

smarT™

smarT™ Serum Free
Medium for in vitro
Human T cell Culture



HIMEDIA®

For Life is Precious

 **HIMEDIA**®
Cell Culture
Enabling Breakthroughs

Product Portfolio

Product Name	Code	Packing
smarT™ Serum free medium for expansion of human T cells	AL541	500 ML 1000 ML
Related products		
HiFi™ Human Peripheral Blood Mononuclear Cells (H-PBMC), Single Donor	CL003-25 CL003-T25 CL003-10	25 million cells/ vial 25 million cells/ T25 flask 10 million cells/ vial
HiFi™ Human Peripheral Blood Mononuclear Cells (H-PBMC), Pooled	CL010-25 CL010-T25 CL010-10	25 million cells/vial 2x25 million cells/T25 flask 10 million cells/vial
HiFi™ Human CD56 and CD16 tested PBMC, Single Donor	CL027-T25 CL027-25	25 million cells/ T25 flask 25 million cells/ vial
HiFi™ Human OKT3 tested PBMC, Single Donor	CL028-25 CL028-10	25 million cells/ vial 10 million cells/ vial
HiFi™ Human CD45, CD3, CD8, CD4 and CD19 tested PBMC, Single Donor	CL031-T25 CL031-25	25 million cells/ T25 flask 25 million cells/ vial
Human peripheral blood mononuclear cells Gamma Irradiated (50gy dose)	CL034-T75	200million cells/T75 flask
HiFi™ Human Peripheral Blood CD3+ T cells, Single Donor (Bead free Immune magnetic negative selection)	CL039-5 CL039-10	5.0 million cells/vial 10.0 million cells/vial
HiFi™ Human CD4+ T cells, Single Donor (Bead free Immune magnetic positive selection)	CL032-10	10 million cells/ vial
HiFi™ Human NK cells, Single Donor (Bead free Immuno magnetic negative selection)	CL033-5	5 million cells/ vial
HiFi™ Human Dendritic cells, Single Donor (Bead free Immuno magnetic negative selection)	CL036-2.5 CL036-1.0	2.5million cells/vial 1.0million cells/vial
HiSep™ LSM 1077	LS001	100ml 500ml
FREEZin1™ Universal Freezing Medium w/DMSO w/o Antibiotic, Antimycotics and Phenol red	TCL098	50ml
Gentamicin-Amphotericin B Solution 1000X	A031-20ML	20ml

smarT™

smarT™ Serum Free Medium for in vitro Human T cell Culture

T lymphocytes are important component of adaptive immune system and play a critical role in antigen specific immune response. These T cells when activated can recognize the viral infected cells or cancer cells followed by direct killing of those cells. Dysregulation of T cells leads to etiology for many diseases and in cancers. To combat global burden of cancer and infectious diseases, immune therapy is a promising remedial therapy. To accelerate preclinical research for T cell immuno-regulation and therapy, specialized serum-free expansion and maintenance of T cells media are required.

HiMedia smarT™ cell Expansion Media is a serum free, commercially available medium designed for in vitro culture, proliferation and expansion of T cells derived from Human peripheral blood. Culture of cells in serum free conditions facilitates downstream processing of product and minimizes the problems associated with the use of serum such as lot-to-lot variability, presence of exogenous contaminants and availability. Users are advised to review the literature for recommendations regarding medium supplementation and physiological growth requirements.



Serum free medium



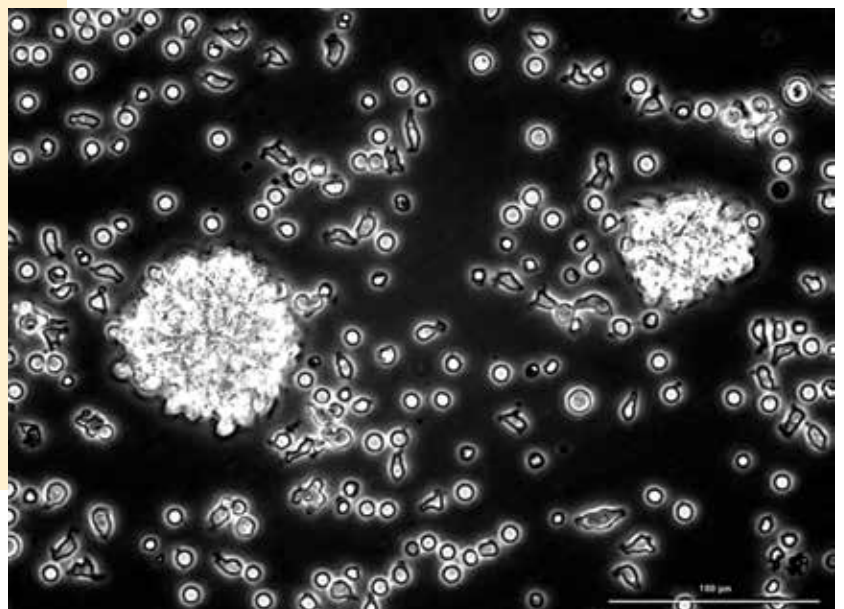
Manufactured in GMP, ISO13485 and ISO 9001 certified facility



