

Ion Torrent Delivers on Unparalleled Speed, Simplicity and Scalability Enabled by Semiconductor Technology

Milestones include 100-fold scaling and breakthrough product introductions to streamline workflow and enhance sequencing applications

CARLSBAD, Calif. and SAN FRANCISCO, Jan. 9, 2012 /PRNewswire/ -- Life Technologies Corporation (NASDAQ: LIFE) today announced several new products and protocols to improve workflows for Ion Torrent DNA sequencing applications, demonstrating the unparalleled speed, scalability and simplicity that Ion Torrent delivered in 2011.

"In 2011 we scaled semiconductor sequencing 100x and simplified the workflow with Ion OneTouch™," said Ion Torrent Founder and CEO Dr. Jonathan M. Rothberg. "We also developed our first killer app, the most important enhancement to PCR since RT qPCR: Ion AmpliSeq™ technology. It's ideal for researchers and clinicians that are focused on genes of interest in cancer and genetic disease."

[Ion 318™ chips](#) have begun shipping commercially and are expected to deliver up to 1 Gb of high-quality DNA sequencing data per run, 10 times more throughput than the Ion 316™ Chip, which was released six months ago. The Ion 314™ Chips, Ion 316™ Chips and Ion 318™ Chips all work on the same Ion Personal Genome Machine™ (PGM™) Sequencer, giving scientists the flexibility to match a chip with the output and price that best fits their research needs.

"We've used the new Ion 318™ sequencing Chip with great success," said Donna Muzny, Director of Operations, Human Genome Sequencing Center, Baylor College of Medicine. "In the initial testing, we routinely achieved runs of 1Gb aligned Q20 data in combination with the Ion OneTouch™ for template prep. This advancement is very exciting for rapid exome and diagnostic sequencing applications providing capacity and fast cycle times."

"We are impressed by the performance of the Ion 318™ chip," said Dr. Niall Lennon, Assistant Director, Process Development, Broad Institute of Harvard & MIT. "Producing over 1Gb of sequence data in a single run of just a few hours, these chips have opened up many new application areas for the Ion PGM™ Sequencer. A single run produces enough data to call SNPs in several microbial-sized genomes, or to validate/detect over 1,000 mutations in ~50 patients."

[Ion AmpliSeq™ Custom Solutions](#) enable researchers to interrogate targeted genomic regions using up to 1,536 amplicons in a single tube, in a single day. Targeted resequencing panels are a quick, affordable and easy to use sequencing option when scientists know which regions of the genome they want to study. Beginning in March, researchers can use the Ion AmpliSeq™ Designer Software to design custom panels, which will be delivered about four weeks after entering the design.

Ion AmpliSeq™ Technology offers the easiest, simplest workflow for targeted sequencing:

- Library construction takes just 3.5 hours and minutes of hands-on time
- Ion AmpliSeq™ technology requires just 10 ng of starting DNA
- Push-button analysis tools help identify thousands of known or novel DNA variants
- Ion AmpliSeq™ technology offers the most even selection of targets of any method

[Ion AmpliSeq™ Fixed Content Panels](#) combine the flexibility and scalability of Ion AmpliSeq™ Technology with that of Ion semiconductor sequencing chips. The Ion AmpliSeq™ Inherited Disease Panel focuses on Mendelian disease research, targeting about 100 disease states and enabling scientists to interrogate ~10,000 amplicons in total, using the Ion 316™ chip. The Ion AmpliSeq™ Comprehensive Cancer Panel targets about 400 genes implicated in tumor formation and interrogates about ~10,000 amplicons in total, using the Ion 318™ chip.

Both fixed content panels and the Ion AmpliSeq™ 2.0 kit will be offered under developer access in Q1 and launch commercially in Q2. Ion AmpliSeq™ Custom panels will be supported with Ion AmpliSeq™ 2.0 kit.

Ion AmpliSeq™ fixed and custom panels now have protocols to enable the use of any of the 32 commercially available Ion Xpress™ Barcode Adaptors, dramatically reducing sequencing costs.

