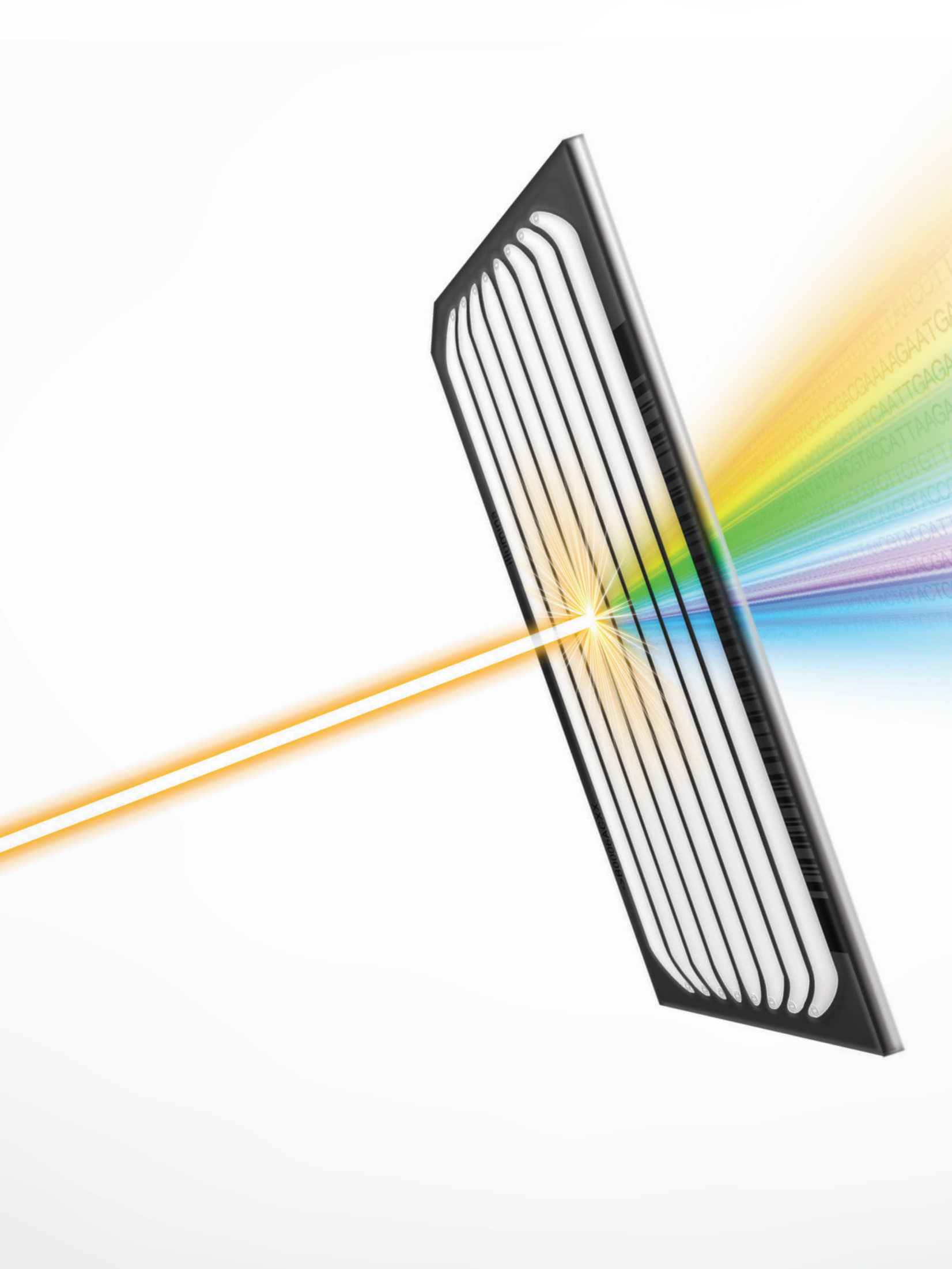
illumina®

Sequencing power for every scale.

Accessible sequencing solutions for every study, every lab.



Proven sequencing technology.

Accelerate your research. Achieve your next breakthrough.

What started as novel Illumina chemistry, sequencing by synthesis (SBS) technology, has fueled a sequencing revolution.

Every day, researchers are using Illumina next-generation sequencing (NGS) systems to unlock the power of the genome. Studying cancer, genetic disease, microbiology, and agriculture. Enhancing research in emerging fields such as reproductive health and forensic science. Making breakthrough discoveries that increase our understanding of genotypic and phenotypic variation.

