WE MEASURE LIFE°

SYMCEL°

BIOFILM RESEARCH

- Detect viable cells, in-situ in undisrupted biofilm
- Analyze subpopulations deep in the biofilm
- Use complex models and samples
- Get kinetic anti-biofilm data

SYMCEL°

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Read more:
Quiñones-Vico, M. I., et al., 2024. Antibiotics against Pseudomonas aeruginosa on Human Skin Cell Lines: Determination of the Highest Non-Cytotoxic Concentrations with Antibiofilm Capacity for Wound Healing Strategies. Pharmaceutics.
Maybin, JM. et al., 2023. Cold atmospheric pressure plasma-antibiotic synergy in Pseudomonas aeruginosa biofilms is mediated via oxidative stress response.
Lichtenberg, M., et al., 2022. Cyclic-di-GMP signaling controls metabolic activity in Pseudomonas aeruginosa

COMPLEX BIOFILM RESEARCH MADE SIMPLE

Unlock the full potential of your biofilm studies with Symcel's calScreener™. Traditional methods often require compromise when defining your assays. The calScreener™ allows you to mirror in vivo-like conditions and can handle even the most complex of models or samples. You can now explore the entire biofilm population, capturing all subpopulations and niches - even dormant ones deep within the biofilm - without disturbing or disrupting the biofilm structure or removing the cells. Fast, sensitive and with no need for labels, stains or reagents, the calScreener™ is intuitive and easy to use.

Uncover the true complexity of biofilms and propel your research forward. Welcome to next-generation biofilm research.

CALSCREENER

NEXT-GENERATION BIOCALORIMETRY

Isothermal microcalorimetry detects heat flow with extreme sensitivity. We have designed a microcalorimeter specially for biological research creating the world's most advanced biocalorimeter, the calScreener™. We deliver previously unattainable results in terms of speed, sensitivity, specificity and methodological simplicity.

Wide range of applications
- 30-40°C temperature range
- Aerobic and anaerobic for biofilm
- Label-, stain-, and reagent-free
- Non-destructive

Premium support plan
- premium application support
- service support

Medium throughput capability
- 32-sample parallel testing
- Reusable titanium vials (up to 650 µl)
- With disposable inserts (up to 450 µl)

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

ASSESS CELL VITALITY IN SITU IN THE UNDISTURBED BIOFILM

The calScreener™ measures phenotypic activity, metabolism, and survival of biofilm-embedded microbes right in the biofilm. Unlike traditional biofilm assays, there's no need to disturb or disrupt the biofilm to study what the cells are doing. No stains, labels, or tracers required – just measure the heat flow from viable cells in their natural environment inside the biofilm.

DETECT EVEN THE DEEPEST DORMANT SUBPOPULATIONS

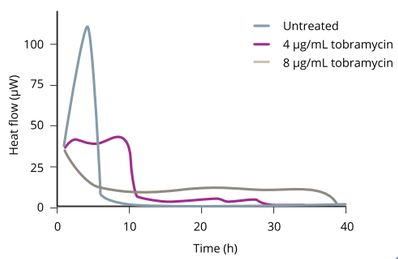
The calScreener™ detects all living cells independent of growth. Even cells in slow growing subpopulations in the deepest layers of the biofilm produce detectable metabolic heat. This allows us to detect the last 0.001% of surviving cells after treatment. These subpopulations might be viable but nonculturable on an agar plate, yet the calScreener™ will detect and measure them.

THE SYMCEL DIFFERENCE

NO SAMPLE OR MODEL IS TOO COMPLEX

With the Symcel calScreener there is no limit to how in vivo-like your biofilm models system can be. We will be able to investigate microbial biofilm in any setting.

- Do you want to build a semi-solid wound model with biofilm aggregates? We will see the activity cell in the aggregates.
- Do you want to test treatments on biofilms in synthetic sputum media? We will give you the killing kinetics and show the survival of subpopulations.
- Do you want to investigate specimens directly from a chronically infected patient? We will register the microbial activity in biofilm even deep in the tissue.



CLINICALLY RELEVANT BIOFILM MODELS

Here, we used clinically relevant synthetic cystic fibrosis sputum medium (SCFM5, Synthbiome) to pre-grow biofilm aggregates of a *Pseudomonas aeruginosa* isolate from a long-term infected cystic fibrosis patient. When treated with tobramycin, we are able to clearly detect the surviving subpopulations' metabolism over a long period until it runs out of nutrients.