VeraCode® Universal Capture Bead Sets

Illumina's Universal Capture Bead Sets enable the development of flexible, multiplexed SNP genotyping assays. Bead sets with pre-coupled capture oligonucleotides provide convenience, speed, and ease of use.

Highlights

- **Flexible Multiplex Assays:**
  Unique VeraCode identifiers for each bead type
- **Convenient:**
  High density capture oligonucleotides pre-immobilized on beads
- **Robust Capture Sequences:**
  Robust Capture Sequences: Capture sequences pre-screened to avoid cross-hybridization within the genome and for equivalent Tm
- **Flexible Design:**
  Ideal for customized assay development with the BeadXpress two-color detection system

Introduction

True flexibility in the development of multiplex SNP genotyping assays can now be achieved with VeraCode Universal Capture Bead Sets by Illumina. Researchers can develop their own assays based on their desired multiplex and preferred assay methodology with these highly stable, uniquely coded bead sets that are precoupled with capture oligonucleotides. The VeraCode Universal Capture Bead Sets with the BeadXpress® Reader enables laboratories to quickly develop tests on a truly open platform.

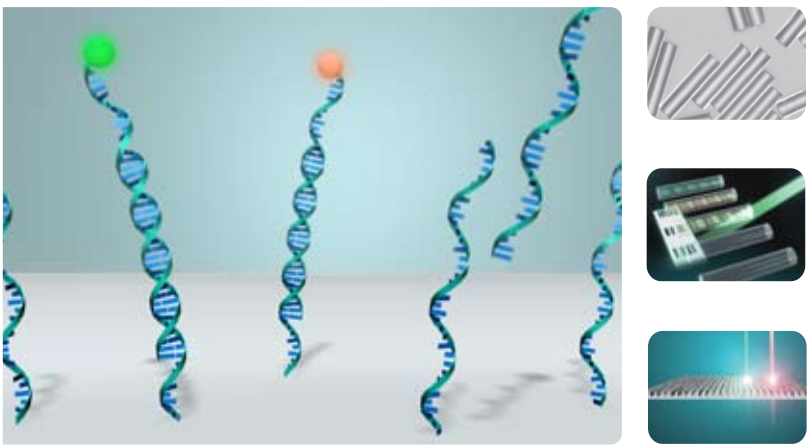
VeraCode Universal Capture Beads

Each Universal Capture Bead type employs a uniquely coded VeraCode microbead (Figure 1). The code inscribed within each microbead is used downstream to designate and track the specific analyte or genotype of interest in the multiplex reaction.

Capture oligonucleotides are immobilized to the surface of each microbead at a high density. Each 23-mer oligonucleotide used for the VeraCode Universal Capture Beads was pre-screened for genome and capture-oligonucleotide cross-reactivity based on melting temperature (Tm).

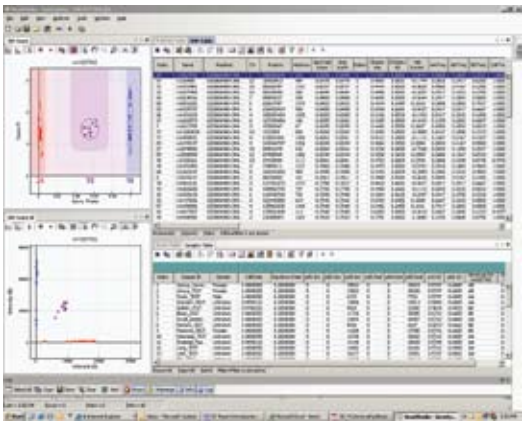
Assays developed with VeraCode Universal Capture Beads benefit from solution phase kinetics and the ability to perform wash steps within the same plate, reducing hands-on time and ancillary consumables. Analytes can be labeled with standard fluorescent reporters such as Cy3, Cy5, or AlexaFluor dyes. During analysis, the type of fluorescence and code inscription for each microbead are detected by the BeadXpress Reader. Data analysis for multiplexed genotyping assays is simplified with the BeadStudio Genotyping Module analysis software (Figure 2).

Figure 1: Illumina VeraCode Universal Capture Bead Set



Oligonucleotide capture probes are covalently linked to cylindrical silicon microbeads for SNP genotyping assays. The insets (right) show actual microbeads taken using a light microscope (top) and rendered images of laser scanning (middle, bottom).

Figure 2: BeadStudio Analysis Software



The BeadStudio Genotyping (GT) software simplifies data analysis by providing multiple tools for evaluating samples.

Figure 3: VeraCode Bead Kitting System

Universal Beads are distributed into 2.0 ml tubes for easy handling and rapid plating.

Convenient Packaging and Kitting

VeraCode Universal Capture Bead Sets are conveniently packaged in 2.0 ml tubes containing sufficient beads to process a 96-well micro-plate with replicates of 30 beads per bead type in each well. Multiplexing is achieved by pooling bead types containing different codes: up to 144 bead types per well (Figure 3).

To minimize the hands-on time necessary to dispense the individually coded VeraCode Universal Capture Beads into microplates for multiplex assays, Illumina has developed the VeraCode Bead Kitting System for rapid and accurate plating of microbeads. The VeraCode Bead Kitting System offers a unique approach to rapidly and accurately distribute VeraCode microbeads into standard 96-well microplates or stripwell plates. The workflow for custom multiplexed assays is streamlined with the VeraCode Bead Kitting System by virtually eliminating manual pipetting. Vials of uniquely coded VeraCode microbeads are pooled into the Bead Kitting System, mixed and distributed in just a fraction of the time it would take to manually pipette. Because VeraCode beads are highly stable, several plates can be kitted in advance and stored for later use. This is of particular benefit in high-throughput laboratories.

Catalog No.	Product*	Number of Reactions	Capture Sequence
VC-301-5440	VeraCode Universal Bead Set, Code 5440	6 x 96 reactions	TTTCGTAACCCGTGCGAAGTGCC
VC-301-5632	VeraCode Universal Bead Set, Code 5632	6 x 96 reactions	TACGATGGTACGGTCGCTGTGTA
VC-301-5634	VeraCode Universal Bead Set, Code 5634	6 x 96 reactions	TGGTTAGCGATCATACCGGCACT

*Please contact Customer Solutions for the complete list of the > 144 Universal Bead types available.

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