Robust growth and expansion



Defined medium – Enhances reproducibility



Activation potential

smarT™ supports activation of successfully isolated T cells from Peripheral Blood Mononuclear cells.

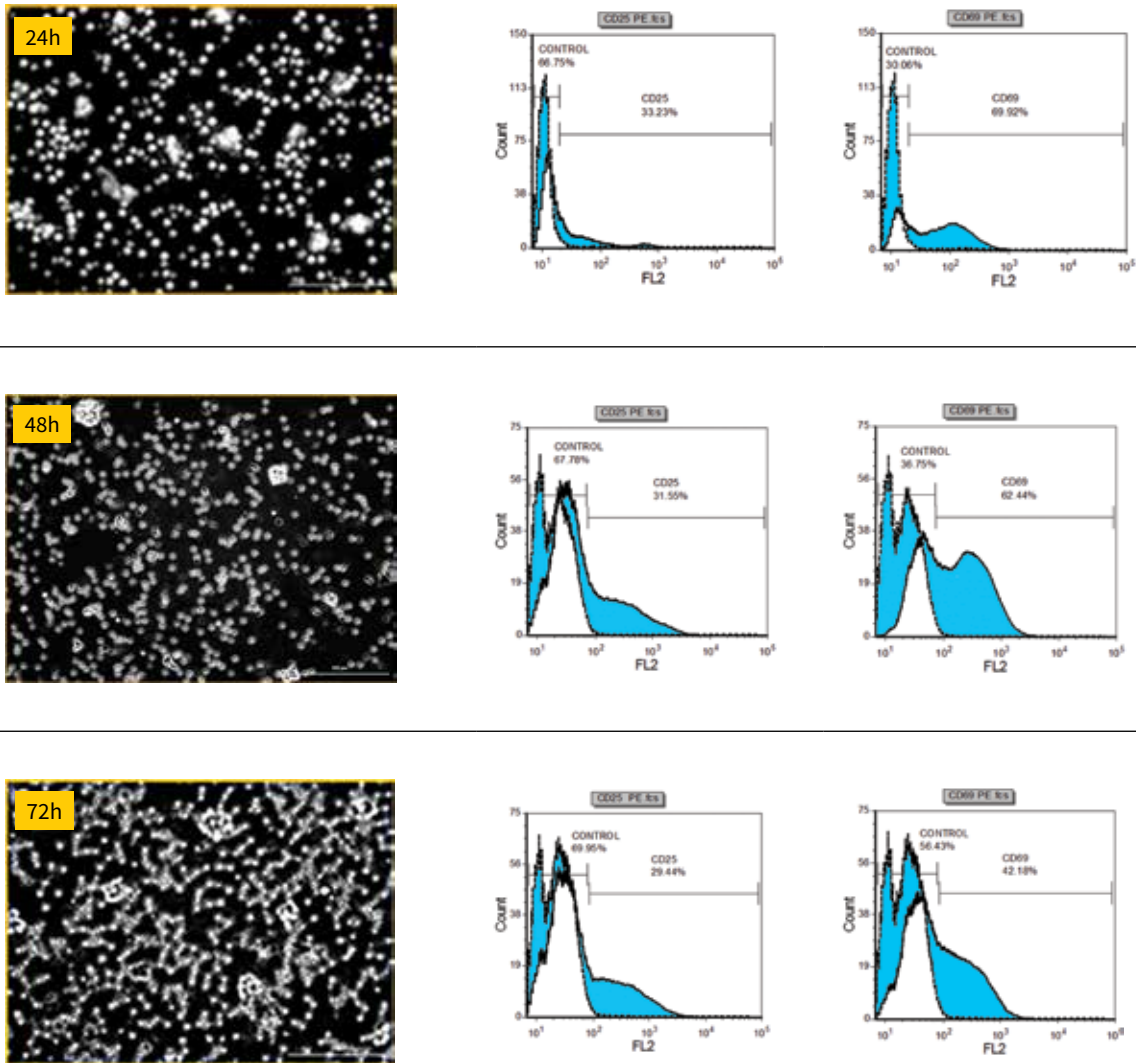


Fig 1 : T cells isolated from Peripheral Blood Mononuclear cells showing activation by adding human anti-CD3/OKT3 clone and anti-CD28 antibody for 24h, 48h and 72h. T cells were visualized under microscope and activation was checked on flow cytometer by surface expression of CD69 and CD25.

