



Axiom[®] Genome-Wide Chicken Genotyping Array Plate

Intended Use

The Axiom[®] Genome-Wide Chicken Genotyping Array Plate consists of arrays designed for the genotyping of single nucleotide polymorphisms (SNPs). This array plate, when used with the Axiom[™] 2.0 Reagent Kit, enables researchers to perform large-scale genotyping studies with minimal hands-on processing per plate.

Each plate consists of 96 microarrays and is offered as a part of a complete automated solution from Affymetrix that includes instrumentation for sample preparation, and array washing, staining and scanning.

The array plate is available in a single configuration:

- 96-Array Plate — Twelve (12) columns of 8 microarrays in each column for a total of 96 identical microarrays on the same plate.

Each microarray on the Axiom Genome-Wide Chicken Genotyping Array Plate enables the genotyping of over 580,000 SNPs. SNPs on this array are derived from the Axiom Chicken Genomic Database including SNPs contributed by the BBSRC funded LINK project between Roslin Institute, Aviagen Ltd, Hy-Line International and Affymetrix and in cooperation with the German Synbreed project funded by BMBF. The SNP discovery was carried out by re-sequencing 243 chickens from 24 lines representing both elite commercial and experimental lines. The SNPs discovered through re-sequencing were genotype tested on the Axiom platform by screening 1.8M SNPs across 300 samples that included 186 commercial and wild out-group samples and 32 parent offspring trios for Mendelian inheritance. The Genome-Wide Chicken Genotyping Array was designed by selecting over 580,000 SNPs that provide high numbers of polymorphic markers and even physical coverage of the genome in commercial layers, broilers and in out-bred non commercial populations.

These SNPs are present on short randomly generated fragments of genomic DNA (25 to 125 base pair), and are amplified using the Axiom 2.0 Reagent Kit. The reagents for processing Axiom arrays are also included in this reagent kit.

SNPs were chosen and represented on the array in part based upon genotyping reproducibility, call rate, minimum allele frequency, linkage disequilibrium and predictions of SNP effects on the coding sequence with accuracy determined using Mendelian inheritance.

Identical to the cartridge array manufacturing process, the oligonucleotide probes on Axiom Genome-Wide Chicken Genotyping Array Plates are synthesized in situ using Affymetrix' photolithographic process.

Reagents, Instrumentation and Software Required

1. Axiom[™] 2.0 Reagent Kit
2. Axiom[™] Genome-Wide Array Plates
3. GeneTitan[®] Multi-Channel Instrument
4. Affymetrix GeneChip[®] Command Console[®] Software

For a complete list of reagents and consumables required, please refer to the Axiom[™] 2.0 Assay Automated Workflow Site Prep Guide, P/N 702984 or the Axiom[™] 2.0 Assay Manual Workflow Site Prep Guide, P/N 702991.

Library Files

Library files contain information about the probe array design characteristics, probe use and content, and scanning and analysis parameters. These files are unique for each probe array type. Additional information can be located under the specific array product on the Affymetrix web site at www.affymetrix.com/support/technical/libraryfilesmain.affx.

Array Specifications

Axiom Array Specifications	
Number of features	1,416,000
Feature size	5 µm
Length of oligonucleotides	35 nt
Number of probes per SNP	2 or more
Hybridization Volume	105 µL

Instructions for Use

Refer to the following documents for instructions on processing samples using the Axiom[™] 2.0 Genotyping Assay.

- Axiom[™] 2.0 Assay Automated Workflow User Guide, P/N 702963
- Axiom[™] 2.0 Assay Manual Workflow User Guide, P/N 702990
- Axiom[™] 2.0 Assay Automated Workflow Site Prep Guide, P/N 702984
- Axiom[™] 2.0 Assay Manual Workflow Site Prep Guide, P/N 702991
- Axiom[™] 2.0 Assay Automated Target Prep Protocol QRC, P/N 702962
- Axiom[™] 2.0 Manual Target Prep Protocol QRC, P/N 702989
- GeneTitan[®] MC Protocol for Axiom 2.0 Array Plate Processing QRC, P/N 702988
- Axiom[™] Genotyping Solution Analysis Guide, P/N 702961

Related Documents

The following documents contain information related to the instruments and software required to perform the Axiom Genotyping Assay:

- GeneTitan[®] Multi-Channel Instrument User's Manual, P/N 08-0306
- GeneTitan[®] Multi-Channel Instrument Site Preparation Guide, P/N 08-0305
- Affymetrix GeneChip[®] Command Console[®] Software User Manual, P/N 702569

Storage, Handling and Stability

Axiom Genome-Wide Chicken Genotyping Array Plates should be stored at 2 to 8 °C and must not be frozen. Refer to the expiration date on the package label. Do not use arrays or reagents after the expiration date.

When Handling the Axiom Array Plate

Remove the Array Plate from the pouch with gloved hands. The plate is packaged with a blue plastic base. Do not remove the Array Plate from this protective base, or touch the Array Plate directly. Keep the Array Plate in the protective base at all times, including when placed on the GeneTitan[®] Multi-Channel instrument.

When Handling the 96 Plate Scan Tray

Remove the 96 Plate Scan Tray (Scan Tray) from the pouch with gloved hands. The Scan Tray is packaged with a black protective base and cover. Keep the Scan Tray in the protective base with the cover at all times prior to loading into the GeneTitan Multi-Channel Instrument. Do not touch the bottom of the Scan Tray directly.

The Scan Tray has protruding guide posts that may be sharp and can puncture the pouch if not handled carefully. Take the necessary precautions to avoid injury.

Ordering Information

Product Name	Description	P/N
Axiom Genome-Wide Chicken Genotyping Bundle	Kit consists of: <ul style="list-style-type: none">One Axiom Genome-Wide Chicken Genotyping Array PlateGeneTitan® Instrument Consumables¹One Axiom™ 2.0 Reagent Kit (96 reactions)	902148

1. The GeneTitan consumables include one Hyb Tray, one Scan Tray, and five Stain Trays with covers. These consumables are required for processing an Axiom array plate on the GeneTitan® Multi-Channel Instrument.

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Precautions

1. AXIOM GENOME-WIDE CHICKEN GENOTYPING ARRAY PLATES ARE FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
2. Avoid microbial contamination, which may cause erroneous results.
3. **WARNING: All biological specimens and materials with which they come into contact should be handled as if capable of transmitting infection and disposed of with proper precautions in accordance with federal, state, and local regulations. This includes adherence to the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030) for blood-derived and other samples governed by this act. Never pipet by mouth. Avoid specimen contact with skin and mucous membranes.**
4. CAUTION: Exercise standard precautions when obtaining, handling, and disposing of potentially carcinogenic reagents.
5. Exercise care to avoid cross-contamination of samples during all steps of this procedure, as this may lead to erroneous results.
6. Use powder-free gloves whenever possible to minimize introduction of powder particles into sample or probe array plates.
7. CAUTION: Use care when handling the Scan Tray as it has protruding guiding posts that may be sharp and can stick out of the pouch if not handled carefully.

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