

# An innovative system that sheds light on previously unseen phenomena!

Long-term observation of cell culture with programmable multiple-point imaging

Capturing the true behavior of your cell culture in the best possible conditions



※ Computer sold separately

**Bright Field**  
(Orange LED)

**Fluorescence**  
(Blue LED  
Green LED)

**Motorized Sample Stage**  
(XY axes)  
Positioning

**Motorized Objective Lens**  
(Z axis)

**Multiple-Point Image Capture**

2-wavelength Fluorescence Model Diagram

### Integration

The completely sealed camera unit integrated into our proven quality incubator (80L, air-jacketed) provides the optimal environment for specimen to be cultured and monitored for a long period of time without being subjected to any environmental changes. The newly added Multiple-Point Image Capturing feature enables the observation of samples in micro plates with as many as 96 wells or multiple points in a single dish.

### Time-Lapse

The software allows the users to set any point in the field of view that they wish to continuously observe with any interval ranging from 1 minute to 24 hours. Time-lapse images taken with the software can easily be compiled to a movie file.

### Z-Slice

The motorized objective lens operates with a stepper motor that controls the vertical movement of the lens in 0.5-micrometer increment. The mechanism brings the specimen into focus precisely, and the software automatically selects the most focused images.

### Rat Embryos Expressions: Monitored with 20x objective lens, 5 minutes interval



2 - 4 Cell Stage. Polar Body can be seen

4 Cell Stage

8 Cell Stage

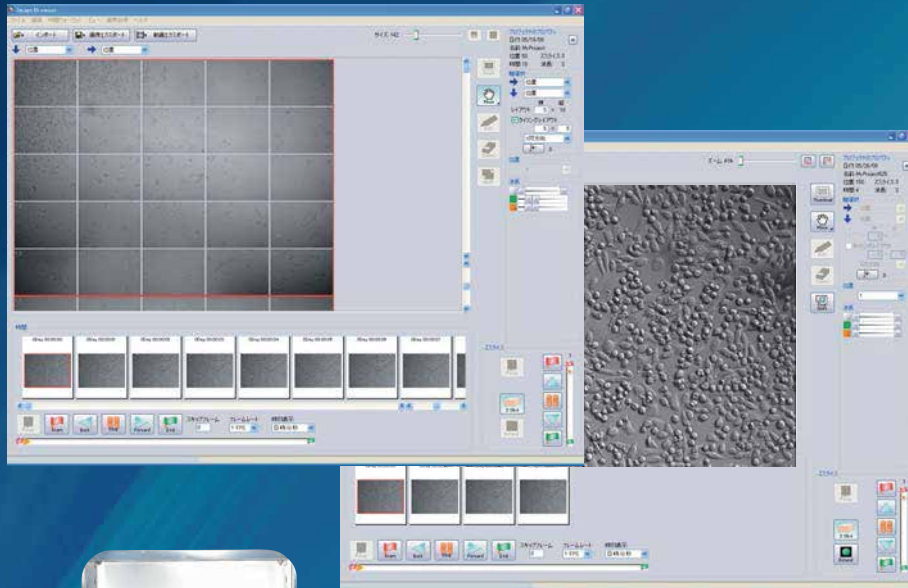
Post-8 Cell Stage embryos with compactions of inner cells

All the embryos have developed to Blastocyst Stage.



**Specially designed IVF dish was used to monitor the embryos.**

# Image Browsing / Processing Software : ASBRO



## Main Features

### Thumbnail Mode

Images can be viewed in thumbnail mode (50-512 pixels), making it easy to manipulate images in large numbers.

### Single Mode

Each thumbnail image can be displayed in the original size in a separate single view.

### Tiling Mode

Images captured in the tiling mode can be tiled together to create a panoramic image. Also, areas of users' interest can be clipped and made into a movie file.

### Image Processing

- Display a scale on the image.
- Add comments and/or a time stamp on the image.
- Clip areas of interest in the image.
- Z-slice, focus composition

### Creating a Movie File

Edited images can be made into a movie file.  
 Movie Formats: Windows Video format (avi), Quick Time File format (mov)  
 Movie Size: Original size; 1/2, 1/4, 1/8, 1/16, 1/32 of original size; 640x480, 1280x720, 1920x1080

## Specifications: CCM-1.4XYZ

### Incubator

Interior Volume	80 Liters
Exterior Dimensions	W735 x D510 x H760 (mm)
Interior Dimensions	W418 x D377 x H510 (mm)
Shelf Dimensions	W350 x D350 x H11 (mm)
Insulation	Direct heating, Air-Jacket, Fiberglass insulation
Controller	PID Independent Electronic Control
Temperature Range	5°C above ambient to 50°C (122F)
Control Accuracy	±0.3°C
Humidifying Method	Natural evaporation with Humidity pan
RH	Ambient to 95% @37.0°C (98.6F)
CO2 Control Range	0~20%
CO2 Control Accuracy	±0.1%
O2 Control Range	2~18% (Optional)
O2 Control Accuracy	±0.5% (Optional)
Weight	78kg (172lbs)
Power (Incubator)	AC117V, Max 7A 50/60Hz
Power (Camera unit)	AC117V, Max 5A 50/60Hz

### Camera Unit (Bright-field only model with 1.3 mega pixel CMOS image sensor also available)

Resolution	1.4 Mega Pixels (1392X1040)
Camera Type	Monochrome Cooled CCD
Cooling	Peltier Device, Ta -25°C
Objective Lens	4x (NA0.2), 10x (NA0.22), 20x (NA0.45)
Field of View	640um x 480um with 10x objective lens
Image Capture Intervals	1 min. - 24 hrs.
Bright-Field Light Source	Green LED, Orange LED (optional)
Bright-Field Illuminating Method	Transmitted light (oblique illumination)
Fluorescence Light Source	Blue LED (peak: 470nm), Green LED (optional, peak: 550nm)
Fluorescence Illuminating Method	Co-axial epi-illumination
Excitation Filter	Peak: 472.5nm (±30nm), 531nm (optional, ±40nm)
Fluorescence Filter	Peak: 520.0nm (±35nm), 593nm (optional, ±42nm)
Dichroic Mirror	503nm-730nm/569nm-730nm (optional)

### Sample Stage

Drive Control	Super high precision stepper motor
Resolution (X axis)	0.05um
Resolution (Y axis)	0.05um
Resolution (Z axis)	0.5um
Positioning Repeatability	Less than 10um (XY axis)
Sample Holder Travel Range	104X68mm

※ Sample movies available at:  
<http://www.astec-bio.com/english2/index.html>



URL <http://www.astec-bio.com>  
 E-mail [info@astec-bio.com](mailto:info@astec-bio.com)

ASTEC Co., Ltd.  
 4-6-15, Minamizato, Shime, Kasuya  
 Fukuoka, Japan 811-2207  
 Tel: +81-92-935-5585  
 Fax: +81-92-936-6613