Genomic Unity® Testing
A single method approach to comprehensive genetic testing
Revolutionizing genetic testing for rare disease patients

Traditional genetic tests detect only certain types of changes in an individual's DNA. Sanger and NGS methodologies are used for small sequence changes. Southern blots for detection of large short tandem repeat expansions (STRs) and large deletions. PCR and capillary electrophoresis for shorter STRs. qPCR and MLPA for deletions and duplications, and arrayCGH/microarray, FISH and karyotype for gross chromosomal deletions.

At Variantyx, we use a single method to detect all of these variant types from a single sample, providing our findings in a single, unified clinical report.

Variants detected and analyzed by Genomic Unity®

Using multiple different methods to detect different types of variants is a slow process that additionally leaves open the possibility of missing a diagnostic connection in a patient with a combination of changes.

For example, arrayCGH analysis performed by one laboratory may identify a heterozygous deletion. Subsequently, panel or exome testing by another laboratory may identify a heterozygous SNV.

A connection between these two results can easily be overlooked when the data is analyzed independently. It's only when the data is analyzed together the compound heterozygous relationship becomes clear.

The method behind Genomic Unity® testing

PCR free whole genome sequencing

We use PCR free whole genome sequencing (WGS) as the underlying NGS technology. Its consistent read depth across >98% of the genome enables identification of multiple variant types from a single patient sample.

Proprietary algorithms

We have built proprietary algorithms optimized for each variant type which are used to perform discrete in-silico analyses of the data which are brought together for collective interpretation, providing a more complete genetic picture.
Expert variant interpretation
Our rigorously trained variant scientists interpret all variant types in the context of the patient's phenotype and generate a unified clinical report that is reviewed and signed by our board-certified clinical and molecular geneticists.

Ability to rerun analyses, without resequencing
Because the entire genome has been sequenced and analyses are performed in-silico, the data can be reanalyzed at any time to incorporate new findings from the scientific literature or to reinterpret variants in the context of newly acquired phenotypes.

Flexible ordering options
Start with a targeted analysis and reflex up, or opt for a full analysis from the start.

Genomic Unity® targeted testing options
Order the following tests for a targeted analysis with the option to reflex up to Genomic Unity® Exome Plus Analysis if no variants are identified:

- Genomic Unity® Neurology Analysis
- Genomic Unity® Epilepsy Analysis
- Genomic Unity® Movement Disorders Analysis
- Genomic Unity® Intellectual Disability Analysis
- Genomic Unity® Mitochondrial Analysis
- Genomic Unity® Endocrinology Analysis

For a complete list of available testing options, including a description of the genes and variant types targeted, visit our website:

www.variantyx.com/genomic-unity-analysis

Genomic Unity® Exome Plus Analysis
Order this test for a complete analysis of all variants detected by our algorithms, including:

- Exome sequence analysis, plus characterized intronic and regulatory variants
- Constitutional genome-wide structural variant analysis
- Mitochondrial genome analysis with heteroplasm (≥5%)
- Early-onset intellectual disability disorder STR analysis: AFF2, AFF3, DIP2B, FMR1
- Adult-onset movement disorder (with or without cognitive involvement) STR analysis: AR, ATN1, ATXN1, ATXN2, ATXN3, ATXN7, ATXN8OS, ATXN10, C9ORF72, CACNA1A, CNBP, CSTB, DMPK, FMR1, FXN, PP2R2B

Optionally includes:

- Huntington-related STR analysis (requires special consent): JPH3, HTT

Flexible, transparent billing
We offer patient pay, institutional billing and insurance billing options. For insurance billing cases, we perform all benefits investigation and prior authorization in-house.
There’s a lot more to learn about Genomic Unity® testing

Visit our online resources to take a deeper dive into the data

www.variantyx.com/genomic-unity-resources

Performance statistics
How we detect structural variants
How we detect repeat expansions
Clinical validation study