



CUSTOMER STORY

From Manual MIC Assays to Scalable Screening:

How Mascoma accelerates microbial testing with Reshape

Mascoma

A Lallemand Research And Development Center

From manual MIC assays to scalable, automated screening

Mascoma, a Lallemand R&D center, develops microbial products for food, feed, and sustainable fuel applications. Research Associate Sumana Turimella evaluates antimicrobial compounds and enzymes, screening them for activity and efficacy.

A key part of this work is determining minimum inhibitory concentrations (MICs) against target bacteria and molds. However, these bioassays are time-sensitive, organism-specific, and difficult to scale using traditional plate readers.

Company Profile

INDUSTRY

Industrial Biotech & Food Science

PARENT COMPANY

Lallemand Inc.

APPLICATIONS

Food, Agriculture, Sustainable Fuels



Sumana Turimella
Research Associate, Mascoma / Lallemand

“ The way we assess activity is to do a bioassay, which takes a couple of days because you're looking to see growth or no growth. ”



10x Increase in assay throughput

Reshape enables up to 10 simultaneous 96-well plates, replacing a single-plate-at-a-time workflow limited by traditional plate readers



Continuous monitoring without manual check-ins

Automated imaging eliminates the need to manually photograph and record plates every 24 hours, freeing scientists for higher-value work

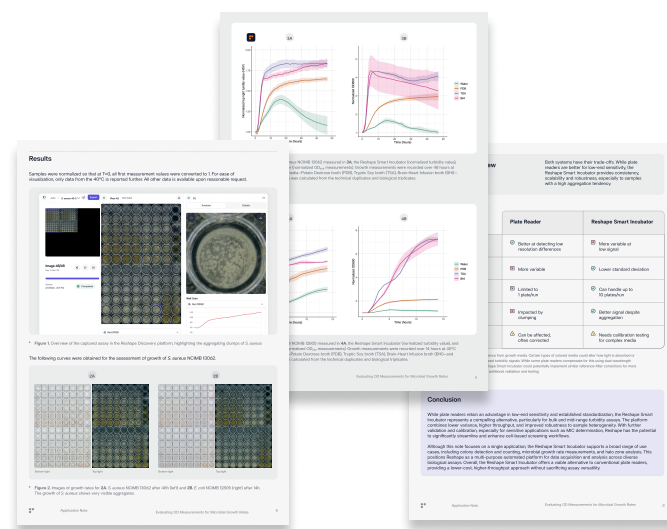


Richer datasets for stronger decisions

Time-lapse imaging and growth inhibition models give teams longitudinal data across the full assay window – not just a single endpoint snapshot

Challenges with MIC assays and microbial growth screening

Antimicrobial screening is a critical but operationally demanding workflow. Every molecule candidate must be tested against multiple target organisms across a range of concentrations – and the results must be captured at precisely the right growth phase. This creates several compounding challenges.



[Review our OD and MIC Application Notes, here](#)

ASSAY EXECUTION

- Manual plate-by-plate checking every 24 hours
- Risk of missing optimal growth time points
- Organism-specific sensitivity to temperature fluctuations
- Throughput capped at one plate per reader

SCREENING & OPTIMIZATION

- Difficult to scale screening with only 1 – 2 people
- Single endpoint images miss growth kinetics
- No consistent model to determine MIC thresholds
- Limited capacity to run parallel projects

Sumana's team at Mascoma, who focus on evaluating antimicrobial compounds and enzymes for preservation, agriculture, and industrial applications, needed a solution that could scale their screening capacity without scaling their headcount.

“ Every target organism grows differently and even slightly different temperatures will have an impact on its growth rate, it's a difficult assay to automate ”

Sumana Turimella, Research Associate, Mascoma / Lallemand

MASCOMA'S GOAL #1 (THROUGHPUT)

Scale MIC throughput

With a small team and time-sensitive bioassays, Mascoma needed more experiments per cycle without adding headcount.

Eliminate bottlenecks from manual plate reading

Time-sensitive assays demand perfect timing. With 1–2 people and a few plate readers, missed checks are hard to avoid, and a lost time point means a lost experiment.

OUTCOMES

10x increase in assay capacity

Where a standard plate reader limits teams to one plate at a time, Reshape's Smart Incubator measures up to ten 96-well plates simultaneously — multiplying throughput without multiplying effort.

MASCOMA'S GOAL #2 (DATA QUALITY)

Accurately determine MIC values across organisms

Organism-specific growth rates and temperature sensitivity make standardized, objective MIC analysis hard to run at scale manually.

Capture reproducible growth kinetics, not just endpoints

Growth is a process, not a moment. Single endpoint reads miss how inhibition unfolds across diverse organisms.

OUTCOMES

More confident MIC determinations

Growth curves and time-lapse data replace single endpoint photos for stronger candidate decisions.

SOLUTION WITH RESHAPE

Run up to 10 plates simultaneously

Ten 96-well plates per run replaces one-at-a-time plate reader workflow, allowing for more conditions to be screened per cycle.

Automated imaging and time-lapse capture

Plates are continuously imaged — no 24-hour check-ins, no missed time points. Assays can also run unattended through weekends, adding two days of data collection that weren't possible before.

Elimination of manual monitoring burden

With monitoring off her plate, Sumana now uses that recovered time to explore new molecules, take on additional projects, and spend more time on analysis and future experiment planning.

SOLUTION WITH RESHAPE

Specialized growth inhibition analysis model

Mascoma collaborated with the Reshape to develop a custom growth inhibition analysis model tailored to their specific workflow. Allowing the team to more rapidly identify which molecules show inhibitory activity and at what concentrations.

Time-resolved imaging across the assay window

Kinetic data across the full assay window captures the right moment — and Reshape's plate mapper and templates tie that data directly to experiment metadata, so results always have context

Standardized analysis across experiments

Custom analysis model enforces consistent MIC methodology, reducing variability between runs and standardized interpretation.



Enable scientists to do more science

Assay monitoring and data transfer consumed hours that should go to exploration, experiment design, and new projects.

Build richer datasets for project decisions

Screening results need to hold up beyond the lab — informing candidate decisions across food, feed, and fuel business units with confidence.

OUTCOMES

Capacity to run parallel projects

Monitoring overhead removed — Sumana expanded output across multiple research directions simultaneously

Reshape handles monitoring — scientists handle the science

No longer bound to the bench or the clock, Sumana spends her time investigating new molecules, pursuing exploratory projects, and going deeper on analysis.

Images, video, and quantitative growth data — every run

Manual workflows have been the norm, but competitive advantage is what becomes possible when the data is faster, richer, and robust enough to drive decisions across food, feed, and fuel with confidence.

Stronger scientific decision-making

Richer longitudinal datasets improve candidate go/no-go calls and cross-team communication at Lallemand

Conclusions

Manual plate checks and single-endpoint data create a hard ceiling on what MIC screening teams can achieve. Reshape removes it, moving Mascoma from one plate at a time to ten simultaneous 96-well plates, with richer data from every run.

The result: more experiments per cycle, more robust MIC determinations, and researchers free to focus on what matters. For teams operating across food, feed, and fuel, Reshape is becoming the standard — because faster, richer, more defensible data isn't just good science, it's competitive advantage.

“ I'm no longer spending all of my time thinking about one plate ”

Sumana Turimella, Research Associate, Mascoma / Lallemand

Instead, Sumana has been able to take on additional projects, evaluate more candidate molecules, and spend more time analyzing results and planning future experiments.