



NCIMB provides a comprehensive service portfolio to support the selection and maintenance of probiotic strains. Packages can be tailored to requirements.

## Tailored packages; responsive service

Our highly experienced and customer-focused scientists offer flexible and responsive services for the characterisation and assessment of probiotic bacterial strains. Whether you're looking for next-day confirmation of species, screening for antimicrobial resistance genes, or to outsource assessment of the functional characteristics of candidate strains, we will tailor a package to meet your requirements.

Pure cultures are used in the microbiological assessment of strains and rapid turnaround molecular microbial identification. However, we can also accept mixed cultures and lyophilised end products for DNA extraction prior to sequencing.

## Assessment of probiotic strains

At NCIMB, our broad range of tests and analyses provide valuable information that helps customers identify and assess the suitability of probiotic strains.

We offer aggregation testing, assessment of mucin adhesion, low pH survivability assays in simulated gastric fluid, minimum inhibitory concentration (MIC) testing and biochemical testing. We provide comparative genomics of strains as well as checks for strain drift.

## Genomic characterisation of probiotic strains

A high-quality genome sequence offers the ultimate characterisation and understanding of your probiotic strain. It is a key consideration in the responsible use of microbial additives with respect to limiting the spread of antimicrobial resistance, and meets EFSA/FEEDAP guidelines. Our comprehensive genomics package includes genome sequencing, assembly and annotation, including prediction of antimicrobial resistance genes and virulence factors.

## Preservation and secure off-site storage

We are experts in microbial storage. NCIMB is an internationally recognised reference collection for food bacteria with decades of experience in the preservation, storage and distribution of beneficial microbes.

We offer a freeze-drying service for the preservation of master and working cell banks. We can also securely store stocks and handle their distribution to manufacturing sites, helping to minimise the risk of genetic drift.

Our confidential biomaterial storage service also gives you a reliable off-site back-up, providing insurance against loss of your key strains. We offer a full range of storage temperature options, as well as a choice of security features and a cGMP standard service where required.



## Antimicrobial resistance screening

Use our two-pronged approach to understand the antimicrobial resistance in your probiotic strains. Combining our lab-based MIC tests with predictions from whole-genome sequencing helps you understand the potential of intrinsic and acquired antimicrobial resistance.

## Rapid 16S identification

Obtain rapid identification of strains with our 16S Sanger sequencing service. With 1-day, 3-day and 10-day turnaround options, we operate our molecular identification service to GMP standards with identifications made on the validated MicroSeq™ database.

## Mucin adhesion assessment

Mucin-associated bacteria live in close contact with the intestinal epithelium, and have been associated with health benefits. We undertake mucin adhesion assessment, allowing you to understand the capability of your probiotic strains to colonise this environment.

## EFSA/FEEDAP guidelines

Keep on top of feed additive guidelines with whole-genome sequencing. Our analyses are tailored to the industry's requirements, and once sequenced, the whole genome data is available for any future analysis required.

## Gastric survival assays

Probiotics must survive the acidic gastric environment if they are to reach the small intestine and colonize the host. At NCIMB we can perform low pH survivability assays in simulated gastric fluid to help you assess the suitability of candidate strains.

## Comparative genomics & bioinformatics

Whether you need to monitor strain drift or separate closely related serovars, our analysis of whole genome sequencing data can give you important context for understanding your strain's genome.

## Aggregation testing

The auto-aggregation ability of bacteria is an important characteristic with respect to probiotic strains as it is key to maintaining the bacterial population within the gut. At NCIMB we carry out auto-aggregation testing of potential probiotic strains.

## Contract research

Is there an assay, not listed here, that you would like developed and delivered by a committed microbiology company? Please get in touch to discuss your research challenges and how our contract research service can help meet your goals.