



Genie Solution

The Genie solution provides a comprehensive genetic analysis of embryo biopsy samples for pre-implantation genetic testing (PGT), including PGT-A, PGT-SR, and PGT-M.

An end-to-end solution where sample libraries are prepared using the **Genie Kits**, sequenced on the **Genie Sequencer**, followed by data analysis and reporting on the **Genie Data Analysis software**.



GENIE-A SOLUTION

Genie-A is a validated solution for detecting CNV, ploidy, Sibling QC and ROH (regions of homozygosity) in preimplantation embryo biopsy samples.

KEY FEATURES



COMPREHENSIVE DETECTION.

A single solution to detect CNV, Ploidy, Sibling QC and ROH (regions of homozygosity).



DEFAULT SNP ANALYSIS.

Genie-A uses genome-wide SNP information to detect Ploidy, Sibling QC and ROH.



HIGH RESOLUTION.

>4Mb CNVs (unknown), and >1 Mb inherited CNVs (known).



HIGH THROUGHPUT AND SCALABILITY.

5M reads/samples, 1x100 bp reads, Up to 48, 96 samples/run.

Genie-A Kits	Analysis Methods	Reporting Content
Genie-A Fast	<ul style="list-style-type: none">• CBS Algorithm• Log Likelihood Ratio (LLR)• SNPs BAF Analysis	<ul style="list-style-type: none">• Aneuploidy, Ploidy (Triploidy, Haploidy)• ≥ 4Mb CNVs in unknown regions• ≥ 1Mb known inherited CNVs• Mosaicism $\geq 30\%$ C ≥ 10Mb• Sibling QC• Whole chromosome level ROH
Genie-A Advanced		

GENIE-A: TWO APPROACHES



GENIE-A FAST:

Fast workflow, combining WGA and library preparation to reduce cost and time.

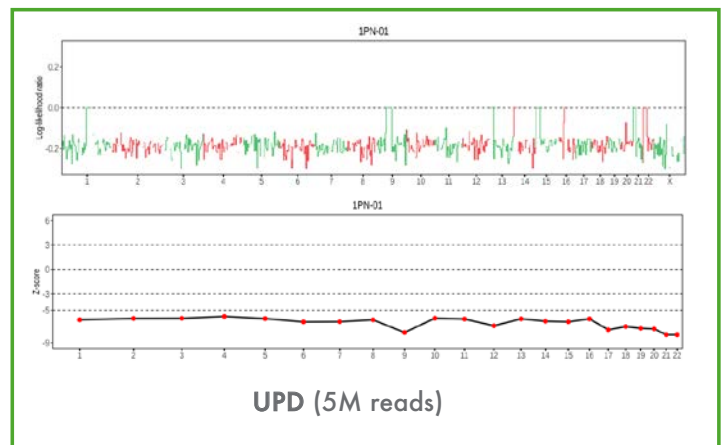
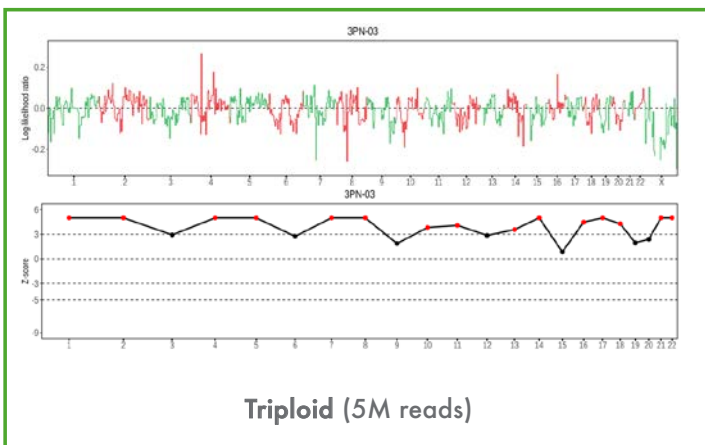
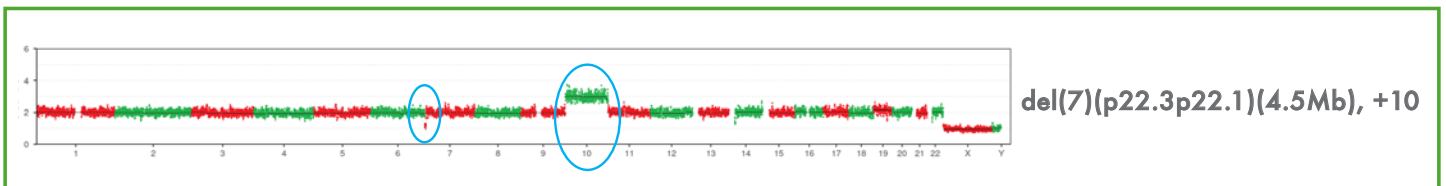


