**OpTmizer™ T-Cell Expansion SFM**


**OpTmizer T-Cell Expansion Supplement:**

*Caution: Human origin materials are non-reactive (donor level) for anti-HIV 1 & 2, anti-HCV, and HBsAg.* Handle in accordance with established bio-safety practices.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>OpTmizer™ T-Cell Expansion SFM</td>
<td>08-0022SA</td>
<td>1 Kit</td>
</tr>
<tr>
<td>Contains:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpTmizer™ T-Cell Expansion Basal Medium</td>
<td>08-0001DJ</td>
<td>1 x 500mL</td>
</tr>
<tr>
<td>OpTmizer™ T-Cell Expansion Supplement</td>
<td>08-0002SG</td>
<td>1 x 13mL</td>
</tr>
<tr>
<td>OpTmizer™ T-Cell Expansion SFM</td>
<td>08-0022SB</td>
<td>1 Kit</td>
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<td>Contains:</td>
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</tr>
<tr>
<td>OpTmizer T-Cell Expansion Basal Medium</td>
<td>08-0001DK</td>
<td>1 x 1000mL</td>
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<tr>
<td>OpTmizer T-Cell Expansion Supplement</td>
<td>08-0002SG</td>
<td>2 x 13mL</td>
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<tr>
<td>OpTmizer™ T-Cell Expansion SFM</td>
<td>08-0022SC</td>
<td>1 Kit</td>
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<td>Contains:</td>
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<tr>
<td>OpTmizer T-Cell Expansion Basal Medium</td>
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<td>1 x 1L (Bag)</td>
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<tr>
<td>OpTmizer T-Cell Expansion Supplement</td>
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<td>2 x 13mL</td>
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<tr>
<td>OpTmizer™ T-Cell Expansion SFM</td>
<td>08-0022SD</td>
<td>1 Kit</td>
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<tr>
<td>OpTmizer T-Cell Expansion Basal Medium</td>
<td>08-0001BB</td>
<td>1 x 5L (Bag)</td>
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<tr>
<td>OpTmizer T-Cell Expansion Supplement</td>
<td>08-0002SA</td>
<td>1 x 130mL</td>
</tr>
</tbody>
</table>

*Note: OpTmizer™ T-Cell Expansion SFM is sold as a complete kit, components are not sold separately.*

**Intended Use**

For research use only. **CAUTION:** Not intended for human or animal diagnostic or therapeutic uses.

**Precautions**

Store the supplement at 2 to 8°C. Do not freeze.

Complete OpTmizer™ T-Cell Expansion SFM (basal, supplement, and L-glutamine) is stable for 4 weeks when stored in the dark at 2-8°C.

OpTmizer T-Cell Expansion SFM is designed to support T-Cell cultures without the addition of human serum. If required, 2% heat-inactivated human serum (Cat. No. 34005-100) may be added to the medium to enhance viability and expansion. The use of serum, and the amount required, should be determined empirically depending on the specific T-cell culture application.

Foaming may occur during shipment of the supplement, this will not impact performance of the product.

**Storage**

OpTmizer™ T-Cell Expansion Basal Medium: Store at 2 to 8°C. Protect from light.

OpTmizer™ T-Cell Expansion Supplement: Store at 2 to 8°C in the dark.

**Shelf Life**

OpTmizer™ T-Cell Expansion Basal Medium: 12 months

OpTmizer™ T-Cell Expansion Supplement: 6 months

**Physical Conditions**

Standard physical conditions for human T cells grown in complete OpTmizer™ T-Cell Expansion SFM are 37°C in a humidified atmosphere of 5% CO₂ in air. Using standard aseptic conditions, cultures may be grown in tissue culture plate(s) (e.g. 24 well plate). Ensure proper gas exchange is achieved in the tissue culture plate(s). Avoid overexposure of cultures to light.

**Note: OpTmizer™ T Cell Expansion SFM is designed for the expansion of human T-Cells. Results may vary with use of OpTmizer™ T-Cell Expansion SFM with T-Cell subsets (e.g. Ag-specific cells) and further experimental conditions should be determined empirically by the investigator depending on the specific T-cell culture application.**

**Medium Preparation**


- For complete 1X medium, aseptically add to OpTmizer™ T-Cell Expansion Basal Medium before use:
  1. 26mL/L of OpTmizer T Cell Expansion Supplement
  2. 10mL/L of 200mM L-glutamine solution (Cat. No. 25030) for a final concentration of 2mM.

