Human Plasma-Like Medium (HPLM)

Catalog Numbers A4899101, A4899102

Pub. No. MAN0024962 Rev. B

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from thermofisher.com/support.

Product description

Gibco™ Human Plasma-Like Medium (HPLM) is a new basal medium formulation designed to resemble the natural cellular environment found in the body, mimicking the metabolic profile of human plasma. The widely used classic synthetic cell culture media, including MEM, DMEM, RPMI 1640, and DMEM/F-12, contain glucose, amino acids, vitamins, and salts at concentrations that in large part do not reflect those found in human plasma. These media also lack additional plasma components needed to mimic the metabolic profile of human plasma. Gibco™ HPLM contains more than 60 polar metabolites such as amino acids, nucleic acids, sugars and small organic acids at concentrations found in human plasma. The salt concentrations in HPLM mimic the salt concentrations found in human plasma. In resembling the natural cellular environment found in the body, HPLM provides researchers the ability to study the impact of physiologically relevant cell media on their specific applications.

When supplemented with fetal bovine serum (FBS), HPLM is capable of supporting cell growth and viability that are comparable to that of conventional basal media formulations supplemented with FBS. For most cell lines, adaptation is not required to transition from conventional medium to HPLM.

Contents and storage

Contents	Cat. No.	Amount	Storage	Shelf life
Human Plasma-Like Medium (HPLM)	A4899101	500 mL	2–8°C; Protect from light	12 months
	A4899102	10 × 500 mL		

Culture conditions

Medium: Human Plasma-Like Medium (HPLM)

Culture type: Adherent and suspension

Culture vessels: T-flasks or culture plates

Temperature range: 36°C to 38°C

Incubator atmosphere: 90–95% humidified atmosphere of 5%–10% CO_2. Ensure that proper gas exchange is achieved in culture vessels and minimize exposure of cultures to light.

Procedural guidelines

- The formulation of HPLM is based on the medium introduced in a research article published in the journal *Cell* (Cantor et al., 2017, Cell 169, 258-272). HPLM does not contain 2-hydroxybutyric acid (2-HBA), which was present in the formulation that was published in the journal *Cell*. Follow these steps to add 2-HBA to HPLM:
  - Create a 250X stock of 2-HBA in water by mixing 158 mg of 2-HBA (Alfa Aesar; A18636-03) with 100 mL of water
  - Sterile filter the 250X 2-HBA stock solution
  - Aseptically add 2 mL of 2-HBA stock solution to 498 mL of HPLM
- Complete culture medium most often consists of a basal medium containing defined metabolites and salts supplemented with fetal bovine serum (FBS) that further contributes an undefined cocktail of growth factors, hormones, trace elements, and other components critical for cell growth. To establish a complete HPLM-based medium, supplementation with 10% dialyzed FBS (Cat. No. 26400044) is recommended in order to minimize the contribution of polar metabolites at otherwise undefined levels. If your specific application is not impacted by levels of polar metabolites present in serum, or if your cells do not tolerate dialyzed serum, standard or heat-inactivated FBS can be used in place of dialyzed FBS.
- Use the same cell seeding conditions as used with conventional basal media. Some cell lines have been shown to grow slightly slower in HPLM than in conventional medium and may require higher seed densities or longer duration between passages in HPLM.
- For most cell lines, adaptation is not required to transition from conventional medium to HPLM.
- If your application requires <10% FBS, contact technical support to ensure compatibility.

Prepare complete media (500 mL)

1. Aseptically add 50 mL of FBS to 450 mL of HPLM.

   Note: If your application calls for higher levels of FBS (>10%), we recommend using the same concentration to prepare complete HPLM.

2. *Optional*: Add additional routine supplements, such as antibiotics, then mix several times by inversion.

3. Store complete HPLM at 4°C until use. We recommend that complete HPLM should be used within 2-4 weeks.

Related products

Unless otherwise indicated, all materials are available through **thermofisher.com**.

Catalog numbers that appear as links open the web pages for those products.

Item	Source
Fetal Bovine Serum, dialyzed, US origin	26400044
Nunc™ Cell-Culture Treated Multidishes	140675
Nunc™ MicroWell™ 96-Well Nunclon™ Delta-Treated, Flat-Bottom, Microplate	167008
Nunc™ EasYDish™ Dishes	150468
DPBS, no calcium, no magnesium	14190144
TrypLE™ Express Enzyme (1X), no phenol red	12604013
Trypsin-EDTA, (0.05%), phenol red	25300054
Trypan Blue Solution, 0.4%	15250061
Countess™ 3 Automated Cell Counter	AMQAX2000
2-Hydroxybutyric acid	Alfa Aesar; A18636-03

Limited product warranty

Life Technologies Corporation and its affiliates warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have questions, contact Life Technologies at **www.thermofisher.com/support**.

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For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

Revision history: Pub. No. MAN0024962 B

Revision	Date	Description
B	24 April 2025	Updated Related products Table. Corrected the temperature range in Culture conditions. The version numbering was changed from a numerical format to a letter-based format in accordance with internal document control procedures.
1.0	12 March 2021	New document for use of Human Plasma-Like Medium (HPLM).