DolphinQ
DolphinQ Mini

Continuous DO/pH/OCR/ECAR metabolic profiling across the full culture period

LEADGENE BIOSOLUTIONS

The Leadgene metabolic analyzer family includes DolphinQ and DolphinQ Mini. Both all-in-one platforms combine real-time DO, pH, OCR, and ECAR sensing with controlled incubation and integrated mixing for unbiased metabolic readouts.

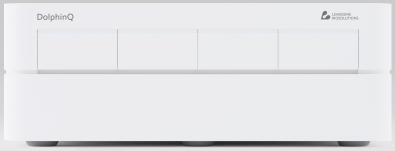
DolphinQ
DolphinQ Mini

Traditional Snapshot

- ⓥ Longitudinal metabolism data
- ⓥ Continuous real time monitoring
- ⓥ High throughput independent incubation

- ⓧ Multiple pre-determined but blinded timepoints
- ⓧ End point measurement
- ⓧ Sacrificing cells/rare samples

DolphinQ



DolphinQ Mini

Long-term metabolism analyzer

Days → Weeks → Months

Cellular metabolism is inherently dynamic, requiring continuous, long-term observation rather than endpoint snapshots. DolphinQ reveals metabolic behavior in its true physiological context.

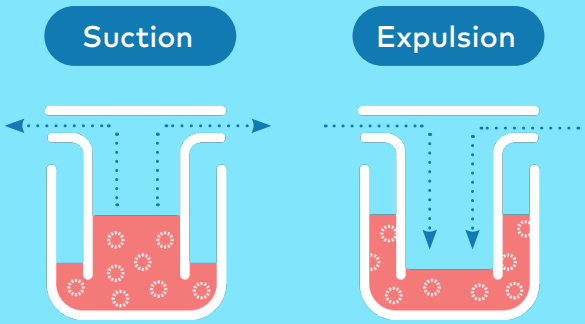
- Patented 96/24-well plate mixing
- Independent controlled incubation
- DO/pH/OCR/ECAR metabolic monitoring

Beyond snapshots:

Continuous, real-time tracking of cellular metabolism enables long-term, non-disruptive analysis of respiration and glycolytic shifts within the culture system.