GENIE-A ADVANCED:

Separate WGA (MDA) followed by a patented library preparation method to support wider genome coverage.

TWO VERSIONS OF GENIE-A KITS WITH DIFFERENT SAMPLE PREPARATION METHODS FOR GREATER FLEXIBILITY, BUT THE SAME OUTCOME.

ACCURATE DETECTION OF CNV AND PLOIDY



GENIE-PLUS SOLUTION

Genie-Plus is a genome-wide sequencing solution designed to detect the inheritance of monogenic disorders (PGT-M), structural rearrangements (PGT-SR), as well as CNV, ploidy, UPD, Sibling QC, and regions of homozygosity (ROH) in pre-implantation embryo biopsy samples.

KEY FEATURES



COMPREHENSIVE DETECTION.

A single solution for combined detection of PGT-M, PGT-SR and PGT-A, including triploidy, UPD, Sibling QC and ROH.



GENOME-WIDE COVERAGE.

WGA by MDA and a patented library preparation method for better whole-genome coverage.



HIGH RESOLUTION.

>4Mb CNVs (unknown), and >1 Mb inherited CNVs (known).



HIGH THROUGHPUT AND SCALABILITY.

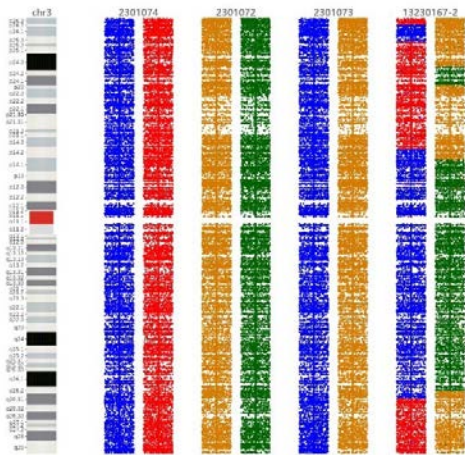
40M reads/samples, 2x100 bp reads, Up to 24, 48 samples/run.



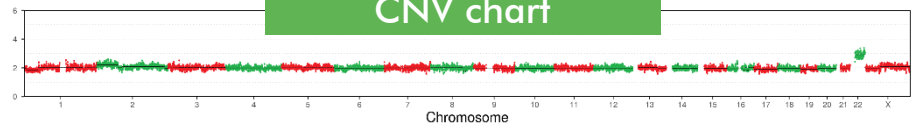
COMPLETE PGT ANALYSIS

Genie-Plus provides comprehensive PGT results including, Haplotype chart, CNV chart, BAF chart, ROH chart, LLR chart, Z-Score chart and Kinship analysis.

