



## Microorganism Identification and Typing

Eurofins BioPharma Product Testing offers multiple state-of-the-art technologies and approaches to Identification (ID) Testing to provide the appropriate level of identification to fit your needs. From identification of environmental isolates, through expert analysis of finished product contaminants, we offer the most comprehensive ID services available for bacteria, molds and yeasts.

We also offer typing services to trace the source and investigate the root cause of contamination by establishing the unique fingerprint of microorganisms.

### Why Choose Eurofins BioPharma Product Testing?

- We have more than 25 years of experience providing comprehensive microbial identification support to the pharmaceutical industries.
- We have vast experience with all species of bacteria and fungi found in the pharma industry.
- We have the largest libraries of reference sequences worldwide for bacteria and fungi.
- Our standard turnaround time is 3-5 business days with priority services upon request.

### Genotypic Identification

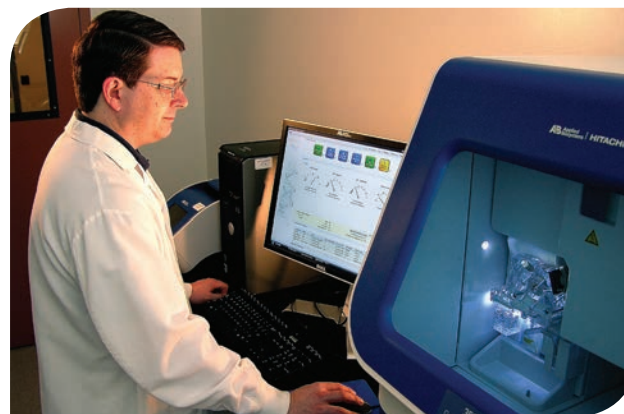
#### Regular Service

#### Unilocus Comparative Sequencing (ULSA)

##### Bacteria: 16S rRNA Gene Long Sequencing

Uses PCR to amplify more than 1,350 base pairs, double strand sequencing and comparison to our validated, proprietary database, Eurofins Microbial Sequencing Index (EMSI), including more than 8,450 valid type strains.

- Genus and species level identification.
- More accurate than partial sequencing.
- Rapid, reliable and efficient.



#### Fungi : 25S rRNA Gene or ITS1/ITS2 Partial Sequencing

Uses 25S rRNA gene.

- Genus and species level identification.
- Rapid, reliable and efficient.

### Expert Service

#### Multilocus Comparative Sequencing (MLSA)

Solves drawbacks from 16S rRNA (bacteria) or 25S rRNA genes, ITS1 and/or ITS2 (fungi), sequencing by increasing resolution to further discriminate at the species level.

- Simultaneous comparative sequencing of multiple genes (housekeeping genes) of taxonomical interest and extended databases of reference sequences: bacteria and molds.
- Application to strain typing (MLST).

### Molecular Typing

Generates fingerprints of bacterial and fungal isolates in order to determine strain similarities for critical investigations, such as media fill and sterility test failures. Typing methodologies available, including:

- MultiLocus Sequence Typing (MLST)
- Arbitrary Primed PCR (APPCR)
- Variable Number of Tandem Repeats (VNTR)
- Pulse Field Gel Electrophoresis (CHEF)
- MicroSatellite Analysis (MSAT)

### Comprehensive GMP Testing Services

Method Development & Validation • Release Testing • Raw Materials Testing  
Cell Banking Services • Virology Services • Facility & Process Validation  
Chemistry • Biochemistry • Molecular & Cell Biology • Microbiology  
Stability Testing & Storage • Primary & Secondary Package Testing

### Flexible Service Models

Fee For Service (FFS)  
Full-Time-Equivalent (FTE)  
Professional Scientific  
Services® (PSS)

### Global Facilities

Australia	France	Italy	Sweden
Belgium	Germany	Netherlands	Switzerland
Canada	India	New Zealand	UK
Denmark	Ireland	Spain	US