Microscope Incubator

Live Cell Microscopy

Incubator on a Nikon Eclipse TE-2000 Microsocpe. Incubators for Zeiss and Olympus microscopes are also available, as well as versions that accommodate confocal modules. All incubators are compatible with all commercially available cameras, light sources, filter wheels, motorized stages, and motorized nosepieces.

This Live Cell Microscope Incubator was extensively tested in laboratories. When compared with other systems, it offers dramatic advantages. For example, other incubators for live cell microscopy rely on passive, random diffusion of heated air from a single source to maintain the desired temperature setpoint.

With no hot air return vent, the heated air escapes from the system through cracks at the microscope/incubator junction in an uncontrolled, random fashion. These systems offer no temperature uniformity, suffer from focus drift and often experience electrical and vibrational interference from the heater. You will also notice dramatic temperature drifts when the imaging environment is disturbed.

Features

- Unique, diffusion grid, combined with air input and return vents provide an air flow pattern for consistent, even heating, with no hot or cold spots in the chamber
- External heater that can be placed far enough from the system to eliminate electrical and vibrational interference from the heater
- High degree of temperature precision and stability
- Minimal focal drift after equilibrium is achieved– Accuracy ±0.1°C at the sample itself, and 0.2°C across the microscope stage (allowing for uniform heating of multiwell dishes)
- Airflow pattern and temperature uniformity eliminate dramatic changes in environmental temperature when the incubator door opens
- Ergonomic design for ease of use– The focus and x/y stage controls are outside of the incubator itself. Large doors allow easy access to the specimen and small ones for cords, tubing, etc.
- Precision, shielded temperature probe
- Simple, one person setup of the system

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Consistent Air Flow

Air flow affects the temperature uniformity of incubators. The red arrows on Fig. 1 and Fig. 3 indicate air flow. The Live Cell Microscope Incubator uses a diffuser grid and proper venting to insure consistent air flow. Traditional incubators with poor air flow suffer with hot and cold spots in the incubator, as seen in thermal images (Fig. 2 and Fig. 4). Warmer temperatures are indicated by red and cooler temperatures by blue.

Temperature Stability

Thermal stability of the Live Cell Microscope Incubator is clearly shown in Fig. 5 (below). Temperatures were recorded with a digital temperature probe placed at the center of the stage. High precision temperature stability is maintained over both short (left) and long (right) durations.

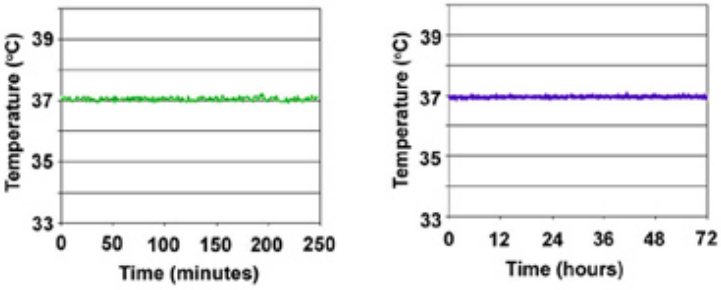

Fig. 5–The temperature remains stable both short- and long-term.

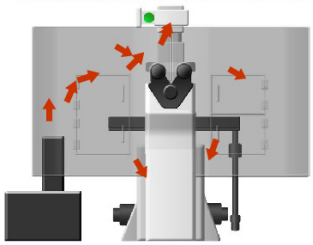

Fig. 1–Single air input and no venting causes random air flow in a traditional incubator.

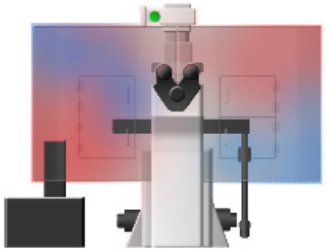

Fig. 2–Hot and cold spots result from inconsistent flow.

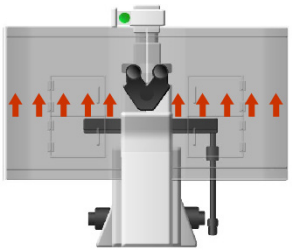

Fig. 3–A diffusion grid with air input and exhaust vents yields consistent air flow.

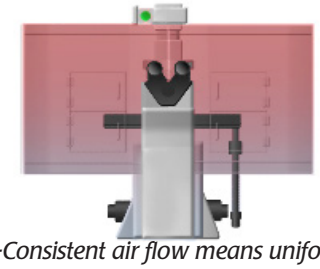

Fig. 4–Consistent air flow means uniform heating.

ORDERING

When ordering a system, please have the following information ready.

Scope_____
Stage_____
Stage-Up_____
Perfect Focus_____
Camera _____
Left Port_____
Right Port_____
Analyzer _____
Fluor Attachment_____
Tirf _____
White Light Tirf_____
Binocular D Head_____
Tilting Head_____
Filter Wheels:
  Excitation_____
  Emission_____
  Dual Lamphouse _____
Transmitted Light Shutter____
  Where:_____
  Front Of Lamphouse/
Attached To Field Light
Cells:
  35mm/60mm_____
  Wells_____
  Coverslips _____

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