



## Product Sheet

# PLHC-1 (ATCC® CRL-2406™)

Please read this **FIRST**



Storage Temp.  
**liquid nitrogen**  
**vapor phase**

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Biosafety Level  
**1**

### Intended Use

This product is intended for research use only. It is not intended for any animal or human therapeutic or diagnostic use.

### Complete Growth Medium

Minimum essential medium (Eagle) with 2 mM L-glutamine and Earle's BSS adjusted to contain 1.5 g/L sodium bicarbonate, 0.1 mM non-essential amino acids, and 1.0 mM sodium pyruvate, 95%; fetal bovine serum, 5%

### Citation of Strain

If use of this culture results in a scientific publication, it should be cited in that manuscript in the following manner: PLHC-1 (ATCC® CRL-2406™)

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Manassas, VA 20108 USA  
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### Description

**Organism:** *Poeciliopsis lucida*, topminnow  
**Tissue:** liver  
**Disease:** hepatocellular carcinoma  
**Cell Type:** hepatocyte  
**Gender:** female  
**Morphology:** epithelial  
**Growth Properties:** adherent

### Batch-Specific Information

Refer to the Certificate of Analysis for batch-specific test results.

### SAFETY PRECAUTION

ATCC highly recommends that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that some vials leak when submersed in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vessel exploding or blowing off its cap with dangerous force creating flying debris.

### Unpacking & Storage Instructions

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below  $-130^{\circ}\text{C}$ , preferably in liquid nitrogen vapor, until ready for use.

### Handling Procedure for Frozen Cells

To insure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If upon arrival, continued storage of the frozen culture is necessary, it should be stored in liquid nitrogen vapor phase and not at  $-70^{\circ}\text{C}$ . Storage at  $-70^{\circ}\text{C}$  will result in loss of viability.

1. Thaw the vial by gentle agitation in a  $37^{\circ}\text{C}$  water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
3. Transfer the vial contents to a  $75\text{ cm}^2$  tissue culture flask and dilute with the recommended complete culture medium (see the specific batch information for the recommended dilution ratio). It is important to avoid excessive alkalinity of the medium during recovery of the cells. It is suggested that, prior to the addition of the vial contents, the culture vessel containing the growth medium be placed into the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6).
4. Incubate the culture at  $30^{\circ}\text{C}$  in a suitable incubator. A 5%  $\text{CO}_2$  in air atmosphere is recommended if using the medium described on this product sheet.

**Note:** If it is desired that the cryoprotective agent be removed immediately, or that a more concentrated cell suspension be obtained, centrifuge the cell suspension at approximately  $125 \times g$  for 5 to 10 minutes. Discard the supernatant and resuspend the cells with fresh growth medium at the dilution ratio recommended in the specific batch information.

### Handling Procedure for Flask Cultures

The flask was seeded with cells (see specific batch information), grown, and completely filled with medium at ATCC to prevent loss of cells during shipping.

1. Upon receipt visually examine the culture for macroscopic evidence of any microbial contamination. Using an inverted microscope (preferably equipped with phase-contrast optics), carefully check for any evidence of microbial contamination. Also check to determine if the majority of cells are still attached to the bottom of the flask; during shipping the cultures are sometimes handled roughly and many of the cells often detach and become suspended in the culture medium (but are still viable).
2. **If the cells are still attached**, aseptically remove all but 5 to 10 mL of the shipping medium. The shipping medium can be saved for reuse. Incubate the cells at  $30^{\circ}\text{C}$  in a 5%  $\text{CO}_2$  in air atmosphere until they are ready to be subcultured.
3. **If the cells are not attached**, aseptically remove the entire contents of the flask and centrifuge at  $125 \times g$  for 5 to 10 minutes. Remove shipping medium and save. Resuspend the pelleted cells in 10 mL of this medium and add to  $25\text{ cm}^2$  flask. Incubate at  $30^{\circ}\text{C}$  in a 5%  $\text{CO}_2$  in air atmosphere until cells are



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ready to be subcultured.



### Subculturing Procedure

Volumes used in this protocol are for 75 cm<sup>2</sup> flask; proportionally reduce or increase amount of dissociation medium for culture vessels of other sizes.

1. Remove and discard culture medium.
  2. Briefly rinse the cell layer with 0.05% (w/v) Trypsin-0.53mM EDTA solution to remove all traces of serum which contains trypsin inhibitor.
  3. Add 2.0 to 3.0 mL of Trypsin-EDTA solution to flask and allow flasks to set at room temperature for 3 to 5 minutes.
  4. Tap flask and cells will slide off bottom of the flask.
- Note:** Cells come off in small clumps and are difficult to break up into single cells without greatly reducing cell viability.
5. Add 6.0 to 8.0 mL of complete growth medium and aspirate cells by gently pipetting.
  6. Add appropriate aliquots of the cell suspension to new culture vessels.
  7. Incubate cultures at **30°C**.

**Subcultivation Ratio:** 1:4 to 1:8

**Medium Renewal:** Every 2 to 3 days

**Note:** For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 10 in *Culture of Animal Cells, a Manual of Basic Technique* by R. Ian Freshney, 3rd edition, published by Alan R. Liss, N.Y., 1994.



### Cryopreservation Medium

Complete culture medium described above supplemented with 5% (v/v) DMSO. Cell culture tested DMSO is available as ATCC Catalog No. 4-X.



### Comments

The PLHC-1 (Poeciliopsis lucida hepatocellular carcinoma) cell line was derived from an adult female Poeciliopsis lucida, a topminnow from the Sonoran Desert.

A transplantable tumor was induced by multiple doses of 7, 12-dimethylbenz(a)anthracene (DMBA) treatment of the fish in 1982 by Mary E. Schultz.

The tumor was adapted to cell culture in 1985 by Lawrence E. Hightower.

These cells maintain a number of differentiated cell functions of hepatocytes. The cells possess inducible and stable cytochrome P450 (CYF) activity. This activity is inducible by 3,3',4,4'-tetrachlorobiphenyl (TCB).

Cytochrome P450 activity is also inducible by Aroclor 1254 (a chemical inducer of cytochrome P450-dependent monooxygenase activity), and reduced by EPN (an inhibitor of P450 activity).

PHLC-1 cells can be used in an in vitro system to screen environmentally relevant stressors such as heavy metals using a combined stress protein and cytotoxicity assay. Increases in heat shock protein hsp70 can be detected in this system.

Retention of hepatocyte properties has made this cell line ideal for in vitro toxicology assays; it has been well characterized by environmental toxicologists.



### References

References and other information relating to this product are available online at [www.atcc.org](http://www.atcc.org).



### Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the *Biosafety in Microbiological and Biomedical Laboratories* from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

### ATCC Warranty

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### Disclaimers

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Additional information on this culture is available on the ATCC web site at [www.atcc.org](http://www.atcc.org).  
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