For example, the 46-gene Ion AmpliSeq™ Cancer Panel, released in October 2011, can be used for single samples with the Ion 314™ chip and for 12 samples (six tumor/normal pairs) on a single Ion 318™ chip, which reduces the total cost to approximately \$250 per research sample.

[Ion 2 x 100 base, paired-end sequencing \(PES\) protocols](#) allow for a near doubling of the sequence output per chip and further increase accuracy across the read. Paired-end reads are ideal for improving the *de novo* assembly of sequences, increasing the overall accuracy of sequencing reads and identifying genomic and transcriptional variation. In the second quarter of 2012 Ion Torrent expects to extend the PES protocol to develop 2 x 200 base paired-end sequencing kits. In the second half of 2012 we expect to increase read lengths on the Ion Torrent PGM up to 400 bases.

[Ion OneTouch™ Template 200 Kits](#) enable long templates to be amplified efficiently using the automated Ion OneTouch™ System. With these kits, shipping in February, DNA libraries with insert sizes of up to 260 base pairs for 200 base pair sequencing take only four hours to prepare, with only minutes of hands-on time.

Torrent Suite v2.0 software delivers up to 30 percent faster data processing times along with a new variant calling plug-in for both germ line and somatic mutations that offers significant improvements to SNP calling and more accurate insertion and deletion detection. Torrent Suite v2.0 software will launch in January.

[Ion Torrent economies of scale](#) continue to make sequencing even more affordable and accessible to labs around the world. With the introduction of the Ion 318™ chip, Life Technologies is reducing the price of the Ion 316™ chip by over 40 percent. Ion is able to lower the price because of the significant sales volume generated by the Ion 316™ chip and the economies of scale inherent in semiconductor manufacturing. Life Technologies has also introduced a new Torrent Server for the Ion PGM™ System that is priced 40 percent lower than the current Torrent Server.

All products referenced are for Research Use Only, and not intended for any animal or human therapeutic or diagnostic use.

About Life Technologies (www.lifetechnologies.com)

Life Technologies Corporation is a global biotechnology company dedicated to improving the human condition. Our systems, consumables and services enable researchers to accelerate scientific and medical advancements that make life even better. Life Technologies customers do their work across the biological spectrum, working to advance the fields of discovery and translational research, molecular medicine, stem cell-based therapies, food safety and animal health, and 21st-century forensics. The company manufactures both molecular diagnostic and research use only products. Life Technologies' industry-leading brands are found in nearly every life sciences lab in the world and include innovative instrument systems under the Applied Biosystems and Ion Torrent names, as well as the broadest range of reagents with its Invitrogen, GIBCO, Ambion, Molecular Probes and TaqMan® products. Life Technologies had sales of \$3.6 billion in 2010, has a workforce of approximately 11,000 people, has a presence in approximately 160 countries and possesses one of the largest intellectual property estates in the life sciences industry, with approximately 3,900 patents and exclusive licenses. For more information on how we make a difference, please visit <http://www.lifetechnologies.com>.

Life Technologies' Safe Harbor Statement

This press release includes forward-looking statements about our anticipated results that involve risks and uncertainties. Some of the information contained in this press release, including, but not limited to, statements as to industry trends and Life Technologies' plans, objectives, expectations and strategy for its business, contains forward-looking statements that are subject to risks and uncertainties that could cause actual results or events to differ materially from those expressed or implied by such forward-looking statements. Any statements that are not statements of historical fact are forward-looking statements. When used, the words "believe," "plan," "intend," "anticipate," "target," "estimate," "expect" and the like, and/or future tense or conditional constructions ("will," "may," "could," "should," etc.), or similar expressions, identify certain of these forward-looking statements. Important factors that could cause actual results to differ materially from those in the forward-looking statements are detailed in filings made by Life Technologies with the Securities and Exchange Commission. Life Technologies undertakes no obligation to update or revise any such forward-looking statements to reflect subsequent events or circumstances.

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