Clinical presentation
An 11-year-old male suspected of having Angelman syndrome presented with a history of global developmental delay and multiple clinical symptoms including:

• Absent speech
• Autism spectrum disorder, behavioral abnormalities
• Dental anomalies
• Hypotonia
• Abnormal gait
• Astigmatism
• Megameatus

Results and interpretation
Variantyx Genomic Unity® Whole Genome Analysis identified a de novo, heterozygous, pathogenic 2.9Mb inversion of 2q31.3 to 2q33.1.

The inversion includes exons 5-11 of the SATB2 gene and is predicted to result in loss-of-function of the protein.

Diagnosis: Glass syndrome

Previous genetic testing
Multiple tests were performed including:

• Chromosomal microarray (CMA)
• FMR1 testing
• UBE3A sequencing and methylation
• Whole exome sequencing (WES)

Genomic Unity® Whole Genome Analysis was ordered because of its ability to identify all major variant types in a single test.

Uniform data from WGS clearly shows the inversion breakpoint.
The Variantyx difference

Why was this inversion detected by Genomic Unity® Whole Genome Analysis, and not detected by other tests?

- Balanced rearrangements like inversions are undetectable by most available technologies - including the CMA and exome tests performed.

- Variantyx genome analysis detects many types of structural variants including copy number variants, deletions/duplications, inversions, mobile element insertions, regions of homozygosity and aneuploidy.

- While inversions can be detected by karyotype, the size (2.9Mb) is below the limit of detection.

- Variantyx genome analysis has a detection range from 1bp to whole chromosomal events.

- Both inversion breakpoints are intronic, adding to the complexity of detection.

- Variantyx genome analysis includes intronic regions, enabling breakpoint detection regardless of location.

Variantyx tests that would have identified this variant

- Genomic Unity® Whole Genome Analysis
- Genomic Unity® Exome Plus Analysis
- Genomic Unity® Constitutional Genome-Wide Copy Number Variant Analysis
- Genomic Unity® Genome-Wide CNV and FMR1 Analysis
- Genomic Unity® Epilepsy Analysis
- Genomic Unity® Intellectual Disability Analysis

Bring the power of whole genome sequencing to your practice today.

To get started, contact your Clinical Sales Specialist and visit us online at variantyx.com.