

# Heat your cells and media, not the stage.



## New Features

- Mode indicator (dynamic or imaging)
- TTL interface and footswitch mode activation
- Cold start acceleration
- Temperature output port for recording
- Heat shock activation
- Heated Lid power supply
- Remote setpoint port
- Temperature output (for analog recording)

## Bioptechs Delta T® Controlled Culture Dish System

Finally a culture dish system specifically designed for live-cell microscopy! Now you can have accurate temperature control and high-numeric aperture compatibility in a convenient disposable culture dish system that even works in confocal applications.

- Easily adapted to a variety of specimen types from monolayered adherent cells to brain slice and tissue preps
- Low mass to thermo-regulate as opposed to conventional stage heaters
- Plate, incubate and observe without the need to transfer your cells
- Fast thermal recovery after perfusion (within seconds)
- Compatible with inverted and upright microscope stands
- Coverglass bottom for optimum optical compatibility
- No need for warm air blowers or stage heaters
- Direct first-surface heating to your cells
- Can also be cooled below ambient
- Perfusion available
- No pre-heating

Bioptechs is now introducing the next generation Open Culture Dish Micro-Environmental Control System: the Delta T4. In addition to the improvements to the popular Delta TC3 control algorithm, Bioptechs has incorporated years of customer requests into the Delta T4.



## Limitations of Traditional Technique

- Stage heaters are inefficient, slow, and inaccurate
- Plastic dishes are poor conductors of heat
- Temperature does not recover quickly during or after perfusion
- Plastic dishes are not suitable for high resolution or polarization microscopy
- Nonuniform temperature distribution
- Unnecessary dead volume
- Usable aperture of dish limited by the opening in heat transfer plate
- Surface evaporation significantly contributes to non-linearity of temperature distribution

## Advantages of the Delta T® Dish System

- Place cells onto coverglass and observe
- Highly accurate temperature control
- Fast thermal recovery
- Superior optical image
- Stage adapters to fit most popular microscopes
- Designed for inverted microscopes but ideal for water immersion objectives on uprights
- Immediate alarm if cell temperature changes
- Rigid mount for X, Y stability
- Uniform temperature distribution
- Cells unaffected by surface evaporation
- Numerous specimen adapters available

The Biopetechs, Inc. Delta T Culture Dish System is designed to simulate host conditions on the stage of your microscope and provide an optimal optical environment for microscopy. This two-step system allows you to plate your cells and observe them without having to transfer them to another structure. The system components are, the Controller, Stage Adapter, and Dishes. Accessories for Tissue Slice, Brain Slice, and other specimens are available.

An intelligent feedback loop passes an electrical current through a thin film coating on the underside surface of the glass substrate on which the cells are grown. Heat is applied directly to the cells without the inefficiencies associated with peripheral heating by traditional culture dish warmers. Biopetechs exclusively offers opaque culture dishes which eliminates the unwanted ambient light background for fluorescence imaging.

The controller features a real-time temperature display and fast learning curve to compensate for cooling due to surface evaporation while responding to temperature changes due to perfusion. There is also an alarmed protection circuit to safeguard the cells and an internal reference for the user adjustable calibration. The standard controller has a temperature range of ambient to 50 degrees C. Extended ranges are available upon request.

Delta T dishes have 35mm O.D. and a 23mm central aperture. The peripheral region of the dish is tapered to reduce the dead-volume and the height of the dish is 6mm to allow better access for micro-injection and micromanipulation. The dishes are a hybrid of polystyrene plastic and Desag 263 glass. The outer structure of the dish is available in opaque black or clear and come with a clear 0.5mm or no.1.5 glass coverslip bottom bonded to it. The dishes are also available in a plain glass unheated version.

You will find the Delta T® a reliable and indispensable addition to your microscope.