VeraCode® Carboxyl Bead Sets

Illumina VeraCode Carboxyl Bead Sets are a cost-efficient tool for protein and nucleic acid assay development.

Highlights

- **Robust Detection**
  Digital microbead codes provide unparalleled data quality
- **Two-Color Detection**
  Definitive positive and negative confirmation unavailable on other platforms
- **Customizable Multiplex Assays**
  48 carboxyl bead types allow highly multiplexed, low-cost assays
- **Rapid Sample Throughput**
  Solution-phase kinetics with streamlined assay protocol

Introduction

A diverse range of bioassay applications can be explored using the versatile VeraCode Technology with the BeadXpress® Reader. To support the development of custom multiplexed assays, Illumina provides the VeraCode Carboxyl Bead Sets. These bead sets enable covalent attachment of proteins, peptides, nucleic acid, and other ligands in a highly multiplexed format that can save time, money, and precious samples. Features include:

- **Flexible, customizable multiplex assays**
- **Covalent attachment of proteins and other ligands**
- **Solution-phase kinetics**
- **Low non-specific binding**
- **Robust detection with digital microbead codes**

VeraCode Carboxyl Beads

Each Carboxyl Bead type employs a uniquely coded VeraCode microbead. The code inscribed within each microbead is used downstream to designate and track the specific analyte of interest in the multiplex reaction.

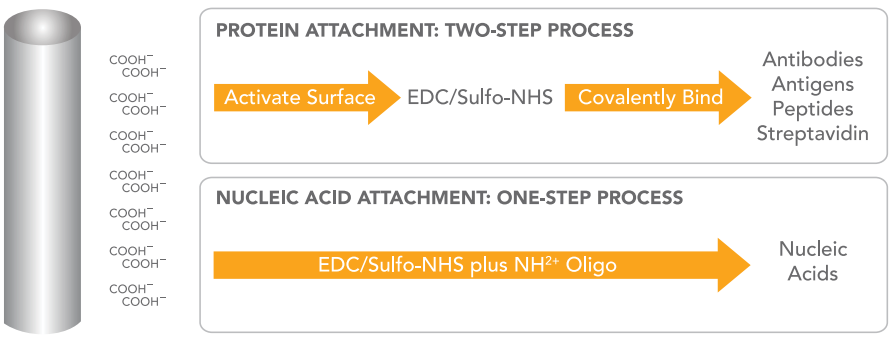
VeraCode Carboxyl Beads are highly stable and demonstrate low non-specific binding characteristics in multiplex assays. The simple and flexible immobilization chemistry enables rapid assay design for a variety of analytes, providing a truly open platform for laboratory developed tests.

Assays developed with VeraCode Carboxyl 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 phycoerythrin (R-PE), Cy3, Cy5, or Alexa Fluor dyes. During analysis, the type of fluorescence and code inscription for each microbead are detected by the BeadXpress Reader. Data analysis for multiplexed protein assays is simplified with the GenomeStudio® Data Analysis Software Protein Module (Figure 2).

Convenient Packaging and Kitting

VeraCode Carboxyl Beads are conveniently packaged in 2.0 ml tubes containing sufficient beads to process six 96-well microplates, with assay replicates of 30 beads per bead type. Each complete VeraCode Carboxyl Bead Set contains tubes of unique bead codes to enable multiplexed assay design. To minimize the hands-on time necessary to dispense the individually coded VeraCode Carboxyl beads into microplates for multiplex assays, Illumina has developed the VeraCode Bead Kitting System. The VeraCode Bead Kitting

Figure 1: VeraCode Carboxyl Bead Sets



VeraCode Carboxyl Bead Sets enable the attachment of protein and nucleic acid molecules to cylindrical glass beads. The beads harbor unique codes for each bead type for downstream tracking and identification.

System offers a unique approach to rapidly and accurately distribute VeraCode microbeads into standard 96-well microplates or stripwell plates. This workflow virtually eliminates 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.

Figure 2: GenomeStudio Protein Analysis Software

Each VeraCode Capture Bead contains a unique 23-mer oligonucleotide immobilized on its surface. Designing ASPE extension primers that include complementary sequences to these capture oligos allows exclusive targeting of specific beads. Primers that match the targeted sequence will extend preferentially. When a labeled target hybridizes with the complementary sequence on the assigned VeraCode microbead, the target is identified through the embedded holographic digital code.

Ordering Information

Product	Number of Reactions	Catalog No.
VeraCode Carboxyl Bead Set A Codes 8193, 8195, 8196, 8197, 8198	5 × 576 assay points	VC-311-8193
VeraCode Carboxyl Bead Set B Codes 8199, 8201, 8202, 8204, 8205	5 × 576 assay points	VC-311-8199
VeraCode Carboxyl Bead Set C Codes 8208, 8209, 8210, 8211, 8212	5 × 576 assay points	VC-311-8208
VeraCode Carboxyl Bead Set D Codes 8214, 8216, 8217, 8220, 8225	5 × 576 assay points	VC-311-8214
VeraCode Carboxyl Bead Set E Codes 8226, 8228, 8229, 8232, 8234	5 × 576 assay points	VC-311-8226
VeraCode Carboxyl Bead Set F Codes 8240, 8241, 8244, 8256, 8257	5 × 576 assay points	VC-311-8240
VeraCode Carboxyl Bead Set G Codes 8258, 8259, 8260, 8262, 8264	5 × 576 assay points	VC-311-8258
VeraCode Carboxyl Bead Set H Codes 8265, 8268, 8272, 8274, 8280	5 × 576 assay points	VC-311-8265
VeraCode Carboxyl Bead Set I Codes 8288, 8289, 8292, 8304, 8321	5 × 576 assay points	VC-311-8288
VeraCode Carboxyl Bead Set J Codes 8322, 8324, 8325	3 × 576 assay points	VC-311-8322

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