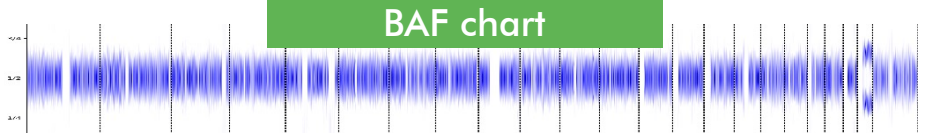
Haplotype chart



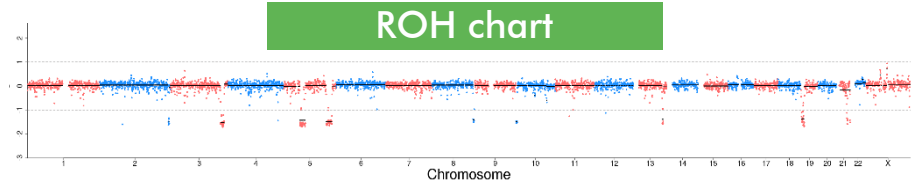
CNV chart



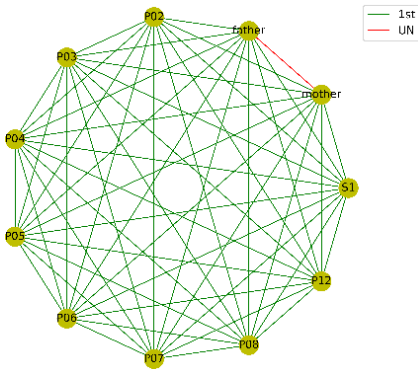
BAF chart



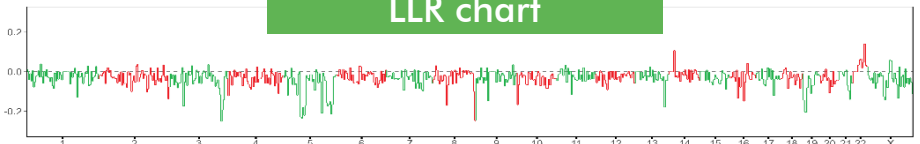
ROH chart



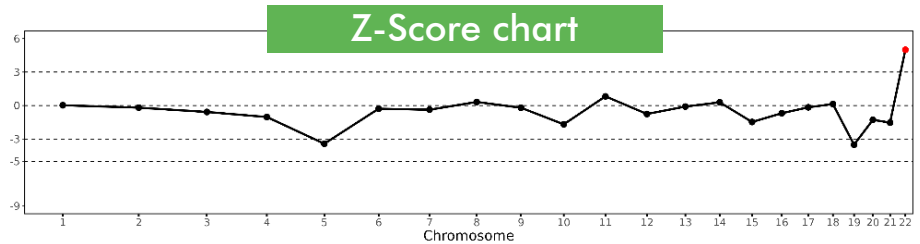
Kinship analysis



LLR chart



Z-Score chart



Genie Kits	Analysis Methods	Reporting Content
Genie-Plus	<ul style="list-style-type: none"> CBS Algorithm Log Likelihood Ratio (LLR) SNPs BAF Analysis 	<ul style="list-style-type: none"> Aneuploidy, Ploidy (Triploidy, Haploidy) $\geq 4\text{Mb}$ CNVs in unknown regions $\geq 1\text{Mb}$ known inherited CNVs Mosaicism $\geq 30\%$ $C \geq 10\text{Mb}$ Sibling QC Whole chromosome level ROH
	<ul style="list-style-type: none"> Linkage Analysis SNP analysis CNV Analysis 	<ul style="list-style-type: none"> > 4000 monogenic Disorders Balanced translocations, Robertsonian translocations, inversion

GENIE SECURE DATA ANALYSIS SYSTEM

Highest security level and privacy during data analysis, data generated by the Genie Sequencer is transferred to the secure local server, through a LAN connection for data analysis on the Genie Data Analysis Software.

- **MAXIMUM SECURITY:**

All data analysis happens locally on a secure local server, eliminating cloud risks and ensuring full data protection.

- **100% LOCAL, 100% PRIVATE:**

Your data never leaves your infrastructure, ensuring complete control and compliance with strict security standards.



WITH GENIE, YOU GET CUTTING-EDGE TECHNOLOGY WITH UNMATCHED SECURITY



LOCAL PC

Genie result
(web)



LOCAL SERVER

Raw data
(rsync)



SEQUENCER

LOCAL LAB

GENIE SEQUENCER

The Genie Sequencer supports the sequencing of sample libraries prepared through the Genie Kits.

- Compact benchtop sequencer designed for ease of use and integration.
- High-throughput sequencer generates 500M reads/run, offering the ability to be used for various applications, including carrier screening, whole exome sequencing, and whole genome sequencing.
- Patterned flow cell facilitates highly accurate sequencing with Q30 >85%, decreased duplicates, and reduced index hopping.