A complete portfolio.

The right system for your study, your lab.

MiSeq® System

Focused power

Combining speed, high-quality data, and the longest read lengths, the MiSeq System is ideal for sequencing targeted panels, amplicons, and small genomes. A cost-effective alternative to capillary electrophoresis applications, it can perform rapid sequencing and variant detection for time-critical studies.

- Replaces capillary electrophoresis in many applications
- Offers the longest read length of any desktop system

MiSeqDx™ System

Focused Dx power

Designed specifically for clinical laboratories, the MiSeqDx System is the first FDA-cleared *in vitro* diagnostic next-generation sequencing (NGS) system.

- Screening and diagnostic testing
- Data output tailored to the needs of clinical labs
- Integrated software enables sample tracking, user traceability, and results interpretation

NextSeq® 500 System*

Flexible power

The NextSeq 500 System delivers the power of high-throughput sequencing with the simplicity of a desktop sequencer—transforming exome, transcriptome, and whole-genome sequencing (WGS) into everyday research tools. High-quality data and accuracy combined with a versatile and flexible platform let you easily switch from one application to another. Streamlined NGS workflows enable you to perform low- and high-throughput studies to support many project sizes.

- Only desktop system capable of sequencing a human whole genome in a single run
- Configurable output and fast run time support a wide range of applications and sample sizes

* The NextSeq 550 System has identical sequencing specifications to the NextSeq 500 System and includes array scanning functionality for cytogenomic and karyomapping applications.

The HiSeq® Series

HiSeq 2500 System

Production power

Offering a high-powered, cost-effective sequencing solution, the HiSeq 2500 System enables you to quickly and economically perform large-scale high-throughput exome, transcriptome, and WGS projects. The system can process 1 or 2 flow cells in parallel and offers flexible run modes. These features let you adjust data output to support your studies.

- Proven powerhouse configurable for a wide range of applications and sample sizes
- Offers rapid and high-throughput modes for increased flexibility

HiSeq 3000 and HiSeq 4000 Systems†

Production power

Introducing a new standard in production-scale sequencing. Building on the proven HiSeq 2500 System and now leveraging innovative patterned flow cell technology, the HiSeq 3000 and HiSeq 4000 Systems provide unparalleled speed and performance. Now you can perform large-scale, high-throughput exome, transcriptome, and WGS projects more quickly and economically than ever before.

- Maximizes throughput
- Increases data output
- Achieves the lowest price per sample

† Available in single (HiSeq 3000 System) and dual (HiSeq 4000 System) flow cell configurations.

Empowering.
Human whole-genome sequencing.

The HiSeq X™ Series. Maximum throughput. Lowest price per genome.

HiSeq X Ten System

Population power

The HiSeq X Ten System is the first and only sequencing platform to break the $1000 barrier for a human genome at 30x coverage. Composed of 10 or more individual instruments, the HiSeq X Ten System is ideal for population-scale projects focused on the discovery of genotypic variation. It can rapidly sequence tens of thousands of genomes at high coverage, delivering a comprehensive catalog of human variation within and outside of coding regions. With its ultra-high throughput and unprecedented low price per genome, the HiSeq X Ten System makes population-scale human whole-genome sequencing (WGS) a reality.

- Sequences tens of thousands of human whole genomes per year
- Achieves the $1000 human genome milestone, including instrument depreciation, sample preparation, and labor*

* Depreciation schedules and labor may differ due to differences in institutional accounting and staffing.

HiSeq X Five System

The HiSeq X Five System, a set of 5 or more individual HiSeq X Instruments, delivers fast, affordable, production-scale human WGS. With a lower initial capital investment than the HiSeq X Ten System, the HiSeq X Five System provides an accessible entry point to human WGS with an upgradeable path to population-scale sequencing and the $1000 genome. Now more researchers can complete large-scale human WGS projects rapidly, in their own labs.

- Sequences more than 9000 human whole genomes per year
- Offers an affordable price per human whole genome

Accessible sequencing solutions.

Power tailored for every researcher, application, and scale of study.