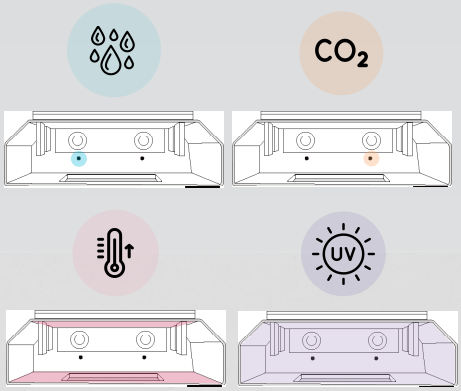
Mixing system

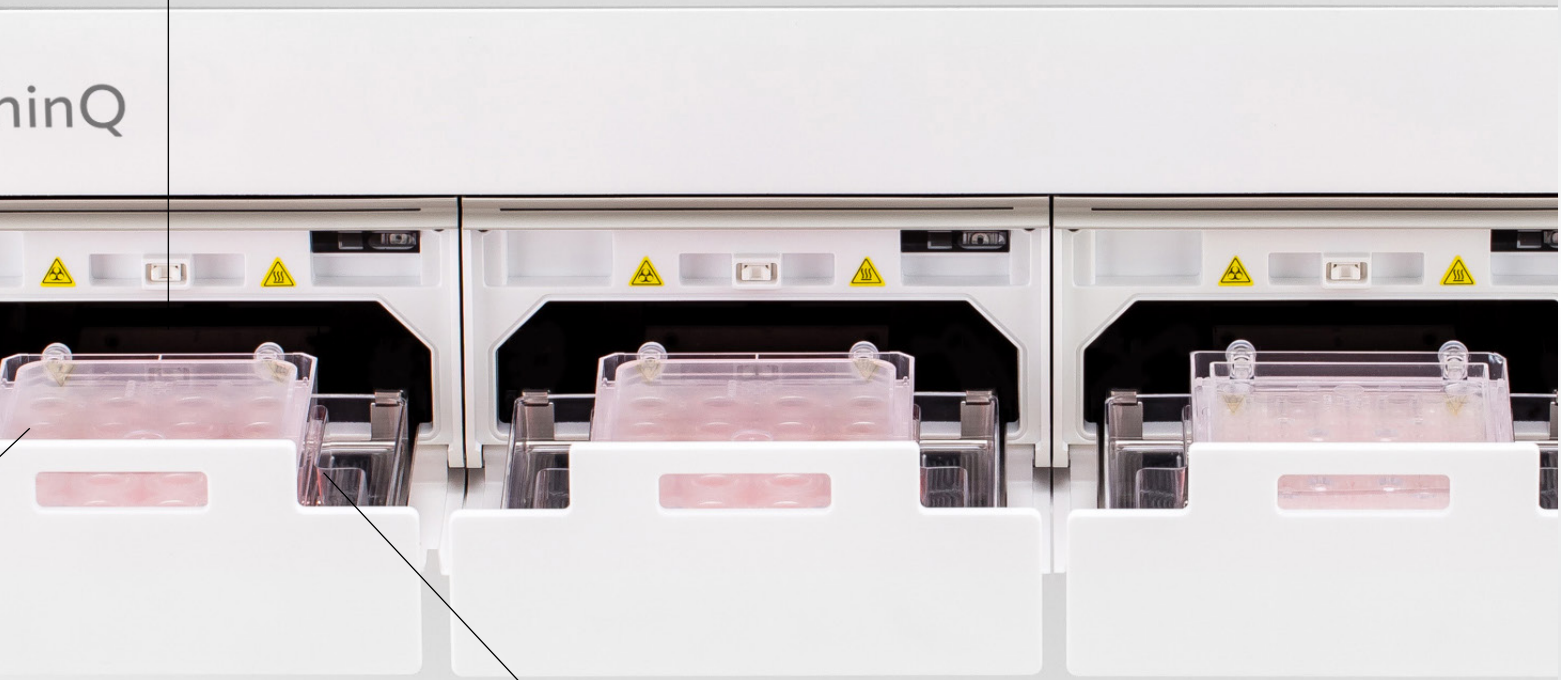
Air-induced suction and expulsion enable efficient pneumatic mixing in standard 96/24-well plates.



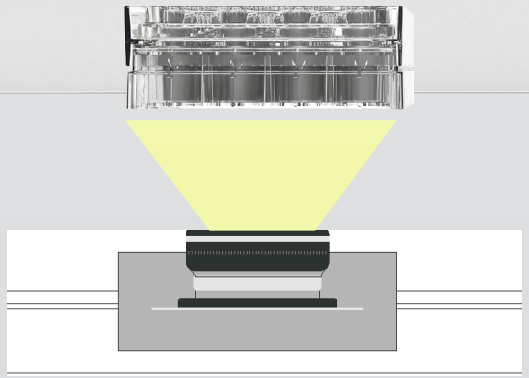
Four independent incubation chambers

- Disposable water reservoir
- Temperature control
- CO_2 level control
- Humidity monitoring
- UV light sterilization





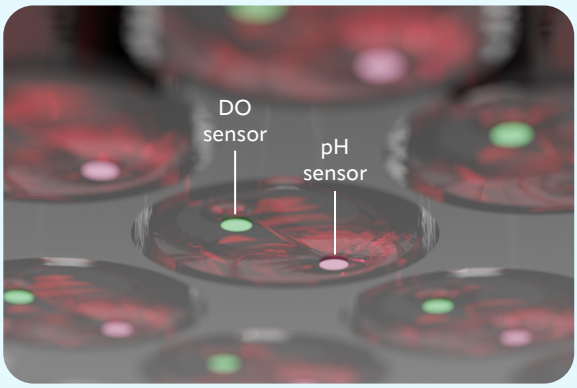
Sensor plate



Camera module

Real-time detection of cell metabolism across the entire 96/24-well plate.

Unlocking True Real-Time Metabolic Monitoring



Do/pH optical sensors are placed inside each well where a camera module below will capture the signals.

Every 2 minutes measurements are taken non-invasively, allowing for the analysis without disruption, sampling, or contamination.

DO => OCR

(Oxygen Consumption Rate)