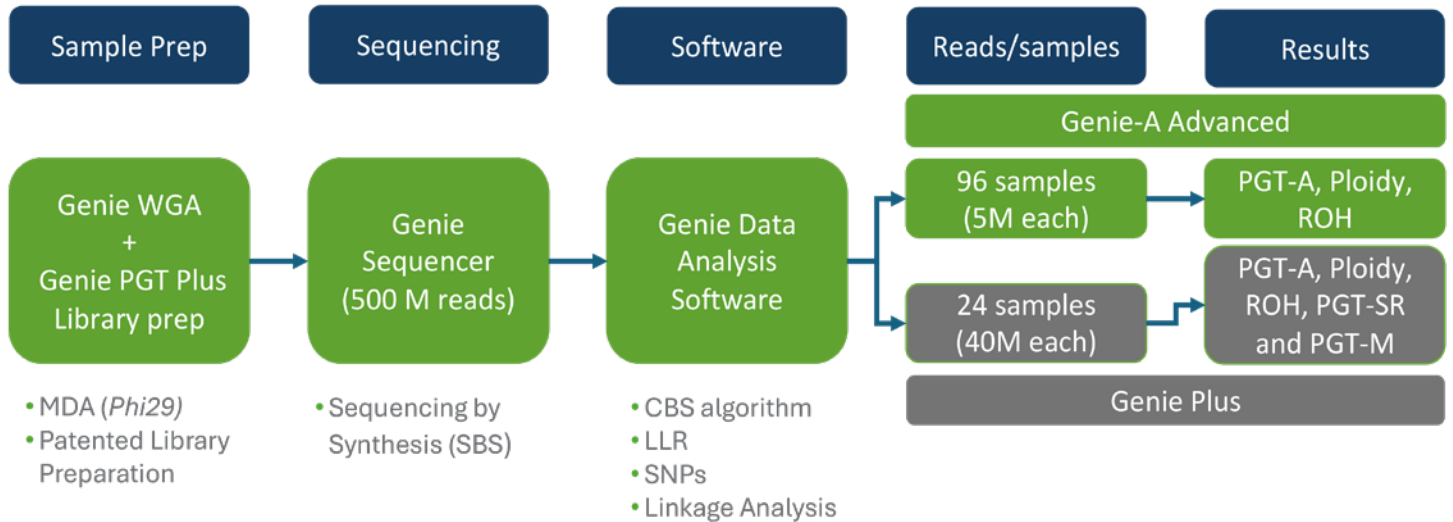


Genie Solution	No. of Samples/run	Reads/sample	Read Length	Application
Genie-A Fast	Up to 48 & 96	5M	1 x 100 bp	PGT-A (CNV, Ploidy, Sibling QC, ROH)
Genie-A Advanced	Up to 48 & 96	5M	1 x 100 bp	PGT-A (CNV, Ploidy, Sibling QC, ROH)
Genie-Plus	Up to 24 & 48	40M	2 x 100 bp	PGT-M, PGT-SR, PGT-A (CNV, Ploidy, Sibling QC, ROH)



