

mapping & validating your disease genes

microsatellite genotyping | fine-mapping

deCODE operates the largest and most advanced high-throughput microsatellite genotyping facility in the world, supported by world-class scientists in genetics, robotics, statistics and informatics.

Backed by over a decade of experience, we have created the most complete genetic map of the human genome and have an unrivalled track record in mapping and validating disease genes for common complex diseases. We provide a complete service, including DNA extraction or whole-genome amplification (WGA), PCR, fragment analysis, and automated allele calling.

One of our key benefits is speed

We rapidly transform your linkage-mapping projects from sample to data utilizing our high-throughput platform with a capacity to perform 1 million genotypes per day. We consistently deliver high-quality data with greater than 99.5% accuracy of genotyping calls, using our proprietary automated allele calling software and validation methods.

Our services are designed to provide rapid, highly accurate, high-throughput data for linkage or association analysis. deCODE can process whole-blood, buffy coat, and DNA samples, perform a genome-wide scan or fine-mapping screen, and deliver quality controlled genotypes within weeks.

We offer three sets of genome-wide microsatellite marker panels:

- Ultra high-density 2,000 marker panel with 2cM average spacing
- High-density 1,000 marker panel with 4cM average spacing
- Medium-density 500 marker panel with 8cM average spacing

Whole-genome scans

deCODE's marker sets for genome-wide scans are based, in part, on the ABI HD Marker Linkage set and on in-house designed and validated markers originally selected from Marshfield's genetic map. The location and order of the markers has been analyzed using deCODE's high-resolution human genetic map.

A complete service

deCODE accepts DNA, whole-blood, or buffy coat samples. We extract DNA from whole-blood and buffy coat samples utilizing our in-house developed semi-automated platform for high-quality, high-throughput DNA extraction. deCODE also offers to amplify DNA from samples with limited amounts of DNA using an optimized protocol for whole-genome amplification.

Fine-mapping

In addition to genome-wide scans, we also perform fine-mapping screens using microsatellites you select from our over 22,000 in-house designed and validated markers, distributed across the human genome. If needed, we can assist you on marker choice for successful genotyping in the region(s) you are interested in analyzing.

We have also developed several specialized microsatellite marker sets for population stratification, genotyping of the MHC region, and for individual chromosomes.



deCODE delivers complete genotyping data and reduce changes of error. To date, deCODE has genotyped over 330,000 samples and generated over 300 million microsatellite genotypes. For samples of sufficient quality, we aim to complete 95% of the attempted genotypes in genome-wide scan with less than 0.5% genotype error.

Rapid, accurate and cost-effective

PCR reactions are set up in multiplex reactions with fluorescently-labeled primer pairs selected to amplify highly informative di-, tri-, and tetra-microsatellite loci. deCODE has performed extensive optimization of each primer pair to improve performance and reliability. The facility is equipped with several high-throughput liquid handling robots with a total capacity to handle samples from over 1,000 individuals per day in preparation for genome-wide scans.

CEPH family DNA is used as control. We do not request pedigree information, although data on family relationships between individuals in a sample set will allow more accurate quality control.

Amplified fragments are analyzed by capillary electrophoresis utilizing ABI 3730 DNA analyzers. deCODE has optimized the protocol for rapid, accurate, and cost-effective analysis.

We use our proprietary deCODE Allele Caller (DAC) software for automated allele calling. The analysis consistently gives greater than 99.5% accuracy of genotyping calls.

Put your genotype data to immediate use

Genotyping results are reported as allele sizes of the polymorphic markers of called alleles as well as values normalised to a CEPH individual. The data report is delivered as an ASCII text file compatible with existing genetic linkage software packages, such as deCODE's Allegro software, GeneHunter Plus, Fastlink, etc. The data is delivered via a secured FTP server, which can be accessed with a personal username and password. The data belongs solely to you.



From samples to high-quality results

We provide you with the necessary items you need for shipping your samples to deCODE along with comprehensive instructions for sample preparation and shipment. Once we receive your samples, the integrity of all samples is verified by OD. deCODE operates a LIMS, which automatically tracks all samples in the facility and monitors the genotyping workflow to support high-throughput data generation and monitoring. Samples, plates, instruments, and operators are labeled with barcodes allowing easy back-tracking and monitoring of overall performance. Your samples are processed by our experienced team that is dedicated to quality and customer service, ensuring that the samples are handled with care and efficiency.

