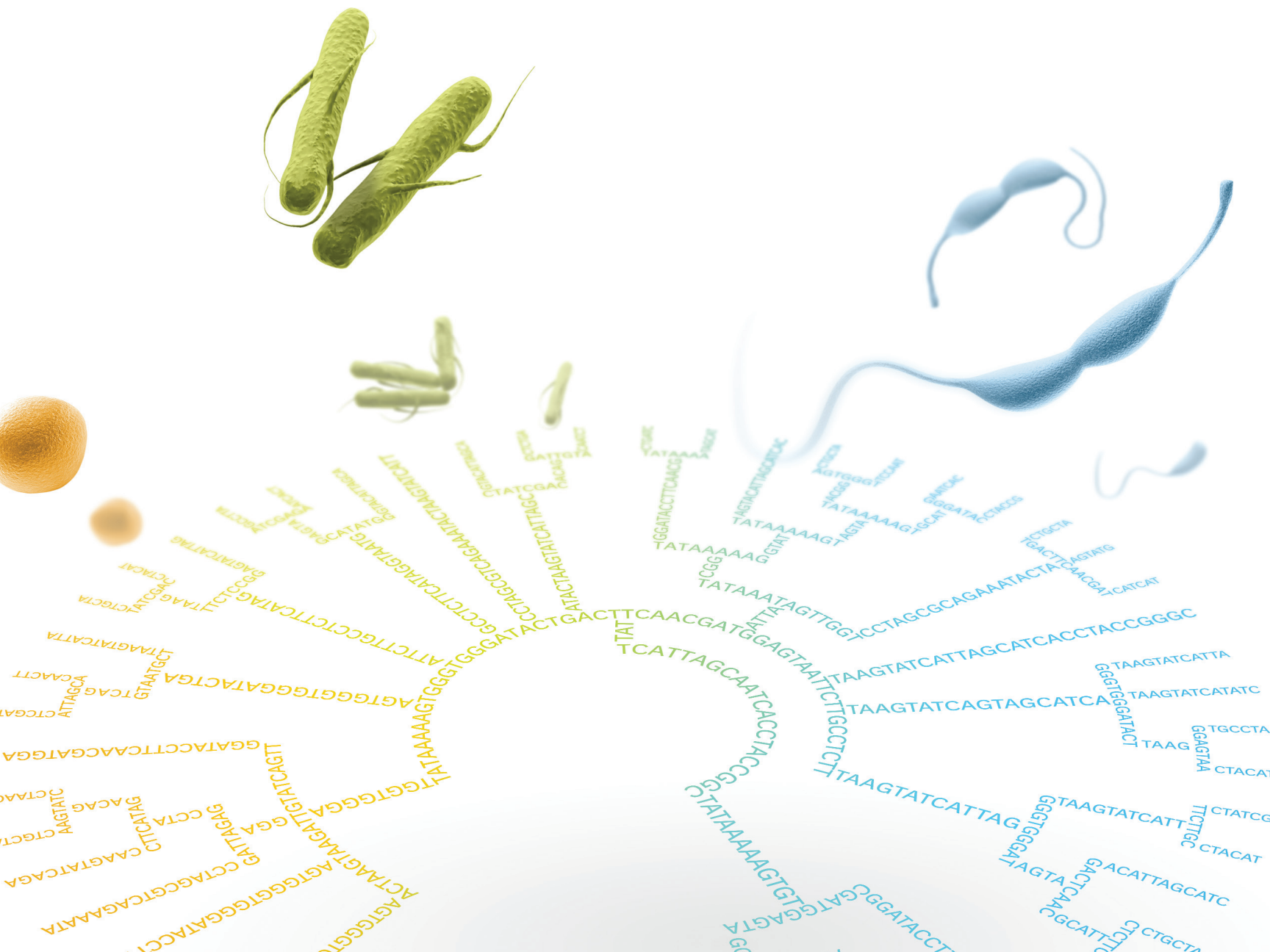


# Accelerate genomic breakthroughs in microbiology.

Gain deeper insights with powerful bioinformatic tools.



# Empowering microbial genomics.

Extensive methods. Expansive possibilities.

In microbiome studies or environmental surveillance, high-resolution genomic data can be instrumental in examining pathogenesis, gene transfer, pan-genomes, and coevolution of hosts and parasites. Next-generation sequencing (NGS) enables many types of microbial studies, including direct evolution, mutation screening, and epidemiology. With the power and high resolution of Illumina NGS workflow solutions, you can now decipher the genetic makeup of organisms that were previously impossible to study.

