

SNP Genotyping with the Infinium Assay

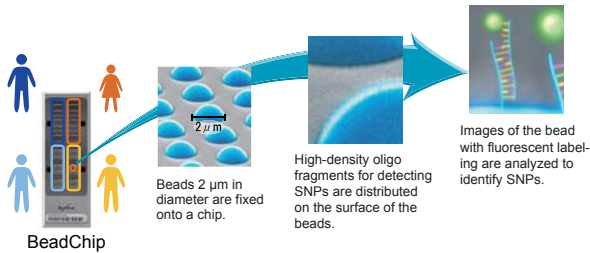
The Infinium Assay

- ◆ This assay uses whole genome amplification (WGA) for SNP genotyping by reacting genome fragments and reagents on a BeadChip, and was developed by Illumina, Inc.
- ◆ Several tens of thousands to 100,000 SNPs can be detected across the whole genome at once.

Whole Genome Amplification

Unlike PCR, which specifically amplifies particular regions, the whole genome amplification method used in the Infinium assay uses enzymes to amplify all regions of the genome at once. Like PCR, highly accurate experimental results are achieved, and in addition, the assay does away with the need for numerous individual reactions required for analyzing the entire genome.

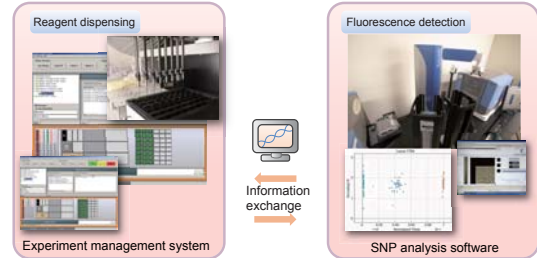
Features and Advantages of the BeadChip



(Human 610-Quad BeadChip)

A single BeadChip can be used to analyze approximately 610,000 SNPs per person for four people at once. Approximately 15 beads of the same type are used for each SNP, yielding highly reliable data.

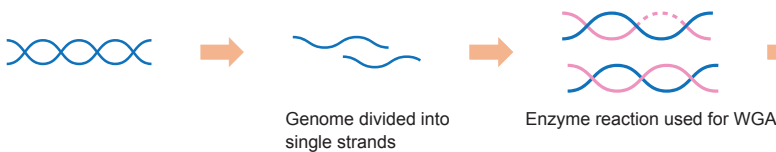
Robot reagent dispensing and data analysis automation



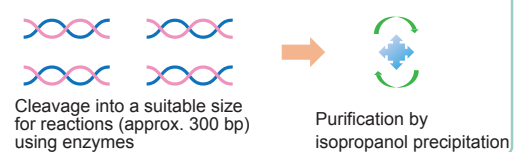
Several kinds of robots are used to dispense reagents automatically, and SNP analysis is handled by a computer using dedicated software. In addition, the use of bar codes to manage both genome and reagents enables the experimental process to be monitored, yielding high-quality data.

Experimental Procedure

1. Genome amplification



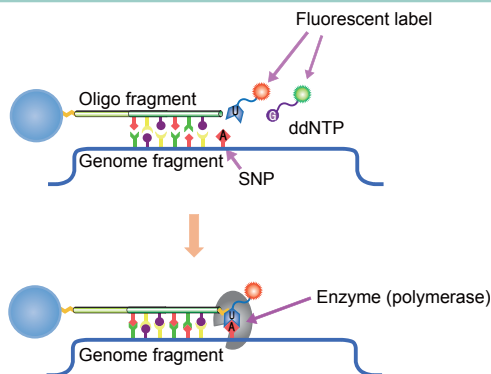
2. Genome fragmentation and purification



3. Hybridization

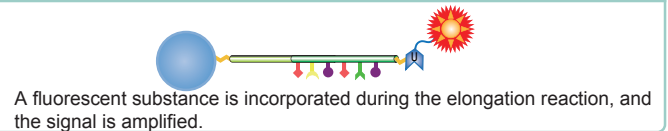


4. Elongation reaction

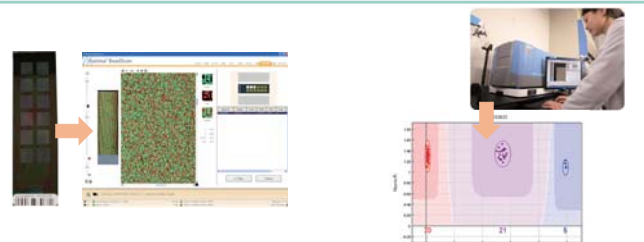


The area corresponding to the SNP under analysis is elongated by one base using an enzyme.

5. Staining



6. Scanning and analysis



The Infinium assay, which enables large-scale analysis spanning the entire genome, offers an ideal method for narrowing down candidate SNPs from the whole genome.