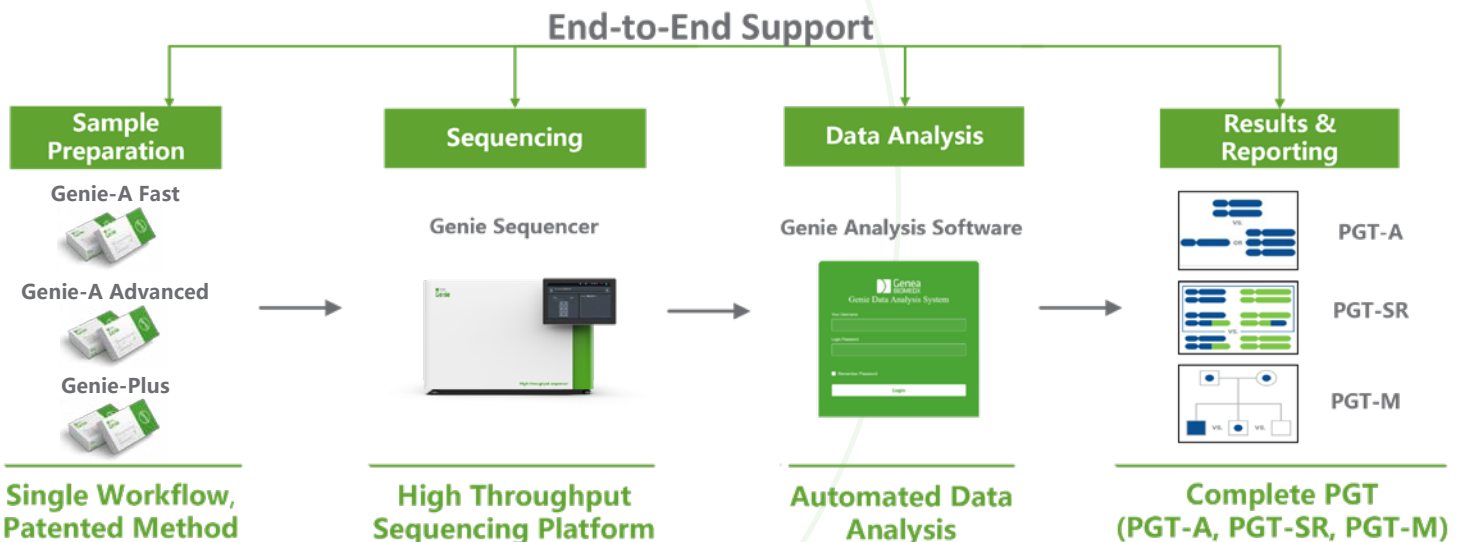
GENIE: SINGLE PGT SOLUTION

A single patented workflow for both PGT-A (Genie-A advanced) and PGT-M (Genie-Plus)



GENIE: END TO END PGT SOLUTION

Genie provides an end-to-end solution for PGT. Sample libraries are prepared using the **Genie Kits**, sequenced on the **Genie Sequencer**, followed by data analysis and reporting on the **Genie Data Analysis Software**.



GENIE KIT CATALOGUE

Catalogue Number	Product Name	Packing List	Quantity
GEN-GAF-96-1	Genie-A Fast for Genie Sequencer (96 samples/run)	Genie-A Sample Prep Kit (96 reactions)	1
		Genie Sequencing kit	1
		Genie Sequencing Flow Cell	1
GEN-GAF-48-2	Genie-A Fast for Genie Sequencer (48 samples/run x2)	Genie-A Sample Prep Kit (96 reactions)	1
		Genie Sequencing kit	2
		Genie Sequencing Flow Cell	2
GEN-GAA-96-1	Genie-A Advanced for Genie Sequencer (96 samples/run)	Genie WGA kit (48 reactions)	2
		Genie-Plus Sample Prep Kit (50 reactions)	2
		Genie-Plus Index Primers (96 indexes)	1
		Genie Sequencing kit	1
		Genie Sequencing Flow Cell	1
GEN-GAA-48-1	Genie-A Advanced for Genie Sequencer (48 samples/run)	Genie WGA kit (48 reactions)	1
		Genie-Plus Sample Prep Kit (50 reactions)	1
		Genie-Plus Index Primers (96 indexes)	1
		Genie Sequencing kit	1
		Genie Sequencing Flow Cell	1
GEN-GAP-24-2	Genie-Plus for Genie Sequencer (24 samples/run x2)	Genie WGA kit (48 reactions)	1
		Genie-Plus Sample Prep Kit (50 reactions)	1
		Genie-Plus Index Primers (96 indexes)	1
		Genie Sequencing kit	2
		Genie Sequencing Flow Cell	2
GEN-GAP-24-4	Genie-Plus for Genie Sequencer (24 samples/run x4)	Genie WGA kit (48 reactions)	2
		Genie-Plus Sample Prep Kit (50 reactions)	2
		Genie-Plus Index Primers (96 indexes)	1
		Genie Sequencing kit	4
		Genie Sequencing Flow Cell	4
GEN-WGA-01*	Genie WGA kit	Genie WGA kit (48 reactions)	1

*Common to both Genie - A Advanced and Genie-Plus

For detailed catalogue options to support DNBSEQ-G400, please contact your Genea representative.

Please refer to the instructions for use.

For further information, please contact your Service Representative or visit:

www.geneabiomedx.com