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## Powerful bioinformatics.

**Intuitive tools provide critical insights.**

Easily translate your genomic variant data into valuable discoveries with our push-button, cloud-based bioinformatics solutions. Securely transfer, store, analyze, and share your microbial data in the BaseSpace® Cloud or BaseSpace Onsite, the local version of the platform.





# A breadth of applications.

A depth of discoveries.

Multiple microbiology applications  
are accessible with the MiSeq<sup>®</sup> System.





## Human health

With the advent of next-generation sequencing, a new field of research, metagenomics, was born. Enabling comprehensive examination of microbial communities without cultures, metagenomics allows researchers to analyze the impact of each person's unique microbiome.



## Reproductive health

Assess imbalances in bacterial communities in the vagina that increase the risk for infertility, spontaneous abortion, and preterm birth. Organizations like The Vaginal Microbiome Consortium are studying the impact of the vaginal microbiome on women's health.



## Agriculture

Analyze the equilibrium and symbiosis of microbes and plants. The Earth Microbiome Project is currently focusing on a systematic attempt to construct the Earth's microbial biomap.



## BioPharma

Monitor and possibly identify bacteria involved in risk monitoring. A team of scientists are using NGS technology for cell-line genetic stability testing and biosafety in-process monitoring.



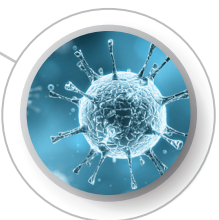
## Population

Understand human microbial variation and corresponding genetic parameters. The American Gut Project is using a 16S rRNA gene sequencing solution to study human gut diversity.



## Environment

Examine a specific bacterial gene from a sample microbial community with a complex and rapidly changing ecosystem. Chris Mason and his team at Cornell School of Medicine are creating a comprehensive map to study the microbiome and metagenome of a city's surfaces.



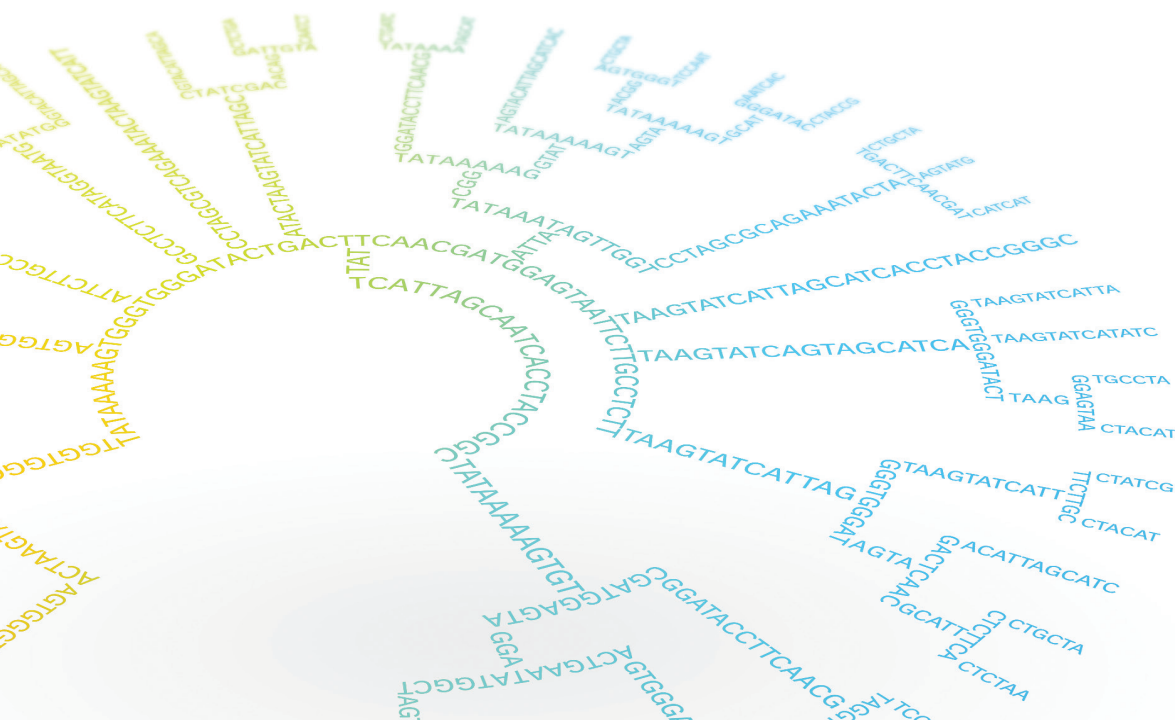
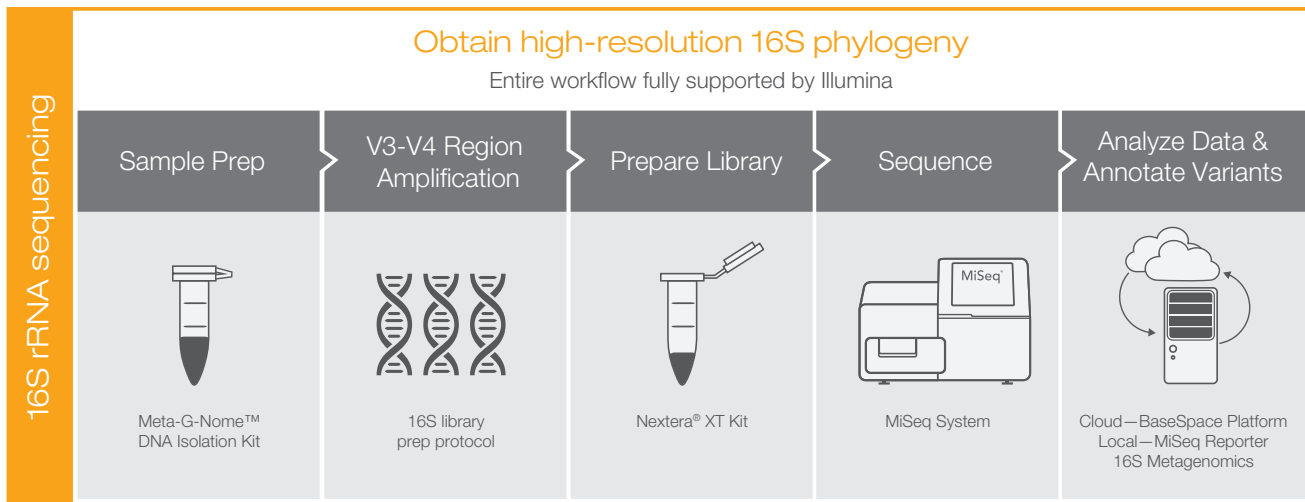
## Infectious disease

