarray slides; for information on other pack components, see individual product descriptions. All pack components are shipped at the same time.

Table 2: Stock Control, Delivery, and Expiration

Catalog No.	PR-22-409501-00
Description	CytoChip Focus Constitutional microarrays
Classification	High volume
Target Delivery	7 days
Guaranteed Delivery	30 days
Minimum Expiration	1 month
QC Process	Each lot

Contents

See Table 3 for a complete list of kit contents and part numbers.

Safety Information

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

- PR-30-413103-00: Components of the Fluorescent Labeling System [dCTP]
- PR-40-413503/413510: COT Human DNA
- PR-40-413511-00: AutoSeq G50 columns and tubes

Table 3: CytoChip Focus Constitutional Pack Contents

Catalog No.	Description	No. Rxns	Item No.	Description	Size
PR-10-409502-PK	CytoChip Focus Constitutional Pack	16	2 × 15043052	CytoChip Focus Constitutional Microarrays	2 × 4 slides
			15043058	Fluorescent Labeling System [dCTP]	32 rxns
			15043065	COT Human DNA	0.4 mg
			15043066	AutoSeq G50 columns and tubes	32 units

Additional Documents

Additional documents available for download include:

- CytoChip Reference Manual
- CytoChip Summary Protocol
- Annotation database for BlueFuse Multi (for all microarray formats)
- A GAL file for each printed lot of CytoChip Focus Constitutional slides
- QC report for each printed lot of CytoChip Focus Constitutional slides

Ordering Information

Product	Catalog No.
CytoChip Focus Constitutional Pack	PR-10-409502-PK

AAAGAATGATAACAGTAAACACACTTCTGTTAACCTTAAGATTACTTGATCCACTGATTC AACGTACCCTAACGAACGTATCAATTGAGACTAAATATAACGTACCATTAAGAGCTACCGTGCAACGACGAAAAGAATGATAACAGTAAACACACTTCTGTTAAC
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