

16S Amplicon sequencing

16S Amplicon Sequencing Service

Basic Introduction

NTHRYS BIOTECH LABS is proud to offer state-of-the-art **16S rRNA Amplicon Sequencing** services, designed to accurately identify and analyze microbial communities across various environments and samples. Our comprehensive approach provides in-depth insights into microbiomes, facilitating cutting-edge research in microbial ecology, health sciences, and environmental studies.

Scientific Principle

The foundation of our 16S Amplicon Sequencing service rests on the analysis of the 16S ribosomal RNA gene, a component found in the ribosome of all bacteria and archaea. This gene is chosen for its unique combination of highly conserved regions that are flanked by hypervariable regions, allowing for the discrimination between different microbial species. Our sophisticated protocol involves several critical steps:

1. **DNA Extraction:** We begin with the extraction of DNA from your sample, ensuring the preservation of the genetic integrity of the microbial community.
2. **PCR Amplification:** Specific primers target the 16S rRNA gene, particularly focusing on the variable regions that provide the highest specificity for microbial identification.
3. **Sequencing:** The amplicons produced from PCR are then sequenced, generating a plethora of data points that represent the microbial diversity present in the sample.
4. **Bioinformatics Analysis:** Finally, advanced bioinformatics tools are employed to analyze the sequencing data. This involves mapping the sequences against databases of known 16S rRNA sequences to identify and quantify the bacteria and archaea in your sample.

This detailed approach allows us to offer unparalleled accuracy and depth in microbial community analysis, providing valuable insights for your research or application.

Applications in Research

The 16S Amplicon Sequencing service is pivotal in a wide array of research methodologies, including:

1. Microbial diversity studies in environmental samples (soil, water, air).
2. Gut microbiome analysis in health and disease states.
3. Antibiotic resistance profiling in clinical isolates.
4. Bioremediation studies and microbial ecology research.
5. Food industry for microbial quality control.

Fields of Science Benefiting from Our Service

Our 16S Amplicon Sequencing service is invaluable across multiple scientific fields, including but not limited to:

- Microbiology
- Environmental Science
- Biotechnology
- Public Health and Epidemiology
- Agricultural Sciences

Major Advantages

Choosing NTHRYS BIOTECH LABS for your 16S Amplicon Sequencing needs offers numerous benefits:

- **Accuracy and Reliability:** High-resolution identification and quantification of microbial species.
- **Comprehensive Analysis:** In-depth microbial community profiling with advanced bioinformatics support.
- **Customizable Solutions:** Tailored to meet specific project requirements and research goals.
- **Expert Support:** Access to our team of experts in microbiology and bioinformatics for consultation and guidance throughout your project.

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