



# Data Sheet

## GeneChip® *E. coli* Genome 2.0 Array

The GeneChip® *E. coli* Genome 2.0 Array contains probe sets to detect transcripts from the K12 strain of *E. coli* and three pathogenic strains of *E. coli*. Using the new *E. coli* Genome 2.0 Array, researchers can gain a comprehensive view of three pathogenic forms of *E. coli* while continuing ongoing research projects with the K12 strain.

The GeneChip® *E. coli* Genome 2.0 Array includes approximately 10,000 probe sets for all 20,366 genes present in four strains of *E. coli*. Due to the high degree of similarity between the *E. coli* strains, whenever possible, a single probe set is tiled to represent the equivalent ortholog in all four strains. The GeneChip *E. coli* Genome 2.0 Array tiles probe sets over the entire open reading frame (ORF) of *E. coli*, includes over 700 intergenic regions, probes for various antibiotic resistance markers, and incorporates additional control and reporter genes from the previous generation *E. coli* array.

**Power of the Probe Set**—The key advantage of GeneChip technology is that each high-density array contains multiple probe pairs per probe set, providing multiple independent measurements for each transcript.

### Applications

*E. coli* is an important model organism for microbial research. The K12 strain has been the preferred organism for studying biochemical genetics, molecular biology, and biotechnology in prokaryotes. Additionally, pathogenic strains of *E. coli* contaminating meat and vegetable products have caused significant food poisoning outbreaks, leading to public concerns about food safety. The presence of four strains of the bacteria on the GeneChip® *E. coli* Genome 2.0 Array offers an unprecedented genomic view of *E. coli* and allows users to utilize the array for both

basic and public health research. The K12 (MG1655 lab strain), CFT073 (uropathogenic), O157:H7-EDL933 (enteropathogenic), and O157:H7-Sakai (enteropathogenic) are all included on the array.

The GeneChip *E. coli* Genome 2.0 Array enables thorough examination of gene expression patterns of *E. coli* under various conditions for a better understanding of biological pathways. Additionally, chromosomal regions between annotated ORFs may contain shorter expressed sequences that have not yet been identified. The GeneChip *E. coli* Genome 2.0 Array contains 1,427 probe sets complementary to such intergenic regions, making the

### Critical Specifications

Number of probe sets, <i>E. coli</i> strain K12	5,298
Number of transcripts, <i>E. coli</i> strain K12	4,358
Number of probe sets, <i>E. coli</i> strain O157:H7-EDL933	5,480
Number of transcripts, <i>E. coli</i> strain O157:H7-EDL933	5,376
Number of probe sets, <i>E. coli</i> strain O157:H7-Sakai	5,380
Number of transcripts, <i>E. coli</i> strain O157:H7-Sakai	5,253
Number of probe sets, <i>E. coli</i> strain CFT073	7,421
Number of transcripts, <i>E. coli</i> strain CFT073	5,379
Number of probe sets, <i>E. coli</i> K12 Intergenic regions	1,427
Number of intergenic regions	714
Unique probe sets to a single strain:	
<i>E. coli</i> strain K12	657
<i>E. coli</i> strain O157:H7-EDL933	136
<i>E. coli</i> strain O157:H7-Sakai	218
<i>E. coli</i> strain CFT073	1,733
Number of arrays in set	One
Array format	169
Feature size	11 µm
Oligonucleotide probe length	25-mer
Probe pairs/sequence	11
Hybridization controls:	<i>bioB</i> , <i>bioC</i> , <i>bioD</i> , from <i>E. coli</i> ; and <i>cre</i> from P1 Bacteriophage
<small>(Note: Components in the 20X hybridization controls are expressed endogenously in <i>E. coli</i>.)</small>	
Poly-A controls:	<i>dap</i> , <i>lys</i> , <i>phe</i> , <i>thr</i> , <i>trp</i> from <i>B. subtilis</i>
Detection sensitivity	1:100,000 <sup>1</sup>

<sup>1</sup>As measured by detection in comparative analysis between a complex target containing spiked control transcriptions and a complex target with no spikes

search for novel transcripts more accessible. Finally, the detailed pattern of gene expression offered by the GeneChip *E. coli* Genome 2.0 Array can optimize culture conditions to improve yields of recombinant proteins in industrial microbiology.

## Array Profile

Sequence information for the *E. coli* Genome Array was selected from the ASAP database (*E. coli* Genome Project; University of Wisconsin – Madison) and the NCBI public databases. The ASAP database provided the sequence and annotation information for the K12 strain (*m56* version) and the O157:H7-EDL933 strain (*vers1* version) in April 2004.

The NCBI databases provided the sequence information for the O157:H7-Sakai strain and CFT073 strain in May 2004.

## Instrument Software Requirements

- GeneChip® Scanner 3000, enabled for High-Resolution Scanning\*
- GeneChip® Operating Software (GCOS) v1.1.1 or later, which contains the High-Resolution Scanning Update

\*GeneChip Scanner 3000 High-Resolution Update is standard on all instruments shipped starting in September 2003 with serial number series 502. Previous versions (serial number series 501) will require the 00-0110 GeneChip Scanner 3000 High-Resolution Update to be installed.

## Ordering Information

### GeneChip® *E. coli* Genome 2.0 Array

GeneChip® *E. coli* Genome 2.0 Array

**900550** Contains 2 arrays

**900551** Contains 6 arrays

**900552** Contains 30 arrays

#### To Order

##### North America

**888-DNA-CHIP 888-362-2447**

##### Europe

**+44 (0) 1628 552550**

##### Japan

**+81-(0)3-5730-8200**

## Supporting Products

Part #	Product Name	Description
900542	GeneChip® DNA Labeling Reagent	Sufficient for 30 reactions
900301	Control Oligo B2, 3nM	Sufficient for 30 reactions
900433	GeneChip® Eukaryotic Poly-A RNA Control Kit	Approximately 100 reactions

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