Discover generalized mechanisms of pathogen transmission and evolution. "There's definitely a strong clinical need for fast NGS data analysis, especially in the areas of pathogen detection and infectious disease," said Charles Chiu, Director of the Clinical Microbiology Laboratory at the University of California, San Francisco.

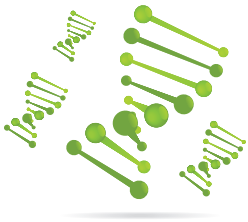
# Go where the science takes you.

## Amplify your research with our 16S workflow solution.

Take your 16S rRNA studies to the next level. Clarify phylogenetic relationships between bacteria, and identify differences between healthy and disease states. Streamline rRNA sequencing of skin, stool, or blood samples, and optimize individual organism analysis. From library prep to analysis, our seamless NGS workflow simplifies the process.

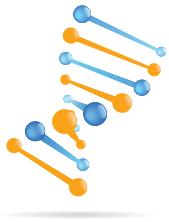






### Shotgun metagenomics

Explore all genes in all organisms present in many complex environmental or microbial samples. Identify symbiosis of organisms within an environment. Evaluate bacterial diversity and detect microbe abundance. Study even the most challenging microorganisms.



### Whole-genome sequencing

Sequence the entire genome and achieve accurate *de novo* assembly using cultures as starting material. Generate reliable reference genomes and sequence previously challenging microbes. Compare genomic studies and identify drug resistance relationships with simplicity and ease.



### Virology

Detect low-frequency viral particles within a noncultured sample. Identify, characterize, and quantify DNA and RNA viral transcripts of infectious agents with a hypothesis-free approach. Rapidly isolate a gene or mutation associated with drug resistance. Identify quasi-species or coinfections within a sample.

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## Optimize with our complete NGS workflow solutions.

### One seamless process. One complete resource.

From library prep to sequencing and informatics, Illumina offers comprehensive NGS workflow solutions that optimize your process and accelerate your progress. As the innovators of next-generation technology, we're here to deliver the experience and expertise to help advance your microbiology research.

# 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.

Discover more about our microbiology solutions at  
[www.illumina.com/microbiology](http://www.illumina.com/microbiology).

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A global genomics leader, Illumina provides 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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