



## Next-generation sequencing

# Genexus Purification System

The Ion Torrent™ Genexus™ Purification System automates nucleic acid extraction, purification, and quantitation on a single platform to provide a consistent and efficient workflow solution for next-generation sequencing (NGS) sample preparation. As part of the Ion Torrent™ Genexus™ System, the Genexus Purification System integrates with the Ion Torrent™ Genexus™ Integrated Sequencer to deliver specimen-to-report NGS automation in a single day.

The Genexus Purification System helps minimize user processing errors and increases the reproducibility of your results by requiring just one touchpoint and 10 minutes of hands-on time for NGS sample preparation. The Genexus Purification System provides you with a plate of purified and quantified nucleic acid samples that are ready to be loaded onto the Genexus Integrated Sequencer for downstream NGS applications. The Genexus Purification System supports multiple specimen types, including plasma; whole blood; peripheral blood leukocytes (PBLs); and lysate from formalin-fixed, paraffin-embedded (FFPE) tissue, fresh-frozen tissue, and bone marrow.

### Key features of the Genexus Purification System

<b>Automation</b>	Automates nucleic acid extraction, purification, and quantitation—all on a single platform
<b>Integrated NGS workflow</b>	Combines with the Genexus Integrated Sequencer to enable specimen-to-report NGS automation, sample tracking, and run planning to the final variant report
<b>Broad range of specimen types</b>	Completes DNA, RNA, and cell-free total nucleic acid (cfTNA) purification for multiple specimen types, including plasma; whole blood; PBLs; and lysate from FFPE tissue, fresh-frozen tissue, and bone marrow
<b>Rapid turnaround</b>	Goes from specimen to purified and quantified nucleic acid that's ready for NGS analysis in as little as 2 hr
<b>Easy operation</b>	Works simply with prefilled reagents that require only one touchpoint and 10 min of hands-on time
<b>Quality compliance</b>	Manufactured at an FDA-registered and ISO 13485–certified facility
<b>Automated setup for error detection</b>	Confirms correct reagent placement and expiration dates of consumables; detects errors through automated barcode scanning

## Genexus Purification System kits

Kit	Specimen type	Output nucleic acid type	Reactions per kit
Ion Torrent™ Genexus™ FFPE DNA/RNA Purification Kit (DNA and RNA sequential)	Lysate from FFPE tissue (surgical resection, core needle biopsy, fine needle aspirate)	DNA and RNA, DNA only, or RNA only	48
Ion Torrent™ Genexus™ Cell-Free Total Nucleic Acid Purification Kit	Plasma	cfTNA	24
Ion Torrent™ Genexus™ Multisample DNA Purification Kit	Whole blood, PBLs, lysate from fresh-frozen tissue or bone marrow	DNA only	48
Ion Torrent™ Genexus™ Total RNA Purification Kit		RNA only	48

## Instrument specifications

<b>Instrument type</b>	Benchtop sample preparation system
<b>Instrument capability</b>	Automated nucleic acid extraction, purification, and quantitation
<b>Number of samples per run</b>	12 samples, except with the Genexus Cell-Free Total Nucleic Acid Purification Kit, which accepts 6 plasma samples at maximum capacity
<b>Specimen types</b>	Plasma; whole blood; PBLs; and lysate from FFPE tissue, fresh-frozen tissue, and bone marrow
<b>Specimen input volumes</b>	200 µL FFPE lysate; 1–8 mL plasma; 50–400 µL whole blood (DNA kit); 50–150 µL whole blood (RNA kit); 50–200 µL PBLs* (DNA kit); 50–150 µL PBLs* (RNA kit)
<b>Elution volume</b>	20–115 µL
<b>Dimensions (D x W x H)</b>	58.4 x 91.4 x 67.3 cm (23 x 36 x 26.5 in.)
<b>Weight</b>	68 kg (150 lb)
<b>Power</b>	100–240 VAC, 50/60 Hz, 5–12 A
<b>Warranty</b>	12 months
<b>Extended service warranty</b>	AB Assurance Service Contract available
<b>Software</b>	Genexus™ Software

\* PBLs isolated from 1–10 mL whole blood in EDTA tube.

## Run times on the Genexus Purification System

Purification kit	Sample type	Protocol	Run times		
			4 samples	8 samples	12 samples
Ion Torrent™ Genexus™ FFPE DNA/RNA Purification Kit	Tumor resection, fine needle aspirate, core needle biopsy	FFPE_DNA_RNA	3 hr	4 hr 15 min	5 hr 15 min
		FFPE_DNA	1 hr	1 hr 30 min	2 hr
		FFPE_RNA	2 hr	2 hr 30 min	3 hr 30 min
Ion Torrent™ Genexus™ MultiSample DNA Purification Kit	Whole blood, cell lysate	Blood_DNA	1 hr 45 min	2 hr 30 min	2 hr 45 min
	Bone marrow aspirate	Bone Marrow_DNA	1 hr 45 min	2 hr 30 min	2 hr 45 min
	Buffy coat	PBL_DNA	1 hr 45 min	2 hr 30 min	2 hr 45 min
	Homogenized tissue	Tissue_DNA	1 hr 30 min	2 hr	2 hr 30 min
Ion Torrent™ Genexus™ Total RNA Purification Kit	Whole blood, buffy coat, bone marrow aspirate	Biofluid_RNA	2 hr 15 min	3 hr	3 hr 30 min
	Tissue	Tissue_RNA	1 hr 45 min	2 hr 15 min	2 hr 45 min
	Cell lysate	Cells_RNA	1 hr 45 min	2 hr 15 min	2 hr 45 min
Purification kit	Sample type	Protocol	2 samples	4 samples	6 samples
Ion Torrent™ Genexus™ Cell-Free Total Nucleic Acid Purification Kit	Plasma	cfTNA 8ML	2 hr 45 min	3 hr	3 hr 15 min

**Recommended input volumes for various sample types**

Sample type	Source	Input range	Recommended input
FFPE	Tumor resection	1 x 5 µm curl/slide to 4 x 10 µm curl/slide	1 x 10 µm curl/slide
	Fine needle aspirate	1 x 5 µm curl/slide to 6 x 10 µm curl/slide	4 x 10 µm curl/slide
	Core needle biopsy	1 x 5 µm curl/slide to 6 x 10 µm curl/slide	4 x 10 µm curl/slide
Sample type	Source	Nucleic acid	Input range
Multisample	Whole blood	DNA	50–400 µL
	Bone marrow aspirate	DNA	50–200 µL
	Buffy coat	DNA	50–200 µL
	Cell lysate	DNA	400 µL
	Homogenized tissue	DNA	400 µL (starting with 10 mg from low-yield tissue or 5 mg from high-yield tissue)
Multisample	Whole blood	RNA	50–150 µL
	Bone marrow aspirate	RNA	50–150 µL
	Buffy coat	RNA	50–150 µL
	Cell lysate	RNA	150 µL (4 x 10 <sup>6</sup> cells)
	Homogenized tissue	RNA	400 µL (up to 10 mg)
Cell-free total nucleic acid	Plasma	DNA/RNA fragments	1–8 mL

**Ordering information**

Product	Cat. No.
Genexus Purification System	A48148

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