Superior Expansion Capacity

smarT™ supports activation and expansion of the T cells.

Supports high cell densities

smarT™ supports higher cell densities in comparison with the other competitor media.

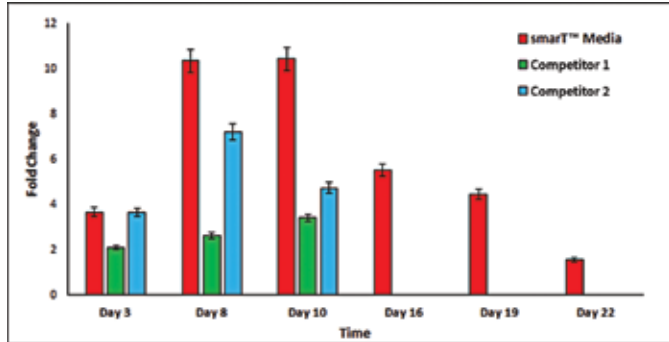


Fig 2 : Viable cell fold change of isolated T cells in smarT™

Supports long term T cell viability

smarT™ supports T cell viability till 22 days in comparison with the other competitor media.

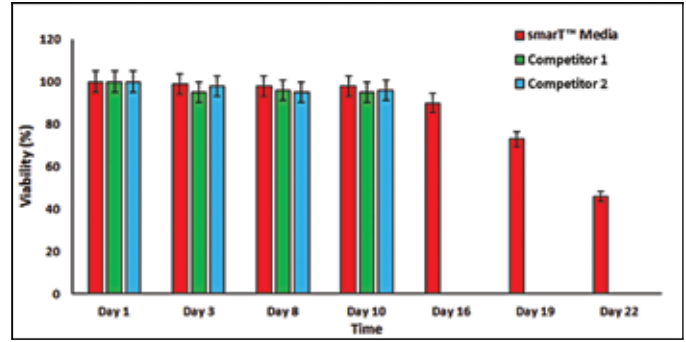


Fig 3 : Percent cell viability of isolated T cells in smarT™

Preparation of complete smarT™

1. Thaw serum free growth supplement (Part B) overnight at 2-8°C.
Note : Precipitates in Part B after thawing are normal. Precipitates will not affect the performance of the medium.
2. Disinfect the external surface of the bottles of part A and Part B by spraying with isopropyl alcohol before placing in a biosafety (BSL 2) hood.
3. Transfer the entire content of Part B to basal medium (Part A) under aseptic condition.
Note : If desired, 5ml of antibiotic-antimycotic solution (A031) can be added to 500ml of complete medium.
4. Tightly cap the bottle and swirl gently to ensure proper mixing.
Note : Do not mix vigorously. Doing so will cause formation of foam.
5. Store the complete medium at 2 - 8°C until use.

Part A (Basal Medium)	Part B (Growth Supplement)
500 ml	40 ml
1000 ml	80 ml

Culture and activation of T Cells

1. Start with purified human T cells/ PBMCs at 1 x 10⁶ cells/ml in prewarmed smarT™ Expansion Media.
2. Add human anti-CD3 (100ng/ml) and anti-CD28 (50ng/ml) antibody to activate human T cells. Incubate cells in humidified 5% CO₂ incubator at 37°C up to 3 days followed by media change.
3. For long term culture and expansion of human T cells, give media change after every 2-3 days.
(Note: The following protocol is for static T cells/ PBMCs culture. However optimal procedures should be determined empirically by investigator.)

Quality control:

Appearance

Part A: Orange color clear solution

Part B: Pale yellow color solution

pH

7.00 - 7.60

Osmolality

Part A :280-320 mOsm/KgH₂O

Sterility

No bacterial or fungal growth is observed after 14 days of incubation, as per USP specification.

Cell Culture performance

The medium is tested and passed for optimal cell expansion of human T cells.

Storage and shelf life:

1. Store smarT™ Part A at 2-8°C away from bright light.
2. Store smarT™ Part B at -20°C.
3. Store the reconstituted medium at 2-8°C and use it within 4 weeks. Do not freeze it.
4. Use before expiry date given on the product label.

Note: Do not freeze the basal medium (Part A). Avoid repeated freezing and thawing of the growth supplement (Part B). For long term usage small volumes of Part B can be aliquoted and stored at -20 °C once it is thawed.

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