Product	MiSeq	NextSeq 500*	
Description	Focused power Speed and simplicity for targeted and small-genome sequencing	Flexible power Speed and simplicity for everyday genomics	
Key methods	Small genome, amplicon, targeted gene panel sequencing	Everyday genome, exome, transcriptome sequencing, and more	
Run mode	—	Mid-output	High-output
Flow cells processed per run	1	1	1
Output range	0.3–15 Gb	20–39 Gb	30–120 Gb
Run time	5–55 hours	15–26 hours	12–30 hours
Reads per flow cell‡	25 million§	130 million	400 million
Maximum read length	2 × 300 bp	2 × 150 bp	2 × 150 bp

* The NextSeq 550 System has identical sequencing specifications to the NextSeq 500 System and includes array scanning functionality for cytogenomic and karyomapping applications.

† Specifications shown for an individual HiSeq X System. The HiSeq X System is available only as part of the HiSeq X Five or HiSeq X Ten System.

‡ Clusters passing filter.

§ For MiSeq Reagant Kits v3 only.

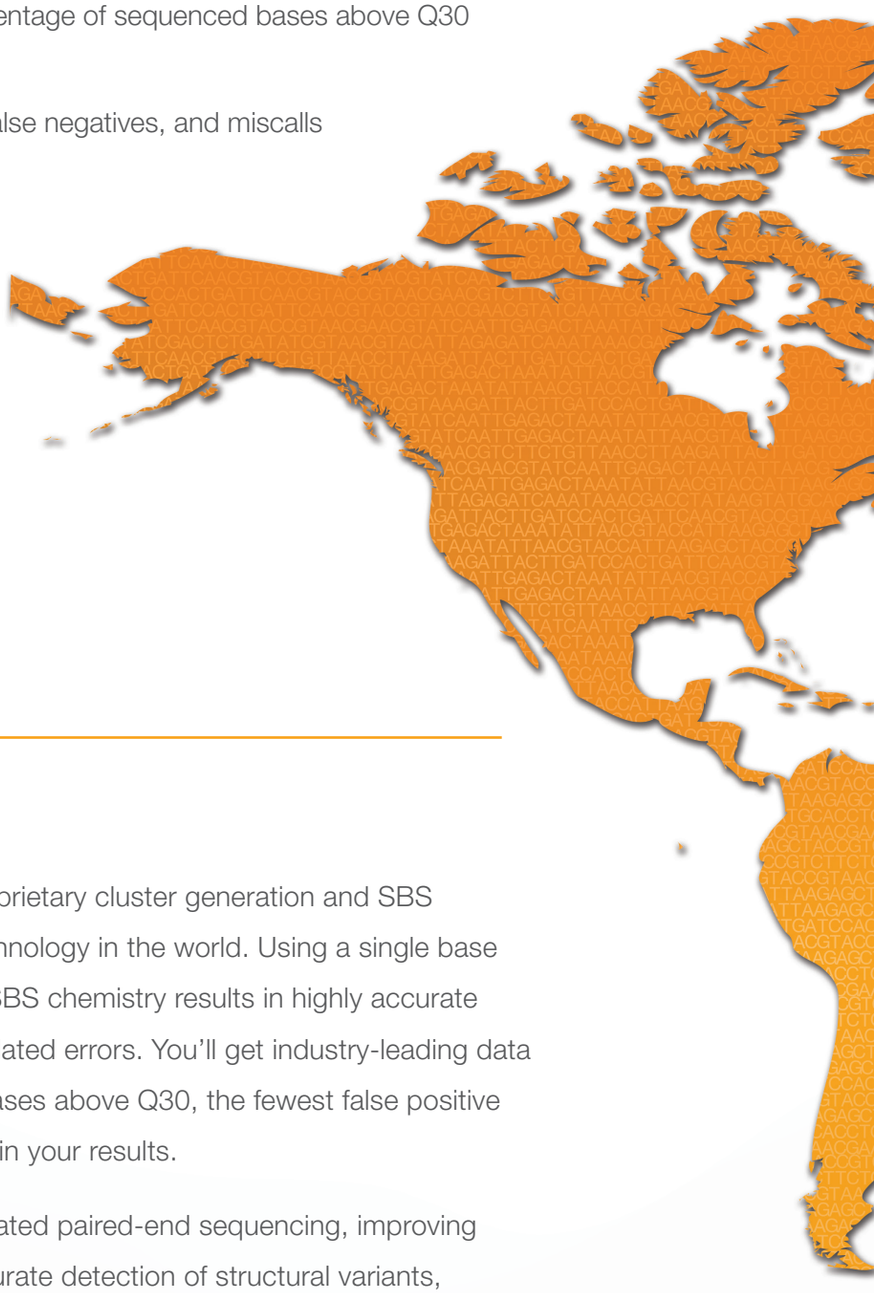
HiSeq 2500		HiSeq 3000	HiSeq 4000	HiSeq X Five†	HiSeq X Ten†
Production power Power and efficiency for large-scale genomics		**Production power** Maximum throughput and lowest cost for production-scale genomics		**Population power** Maximum throughput and lowest cost for population- and production-scale human whole-genome sequencing	
	Production-scale genome, exome, transcriptome sequencing, and more			Population-scale human whole-genome sequencing	
Rapid run	High-output	—	—	—	—
1 or 2	1 or 2	1	1 or 2	1 or 2	1 or 2
10–300 Gb	50–1000 Gb	125–750 Gb	125–1500 Gb	900–1800 Gb	900–1800 Gb
7–60 hours	< 1–6 days	< 1–3.5 days	< 1–3.5 days	< 3 days	< 3 days
300 million	2 billion	2.5 billion	2.5 billion	3 billion	3 billion
2 × 250 bp	2 × 125 bp	2 × 150 bp	2 × 150 bp	2 × 150 bp	2 × 150 bp

