Next-generation sequencing

Ion Chef System

Simple, reproducible, automated workflows for Ion Torrent sequencing

The Ion Chef™ System supports the automated next-generation sequencing (NGS) workflow for the Ion GeneStudio™ S5 systems, enabling walk-away automation for Ion AmpliSeq™ library preparation through template preparation and semiconductor chip loading.

Ion Chef System

- Automates library generation, equalization, and pooling for Ion AmpliSeq™ 1- and 2-pool designs for up to 8 samples in a single instrument run
- Simplifies template preparation and chip loading using a single automated process for loading of up to two Ion Torrent™ semiconductor sequencing chips per instrument run
- Helps reduce sources of variability for users at all experience levels
- Helps save time and labor with less than 45 minutes of hands-on time from DNA samples to sequencing data
- Supports the Ion GeneStudio S5 NGS platforms, which include the Ion GeneStudio S5, S5 Plus, and S5 Prime systems, and is compatible with all Ion GeneStudio S5 system sequencing chips

Simple, automated workflow

The Ion Chef System simplifies the Ion Torrent semiconductor sequencing workflow by integrating several processes into a single instrument for increased efficiency and throughput (Figure 1). The Ion Chef System automates the NGS workflow prior to sequencing, whether starting from DNA samples and obtaining Ion AmpliSeq libraries or starting from prepared libraries and obtaining up to two sequencing-ready chips. The instrument also has an intuitive touchscreen interface that simplifies setup, workflow integration, and run monitoring.

Reduced variability

The Ion Chef System helps users of various experience levels to obtain consistent results by reducing pipetting errors, allowing reproducible chip loading, and enabling sample tracking and system checks with the onboard tracking system.

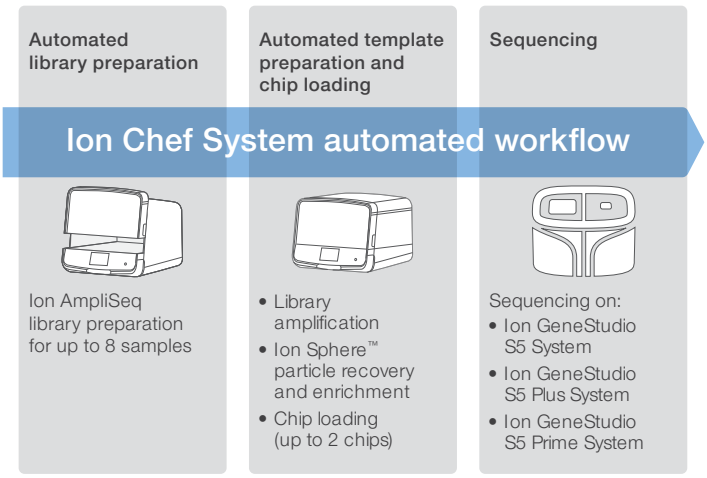

Figure 1. Less than 45 minutes of hands-on time is required from library preparation to sequencing. The Ion Chef System fully automates library preparation and template preparation and produces sequencing-ready Ion Torrent semiconductor chips.

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Equipped with barcode-reading capabilities, the tracking system enables identification of samples, onboard reagents, and chips, and integrates with Torrent Suite™ Software and/or a LIMS system. For added assurance, the tracking system also performs setup checks, including scanning the instrument deck for positioning of reagents and consumables, calibration checks, and instrument diagnostics. Combined with the simple and robust Ion Chef System workflow, the tracking system helps reduce user-introduced errors and variability for increased accuracy and efficiency.

Time and labor savings

The Ion Chef System enables time and labor savings, with just 15 minutes of hands-on time for setup. Simply select the run parameters using the intuitive touchscreen interface and load the library samples, reagents, consumables, and chips onto the deck. A single run of the Ion Chef System will produce one pooled Ion AmpliSeq library for up to 8 samples, or up to two loaded chips for sequencing on the Ion GeneStudio S5 systems, in a single-day workflow. The minimal hands-on time and walk-away automation of the Ion Chef System enables overnight runs, helping to maximize the productivity of your lab.

Ion Chef System specifications	
Platform compatibility	Ion GeneStudio S5 System Ion GeneStudio S5 Plus System Ion GeneStudio S5 Prime System
Chip compatibility	Ion 510™ Chip (200, 400 bases) Ion 520™ Chip (200, 400, 600 bases) Ion 530™ Chip (200, 400, 600 bases) Ion 540™ Chip (200 bases) Ion 550™ Chip (200 bases) Ion 560™ Chip (200 bases)
Ion AmpliSeq panel compatibility	Supports all Ion AmpliSeq 1- and 2-pool panel designs. Reverse transcription for Ion AmpliSeq RNA panels must be done prior to loading cDNA on the Ion Chef instrument.
Library compatibility	Supports template preparation for a broad range of DNA and RNA libraries, including Ion AmpliSeq libraries
Setup time	15 minutes
Weight	150 lb
Dimensions	22.1 x 27.6 x 28.1 in (56.1 x 70 x 71.4 cm)
Power requirements	Voltage: 100 V (min) to 240 V (max) Current: 14 A (max) Frequency: 50/60 Hz Power draw: 1,350 W
Operating environment	Temperature: 20–25°C Humidity: 40–60% (noncondensing)

Ordering information

Product	Cat. No.
Ion Chef System	4484177
Ion GeneStudio S5 System	A38194
Ion GeneStudio S5 Plus System	A38195
Ion GeneStudio S5 Prime System	A38196
Ion AmpliSeq Kit for Chef DL8	A29024
Ion 510 & Ion 520 & Ion 530 Kit – Chef	A34019
Ion 540 Kit-Chef	A30011
Ion 550 Kit-Chef	A34541
Ion 560 Kit-Chef	A56411
Ion 510 Chip Kit	A34292
Ion 520 Chip Kit	A27762
Ion 530 Chip Kit	A27764
Ion 540 Chip Kit	A27766
Ion 550 Chip Kit	A34538
Ion 560 Chip Kit	A56407

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