AFFYMETRIX®

# Data Sheet

## GeneChip® Bovine Genome Array

The GeneChip® Bovine Genome Array is specifically designed to monitor expression of approximately 23,000 bovine transcripts. The array is representative of all publicly known, high-quality, bovine gene sequences, enabling researchers to conduct whole-genome expression profiling of cattle for agricultural applications. Additionally, the GeneChip Bovine Genome Array is a useful tool for biomedical researchers using bovine as an animal model to study human disease processes.

The GeneChip Bovine Genome Array was created in collaboration with leading bovine genomics researchers through the GeneChip® Consortia Program. The array was designed based on content from Bovine UniGene Build 57 (March 24, 2004) and GenBank® mRNAs. The Bovine Genome Array contains 24,027 probe sets representing over 23,000 transcripts, including assemblies from approximately 19,000 UniGene Clusters.

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

The GeneChip® Bovine Genome Array is an ideal tool for researchers studying gene expression profiles in cattle. With the broadest representation of publicly available expressed sequence information, bovine researchers will be able to use this array to monitor genetic mechanisms regulating a variety of preferred traits, such as:

- Disease resistance
- Meat and dairy production
- Stress tolerance

The Bovine Genome Array can be used to obtain comprehensive information about disease resistance in wild type animals, which has wide-ranging benefits. Through the identification and increased understanding about natural disease resistance in bovines, researchers can begin to introduce natural resistance into herds, enabling cattle breeders to raise cattle in parts of the world not currently possible due to debilitating diseases in these regions.

Additionally, the GeneChip Bovine Genome Array has important biomedical applications for researchers exploring how the environment interacts with human health and disease processes. Through their co-evolution with humans, cattle have been selected for desirable characteristics, such as stamina, tolerance for extreme environmental stresses, and pathogen resistance. Because similar selective pressures have been exerted on humans, cattle are ideal models for studying environmental factors on human health and disease, including obesity and female reproductive health.

### Array Profile

The GeneChip Bovine Genome Array is a 100-format, 11-micron array design, and it contains 11 probe pairs per probe set. The design of the array was based on content from Bovine UniGene Build 57 (March 24, 2004) and GenBank® mRNAs. The GeneChip Bovine Genome Array was developed through the GeneChip® Consortia Program, and contains 24,027 probe sets. These probe sets represent over 23,000 transcripts and include approximately 19,000 UniGene clusters.

### Critical Specifications

| | |
|---|---|
| *Bos taurus* (Bovine) probe sets | 24,072 |
| *Bos taurus* (Bovine) transcripts | approximately 23,000 |
| UniGene clusters | approximately 19,000 |
| **Unique probe sets to single species:** | |
| Number of arrays in set | one |
| Array format | 100 |
| Feature size | 11 µm |
| Oligonucleotide probe length | 25-mer |
| Probe pairs/sequence | 11 |
| Hybridization controls:<br><br>Poly-A controls:<br>Housekeeping/Control genes: | *bioB, bioC, bioD*, from *E. coli* and *cre* from P1 *B. subtilis*<br>*dap, lys, phe, thr, trp* from *B. subtilis*<br>actin, GAPDH, eflα, 5.8S rRNA, 12S rRNA, 18S rRNA, cyclophilin B, glutathione S-transferase, lactophorin, translation initiation factor eIF-4E |
| Detection sensitivity | 1:100,000[1] |

[1] As measured by detection in comparative analysis between a complex target containing spiked control transcriptions and a complex target with no spikes

## Instrument Software Requirements

- GeneChip® Scanner 3000, enabled for High-Resolution Scanning*
- GeneChip® Operating Software (GCOS) v1.1 or higher, 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.

## Supporting Products

| Part Number | Product Name | Description |
|---|---|---|
| 900493 | GeneChip® One-Cycle Target Labeling and Control Reagents[1] | Sufficient for 30 reactions. Contains:<br>· IVT Labeling Kit<br>· One-Cycle cDNA Synthesis Kit<br>· Sample Cleanup Module<br>· Poly-A RNA Control Kit<br>· Hybridization Controls |
| 900494 | GeneChip® Two-Cycle Target Labeling and Control Reagents[1,2] | Sufficient for 30 reactions. Contains:<br>· IVT Labeling Kit<br>· Two-Cycle cDNA Synthesis Kit<br>· Sample Cleanup Module<br>· Poly-A RNA Control Kit<br>· Hybridization Controls |

[1] *Individual Kit components may be ordered separately.*

[2] *For the intermediate IVT step with unlabeled nucleotides, please order the MEGAscript® T7 Kit directly from Ambion.*

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## Ordering Information

### GeneChip® Bovine Genome Array

GeneChip® Bovine Genome Array

**900561** *Contains 2 arrays*

**900562** *Contains 6 arrays*

**900563** *Contains 30 arrays*

### To Order

**North America**
888-DNA-CHIP 888-362-2447

**Europe**
+44 (0) 1628 552550

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Part No. 701798 Rev. 2