Industry-leading data quality.

Trusted technology. Highest confidence.

Your studies deserve the best data quality. That's what our systems are proven to deliver. It's no wonder more than 90% of the world's sequencing data is generated using sequencing by synthesis (SBS) technology from Illumina.

- Obtain the greatest accuracy with the highest percentage of sequenced bases above Q30
- Achieve the highest yield of error-free reads
- Improve efficiency with the fewest false positives, false negatives, and miscalls



The performance you need.

Every Illumina sequencing system leverages our proprietary cluster generation and SBS chemistry, the most widely adopted sequencing technology in the world. Using a single base extension and competitive addition of nucleotides, SBS chemistry results in highly accurate sequencing that virtually eliminates homopolymer-related errors. You'll get industry-leading data quality with the highest percentage of sequenced bases above Q30, the fewest false positive and false negative calls, and the utmost confidence in your results.

All Illumina sequencing systems perform fully automated paired-end sequencing, improving alignment and genome assembly, and enabling accurate detection of structural variants, gene fusions, and transcript isoforms.

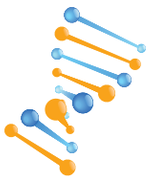

>90%
of the world's sequencing data
is generated using
Illumina SBS technology

A wealth of library prep solutions.

A depth of applications.

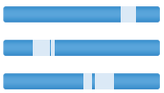
Developed to seamlessly integrate with our next-generation sequencing (NGS) workflows, our extensive high-quality library prep solutions support the broadest diversity of applications and sample types.