↘ The amount of oxygen consumed by cells

↘ Mitochondrial aerobic respiration and ATP production

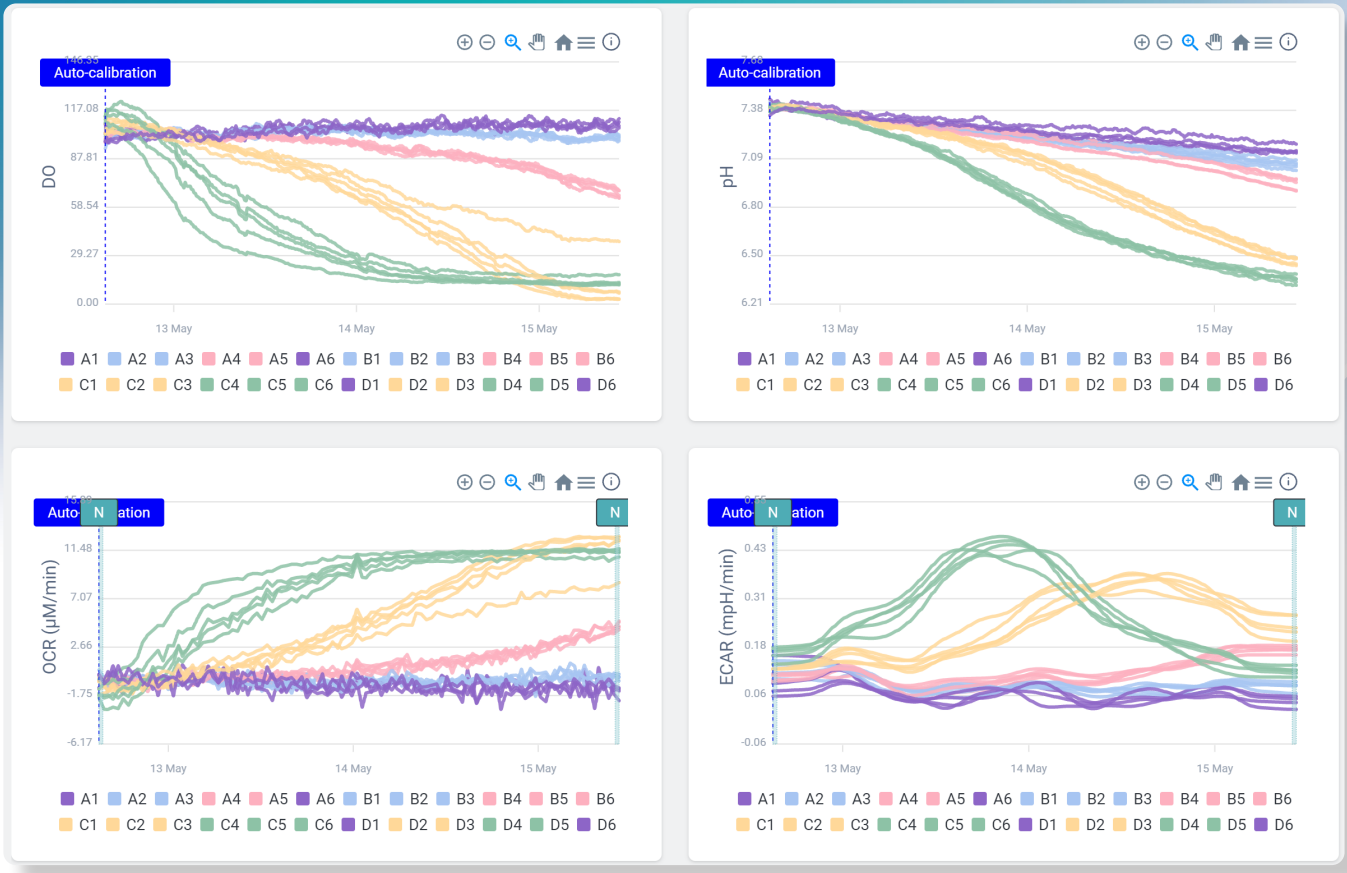
pH => ECAR

(Extracellular Acidification Rate)

↘ The rate of acid (e.g., lactate) production by cells

↘ Energy production through glycolysis

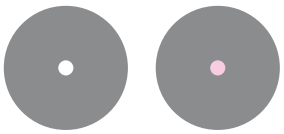
All metabolic readouts are recorded as continuous time-series data, enabling direct comparison of dynamic metabolic responses across conditions.



24-well plate single well

DO and pH sensors

96-well plate single well



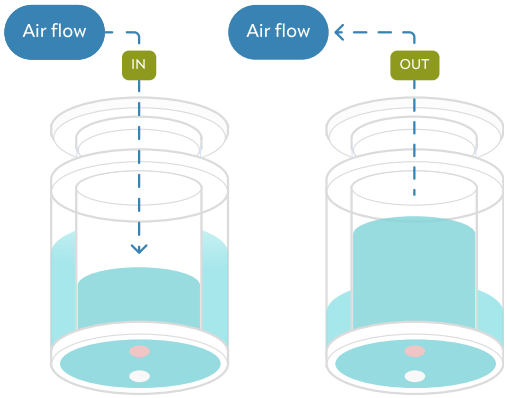
DO or pH sensors

Analyzer in a Incubator with Tailored Mixing to Enable Longitudinal Data

Independently Controlled Incubation Environment

- Ensures cell health for any downstream assay afterwards
- Allows precise pauses for manipulation at your chosen timepoint
- Each chamber with independent settings and start/stop schedules
- Use your regular culture medium—no need for special formulations

