SYMCEL°

WE MEASURE LIFE°

BENEFICIAL MICROBES

- Rapid screening of growth conditions
- Non-destructive assay
- Metabolic fingerprint of microorganisms
- Continuous viability data in real-time

SYMCEL°

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COMPLEX PROBIOTIC RESEARCH MADE SIMPLE

Biocalorimetry, the science behind the calScreener™, is revolutionizing the way companies approach the development and quality of probiotics. Our technology simplifies the study of complex interactions, conserves valuable time and resources in screening, and ensures product safety and efficacy by identifying changes linked to antibiotic resistance.

The calScreener™ significantly simplifies media optimization for probiotic production, and delivers phenotypic readouts even in opaque and complex growth media. It measures the metabolism from single and multi-species cultures directly, as well as activity yield, setting a new standard in the field. Its capabilities extend beyond traditional methods and offer researchers, manufacturers, and healthcare professionals a deeper understanding of probiotic functionality and new and exciting opportunities in research and product development.

Welcome to next-generation probiotic research

CALSCREENER+

NEXT-GENERATION BIOCALORIMETRY

Through the principle of isothermal microcalorimetry, the calScreener™ provides a direct and continuous measurement of the metabolic rate of living cells through a real-time heat flow profile.

The calScreener™ is designed specifically for the biologist by increasing throughput, minimizing sample size yet increasing sensitivity, optimized sterile plastic growth inserts for ease-of-use and user-friendly software with customized analysis.

Wide range of applications
- 30-42°C temperature range
- Aerobic or anaerobic conditions
- Label-, stain- and reagent-free

Medium throughput capability
- 32-sample parallel testing
- Reusable titanium vials (up to 650 µl)
- Disposable plastic inserts (up to 350 µl)

Premium support plan
- Premium application support
- Service support

*USP <1223> and <1071> /PDA TR 33 / EP 5.1.6 pt 4-1-1 and EP 2.6.27

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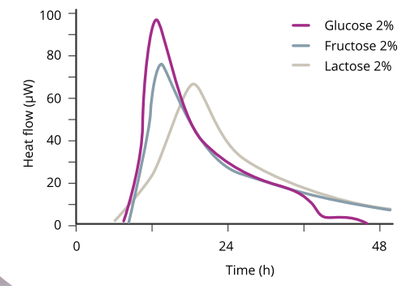
OPTIMIZING PROBIOTIC MEDIA

The expanding species and strains of probiotics demand a wider selection of growth media. The first step in creating the optimal media for probiotic bacteria involves selecting the right components. Each strain of bacteria has preferred carbon and nitrogen sources, which must be considered alongside the goal of large-scale production.



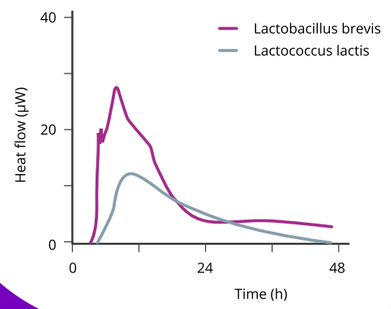
GROWTH KINETICS OF *L.PLANTARUM*

In our study, we used an MRS broth base and added various sugars as carbon sources to investigate the growth kinetics of *Lactobacillus plantarum*. Glucose as a carbon source led to the highest metabolic activity and the fastest growth for this strain.

THE SYMCEL DIFFERENCE

LACTIC ACID BACTERIA IN SOY MILK

We inoculated various lactic acid bacteria in soy milk and monitored their growth and metabolic activity directly in this substrate. Among them, *L. brevis* exhibited faster growth and higher metabolic activity compared to *L. brevis*, indicating that *L. brevis* would be more suitable for soy milk fermentation.



NO BROTH IS TOO COMPLEX

Calorimetry, as a non-optical technique, is particularly useful when components like lipids cause the growth media to become turbid. It remains unaffected by opaque and even solid samples, enabling the observation of probiotic activity in complex media that simulates real-world products, providing a more accurate representation of actual conditions.
It is also ideal for studying anaerobic bacteria without placing the entire machine inside an anaerobic chamber. Additionally, the batch format enables the checkerboard method to screen for the best combinations and synergies of media components.

Metabolic fingerprints provide insights beyond biomass production. Kinetic growth data can help identify the optimal time to harvest the most robust and stress-tolerant bacteria.