Select from a broad range of applications:*

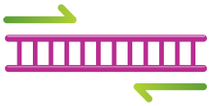


Whole genome

Transcriptome



Exome



Amplicon

Targeted panels

NeoPrep™ Library Prep System

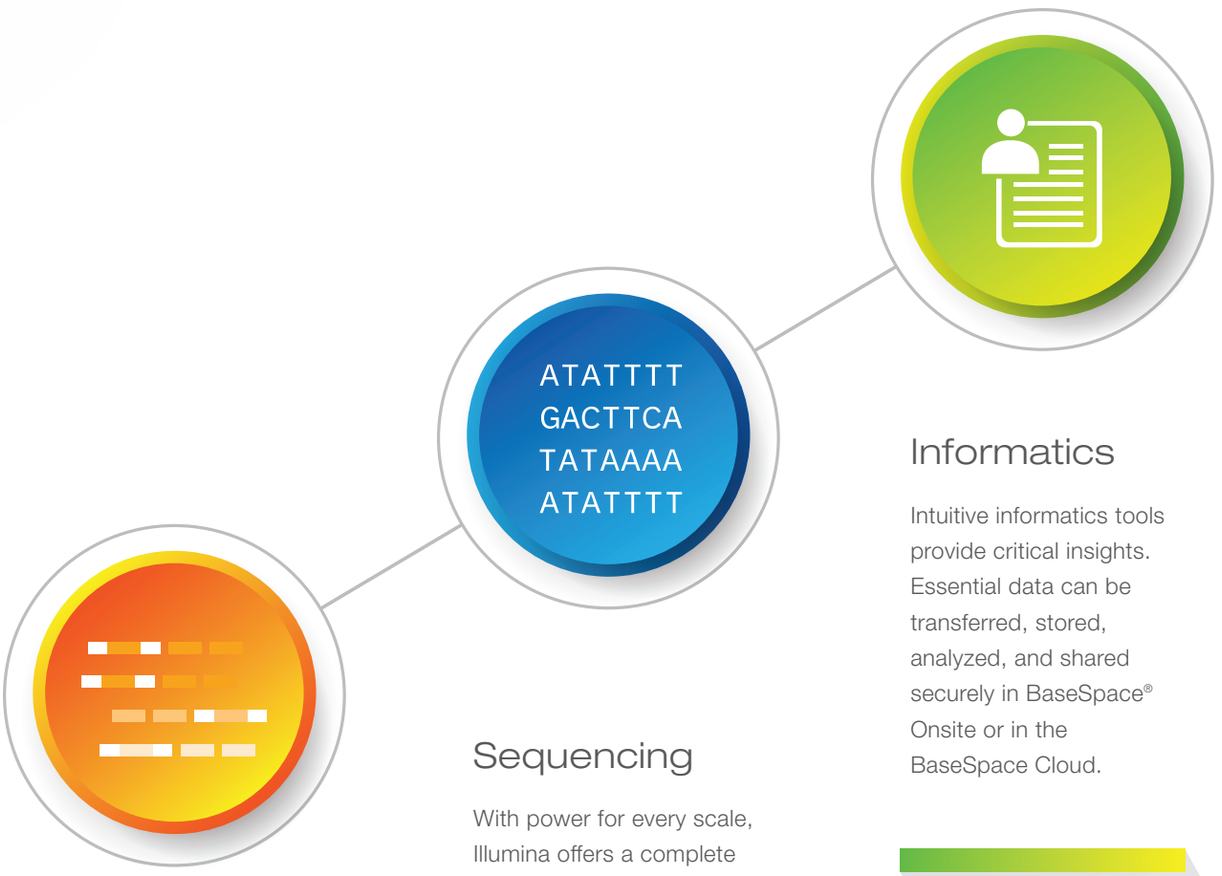
Powerfully simple

Featuring the precision of digital microfluidics and unparalleled ease of use, the NeoPrep System radically simplifies library prep. Now you can dramatically reduce hands-on time and achieve reproducible, high-quality libraries, even with limited starting material.

- Accepts 10x lower input for some assays
- Takes just 30 minutes of hands-on time per run
- Delivers walk-away library prep, quantification, and normalization
- Works with all Illumina sequencing systems

* Refer to www.illumina.com/neoprepsystem for a list of currently available applications.


Instrument Name
Welcome to NeoPrep™
Access Logs
Prepare Libraries
Manage Instrument
NeoPrep™



Informatics

Intuitive informatics tools provide critical insights. Essential data can be transferred, stored, analyzed, and shared securely in BaseSpace® Onsite or in the BaseSpace Cloud.

Sequencing

With power for every scale, Illumina offers a complete portfolio of next-generation sequencing (NGS) solutions that are accessible for every study and every lab.

Library prep

In addition to manual options, Illumina offers the NeoPrep System for reproducible sequencing-ready libraries with just 30 minutes of hands-on time per run.

Optimize with simply smart NGS workflow solutions.

One seamless process. One complete resource.

From library prep to sequencing and informatics, Illumina offers seamless NGS workflow solutions that optimize your process from start to finish and accelerate your progress. As the innovators of next-generation technology, we're here to deliver the experience and expertise to help propel your success.

World-class solutions.

A community of support.

From sample prep, library prep, arrays, and sequencing to informatics, Illumina next-generation solutions empower researchers and clinical researchers across the globe to find the answers they seek.

When you join the Illumina community, you become part of a dynamic scientific movement that includes thousands of researchers and industry thought leaders. Throughout the year, we host user group meetings, symposia, consortia, online forums, and other initiatives—all designed to bring the best minds together to share ideas and advance science.

In addition to on-site training, ongoing support, and phone consults, we offer webinars and courses at various Illumina locations. We're here with all the resources you need to accelerate progress.

Find the right Illumina system for your needs.
www.illumina.com/sequencer

A global genomics leader, Illumina delivers complete next-generation sequencing workflow solutions to the basic and translational research communities. Illumina technology is responsible for generating more than 90% of the world's sequencing data. Through collaborative innovation, Illumina is fueling groundbreaking advancements in the fields of oncology, reproductive health, genetic disease, microbiology, agriculture, and forensic science.

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