DolphinQ applies suction or expulsion pressure through patented lids, enabling reciprocating "in-well" mixing for both 96 and 24-well plates



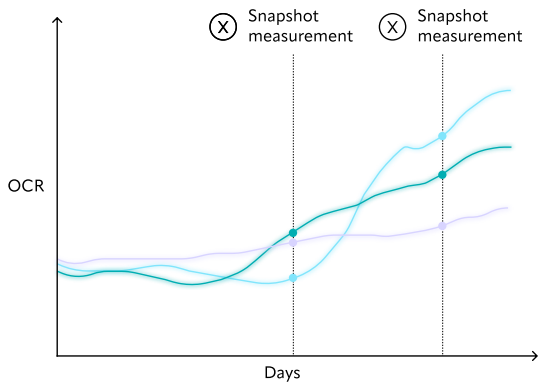
Patented Reciprocal Mixing Technology

- Programmable mixing for diverse cell culture models
- Reduces gradients for location-independent sensor readouts
- Supports sustained cell growth with healthier culture conditions

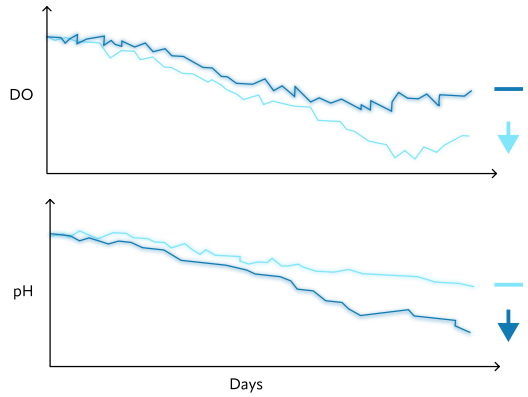
From Capabilities to Impact:

Application Examples

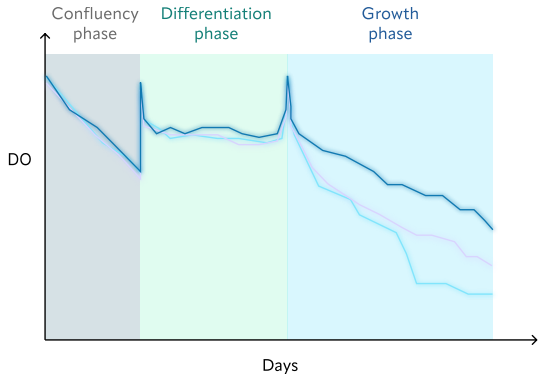
Capture the full course of metabolic profiles across culture time



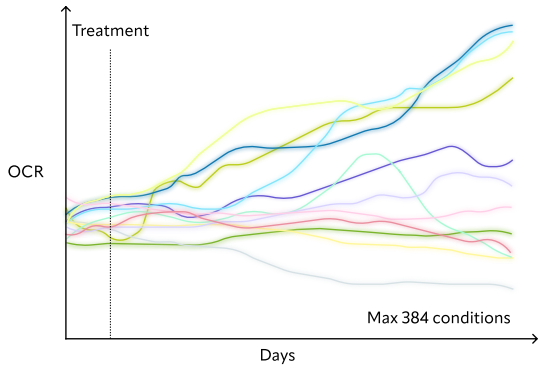
Monitor metabolic shifts between mitochondrial respiration and glycolysis



Design sequential experiments all in one plate: e.g. cell differentiation to treatment, live pathogen exposure observations



Optimize and screen key parameters: e.g. seeding density effects, gene edits, compound libraries, media compositions, drug dosage



DolphinQ Mini

Compact solution for
single-experiment workflows

DolphinQ

Parallel, multi-chamber
metabolic studies

> DolphinQ enables longitudinal, high-resolution metabolic profiling, tracking OCR, ECAR, DO, and pH dynamically under physiological and stress conditions. This real-time insight directly addresses our key pain point—capturing the temporal dynamics of mitochondrial function in disease-relevant cardiomyocytes.

Accelerating Biology.
Empowering Discovery.

LEADGENE BIOSOLUTIONS

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