

NCIMB Bacterial and Fungal Identification Services

NCIMB

At NCIMB we have extensive experience of providing fast, confidential and accurate identification of bacterial and fungal isolates to Good Manufacturing Practice (GMP) standards.

Molecular and phenotypic techniques

We use a combination of state-of-the-art molecular techniques and traditional microbiology approaches to ensure our clients get the right service for their specific microbial identification and detection needs.

Sample types

We routinely handle a diverse range of substances including food, pharmaceuticals and personal care products as well as cooling or process water, factory slimes, and isolates from personnel and environmental monitoring. We are also regularly called on to confirm the presence or absence of key strains in live products such as yoghurts or fermented foods.

NCIMB offers

- **Easy sample submission:** contact us for advice on preparation and shipping
- **Responsive service** with a choice of same day, next day, 3 day and 10 day turnaround
- **GMP:** we are regularly audited by our blue chip clients from the UK and overseas, ensuring we meet their high standards
- **Clear, easy to understand reporting**
- **Customer satisfaction:** 100% of our customers rated our services as good or excellent

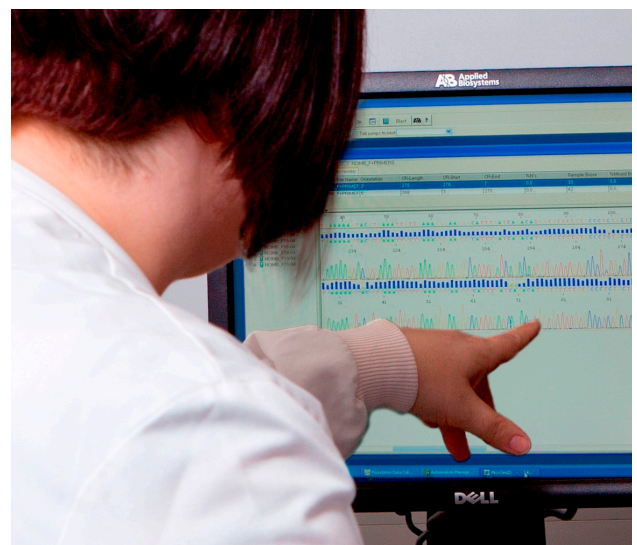
Bacteria

Rapid genotypic identification by sequencing the 16S ribosomal DNA gene is the main method we use for primary identification of bacterial isolates, including **mycoplasma**.

This technique can rapidly identify viable and non-viable organisms, those with complex growth requirements and Gram variable isolates as well as slow growing and/or non-fermenters.

Sequenced data is examined against the **validated MicroSEQ® database**. When MicroSEQ doesn't provide a high enough species level match we also use the more comprehensive, non-validated, **EMBL** public database and our own **culture collection**. As custodians of the UK's National Collection of Industrial, Food and Marine Bacteria, we have immediate access to this unique source of authentic reference material.

Full gene or 500bp options are available and customer reports include top sequence matches and phylogenetic trees.



Yeasts and moulds

Two distinct approaches have emerged for genotypic identification of fungi: sequencing of the D2 region of the large subunit ribosomal DNA (**D2 LSU**) and sequencing of either one or both of the internal transcribed spacer regions (**ITS**).

Our fungal ID service combines these techniques, as appropriate, to obtain the most reliable species level identification.

Phenotypic testing

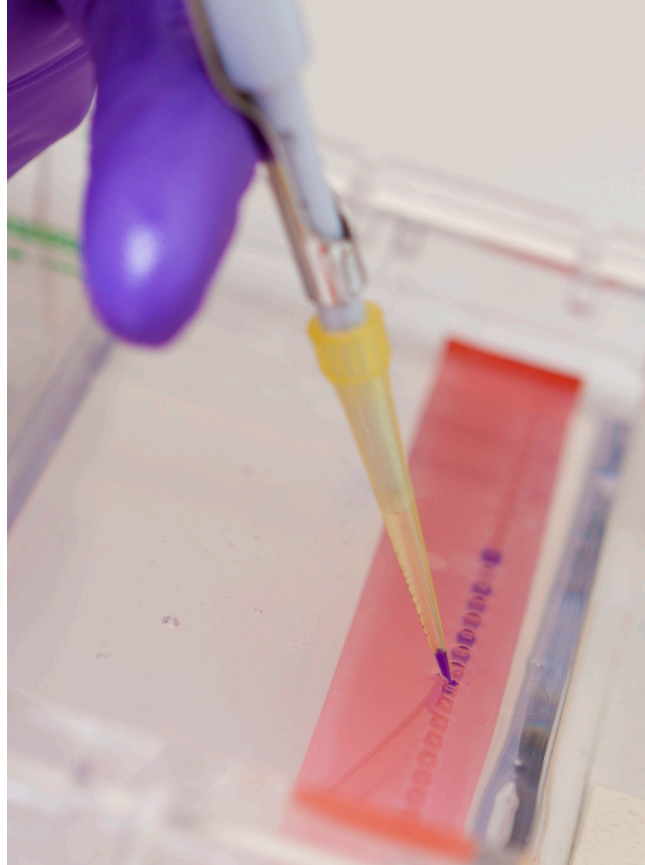
Phenotypic testing is now less commonly used for identification of objectionable organisms, but at NCIMB we are experienced in the use of morphological, physiological and biochemical tests, which can be required e.g. when circumscribing new species.

Strain to strain comparison and differentiation

Identification of bacteria to strain level can be valuable when tracing the source of objectionable organisms in manufacturing environments and comparing them to previous contaminants. It can also be very important with respect to the use of bacteria in patented industrial processes and for the production of probiotic products.

We use the following approaches:

16S rDNA sequencing can be used for basic strain comparison when the full 16s (1500bp) is sequenced. An alignment of several sequences is performed to compare samples - this highlights major differences, but does not always distinguish between closely related strains.



Multilocus sequence typing (MLST) is a highly reproducible DNA sequencing-based technique. Sequences of internal fragments of (typically) seven essential house-keeping genes, i.e. those essential for cells to function, are used to characterise isolates. The data obtained is in the form of a sequence profile comprising seven allele numbers and strains are identified by comparing the sequence profiles with previously published data.

Quantitative polymerase chain reaction (qPCR)

qPCR is a valuable means of determining the presence or absence of an organism or group of organisms in a sample, whilst also providing very rapid quantitative information.

For example, it can be used to monitor the presence of objectionable organisms, enabling remedial action to be taken and modified in response to results as necessary.

Contact us to find out more about our microbial detection and identification services.

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