CTS™ AIM-V™ Medium

Serum-free cell expansion medium

Catalog Numbers 087-0112DK and 087-0112BK

Pub. No. MAN0007331 **Rev.** 2.0

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™ CTS™ AIM-V™ Medium is the first commercially available defined serum-free medium for proliferation and/or manipulation of T-cells and dendritic cells, manufactured in compliance with cGMP. It contains L-glutamine at 0.3358 mg/mL, 50 µg/mL streptomycin sulfate, and 10 µg/mL gentamycin sulfate. Each container is a sterile filtered single-use container.

Contents and storage

Contents	Cat. No.	Amount	Storage	Shelf life[1]
CTS™ AIM-V™ Medium	0870112DK	1000 mL	2°C to 8°C; Protect from light	14 months
	0870112BK	10 L		

[1] Shelf Life duration is determined from Date of Manufacture.

Safety information

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

Culture conditions

Media: CTS™ AIM-V™ Medium

Cells: Human peripheral blood mononuclear cells (PBMCs)

Culture type: Static suspension

Culture vessels: T-Flasks or cell culture bag

Temperature range: 36°C to 38°C

Incubator atmosphere: Humidified atmosphere of 4–6% CO_2 in air. Ensure proper gas exchange and minimize exposure of cultures to light.

Procedural guidelines

- CTS™ AIM-V™ Medium comes supplemented with L-glutamine, streptomycin sulfate, and gentamicin sulfate.
- Additional supplementation with cytokines or growth factors may be required per specific investigator's procedures and should be aseptically added immediately prior to use.
- The following protocol serves as a general guideline for static T cell and dendritic cell culture, regardless of vessel.
- Feed and maintain cells at desired concentrations while cells are in log phase growth. Dilute cells to a viable cell density of 5×10^5 cells/mL whenever the viable cell density reaches $\geq 1 \times 10^6$ cells/mL.
- For optimal gas exchange in static plate cultures, it is recommended that medium depth not exceed 1–1.2 cm.
- For high-density culture in bioreactors, optimal procedures should be determined empirically by the investigator.

T-cell culture

1. Prepare fresh peripheral blood mononuclear cells (PBMCs) or rapidly thaw (<1 minute) a vial of frozen PBMCs in a 37°C water bath according to standard PBMC thawing protocols.
2. Wash cells with CTS™ DPBS without calcium chloride, without magnesium chloride, supplemented with 2–5% heat-inactivated human pooled Type AB serum or 5–10% CTS™ Immune Cell SR.

   The optimal concentration should be determined based on your application.
3. Determine viable cell density using a Countess™ II Automated Cell Counter.
4. Centrifuge cells at 200 × g for 5–10 minutes and aspirate wash buffer supernatant.

5. Resuspend PBMC pellet at approximately 0.5 × 10^6–1 × 10^6 cells/mL in medium supplemented with cytokines (e.g., IL-2), if used at culture initiation.

6. Transfer the desired number of cells to the desired tissue culture vessel.

   Note: 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 large scale T-cell expansion, cells can be isolated, activated and expanded using CTS™ Dynabeads™ CD3/CD28 according to instructions in the product insert.

Prepare monocyte derived dendritic cell culture

1. Prepare fresh PBMCs and seed into a culture flask with 25 mL RPMI 1640 or CTS™AIM-V™ Medium at cell density of 1–2 × 10^5 cells/cm^2.

2. Incubate for 2–3 hours at 37˚C in a humidified atmosphere of 5% CO_2 in air.

3. Aspirate and discard medium containing non-adherent cells.

4. Wash the adherent cells (mainly CD14+ monocytes) three times with CTS™ DPBS without calcium chloride, without magnesium chloride.

5. Add medium supplemented with 50–100 ng/mL recombinant human IL-4 and 50 ng/mL recombinant human GM-CSF.

6. Incubate cells at 37˚C in a humidified atmosphere of 5% CO_2 in air for 5 days.

7. On day 3, transfer spent media to a sterile conical tube and centrifuge at 200 × g for 5–10 minutes to collect all non-adherent or loosely adherent cells.

8. Aspirate supernatant and gently resuspend cell pellet in an equal volume of fresh pre-warmed medium containing IL-4 and GM-CSF.

9. Transfer cell suspension to the original culture flask containing adherent cells.

   After 6 days, the loosely adherent or non-adherent cells should display typical dendritic cell morphology and surface markers (e.g., CD1a, CD80, CD86, and HLA-DR).

10. Induce maturation of dendritic cells by the addition of either 1 µg/mL lipopolysaccharide (LPS) or 50 µL/mL TNF-α to the medium.

    Note: As an alternative to plastic adherence, monocytes can be isolated by magnetic separation.

Related products

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

Item	Source
CTS™ DPBS without calcium chloride, without magnesium chloride	A12856
AB-Human Serum	3005100
CTS™ Dynabeads™ CD3/CD28	40203D
CTS™ DynaMag™ Magnet	12102
Dynabeads™ Human Treg Expander	11129D
RPMI 1640 Medium, GlutaMAX™ Supplement, HEPES	72400
CTS™ GlutaMAX™-I Supplement	A1286001
L-Glutamine (200 mM) (100X)	25030
Trypan Blue Solution, 0.4%	15250
Countess™ II Automated Cell Counter	AMQAX1000

Limited product warranty

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