- Complete 1X OpTmizer T-Cell Expansion SFM may be supplemented with cytokines such as IL-2 to support T cell expansion. It is recommended to use 100-200 IU of IL-2 for standard T cell expansion. The amount of IL-2 used may vary depending on experimental conditions.
- If desired, antibiotics can be used. It is recommended to use Gentamicin (Cat. No. 15750) at 10-50 μg/mL.

Culture Procedure

Note: The procedure below serves as a general guideline for all static T cell cultures, regardless of vessel. For high-density culture in bioreactors, such as WAVE bags, optimal procedures should be determined empirically by the investigator.

1. Prepare fresh peripheral blood mononuclear cells (PBMCs) or rapidly thaw (< 1 minute) frozen vials of PBMCs cells in a 37°C water bath according to standard PBMC thawing protocols.
2. Wash cells with DPBS without calcium and magnesium (Cat. No. 14190), plus 5% heat-inactivated FBS (Cat. No. 10082) or heat-inactivated human pooled Type AB serum according to the applications, if required.
3. Count cells using either electronic (i.e. Coulter Counter, Vi-Cell) or manual (i.e. hemocytometer) methods. Centrifuge cells and remove wash buffer. Resuspend PBMC at roughly 0.5-1x10^6 cells/mL in 1X complete medium supplemented with cytokines, if used at culture initiation. Transfer the desired number of cells to the desired tissue culture vessel. A variety of protocols may be used for activating T cells for subsequent expansion, including adding stimulatory antibodies or antigen presenting cells. Similarly, for either small or the large scale T cell expansion, cells can be isolated, activated and expanded with Dynabeads® ClinExVivo™ CD3/CD28 (Cat. No. 402.03D) according to instructions in the product insert.
4. Incubate the culture vessel at 37°C in a humidified atmosphere of 5% CO_2 in air. Feed and maintain cells at desired concentrations while cells are in log phase growth. To maintain log phase growth, it may be preferable to split cells to achieve a density of 0.5-1x10^6 T cells/mL whenever cell density gets above 1x10^6 cells/mL (e.g. 2x10^6 cells/mL would be split 1:4 to continue culture at 0.5x10^6 cells/mL). For optimal gas exchange in static plate cultures it is recommended that medium depth not exceed 1-1.2 cm.

For additional information related to T cell expansion using Invitrogen products refer to our website: [http://www.invitrogen.com](http://www.invitrogen.com) and search “T Cell Expansion - Human Cells”

For information using Dynabeads CD3/CD28 (111.41D) & ClinEx Vivo™ Epoxy (402.03D) refer to our website: [http://www.invitrogen.com/support](http://www.invitrogen.com/support) and search under “Find Product Support Documents”

Related Products

- Dulbecco’s Phosphate Buffered Saline (DPBS) (1X), liquid, contains no calcium, magnesium, or phenol red (14190)
- L-Glutamine-200mM (100X), liquid (25030)
- Fetal Bovine Serum, Certified, Heat-Inactivated, (10082)
- AB-Human Serum (34005-100)
- Gentamicin Reagent Solution (50 mg/mL), liquid (15750)
- Dynabeads® ClinEx Vivo™ CD3/CD28 (402-03D)
- Dynabeads® CD3/CD28 (111-41D)
- Dynabeads® CD3/CD28 T Cell Expander (111-32D)
- Dynabeads® Human Treg Expander (111-29D)
- Dynabeads® ClinEx Vivo™ Epoxy (402-01D)
- Dynal MPC™-L (120-21)
- Dynal MPC™- 50 (120-24)
- Dynal ClinEx Vivo™ MPC® (121-02)
- IL-7 REC HU (PHC0076)
- IL-15 REC HU (PHC9151)
- REC. Human IL-2 (PHC0023)

Contacts

For further information on this or other GIBCO® products, contact Technical Services at the following:

- United States TECH-LINE SM: 1 800 955 6288
- Canada TECH-LINE SM: 1 800 757 8257
- Europe: eurotech@invitrogen.com

Outside the U.S. and Canada, refer to the GIBCO products catalog for the TECH-LINE in your region.

You may also contact your Invitrogen Sales Representative or our World Wide Web site at www.invitrogen.com.

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