

TheraPEAK[®] Media and cytokines for cell therapy applications

Elevate proliferation, viability, and therapy potential

September 2025

Public



TheraPEAK® T-VIVO® Cell Culture Medium

Lonza
Specialized Modalities



TheraPEAK® T-VIVO® Cell Culture Medium

For cell therapy applications from discovery to commercialization



A chemically defined, non-animal origin (NAO) cell culture medium to culture and grow a variety of hematopoietic cells including:



$\alpha\beta$ and $\gamma\delta$ T cells



CAR-T cells



Peripheral blood T lymphocytes (PBL)



Tumor infiltrating lymphocytes (TIL)



TheraPEAK® T-VIVO® Medium is a chemically defined media that contains no **animal origin** components



Achieves **high performance without serum**



Exceeds performance compared to various commercial media that require human AB serum



Delivers greater consistency and process control, and simplifies regulatory approval for faster time-to-market



Demonstrated **performance across multiple platforms**

- T-flask, Spinner flask, G-Rex®, Xuri™, Cocoon® Platform

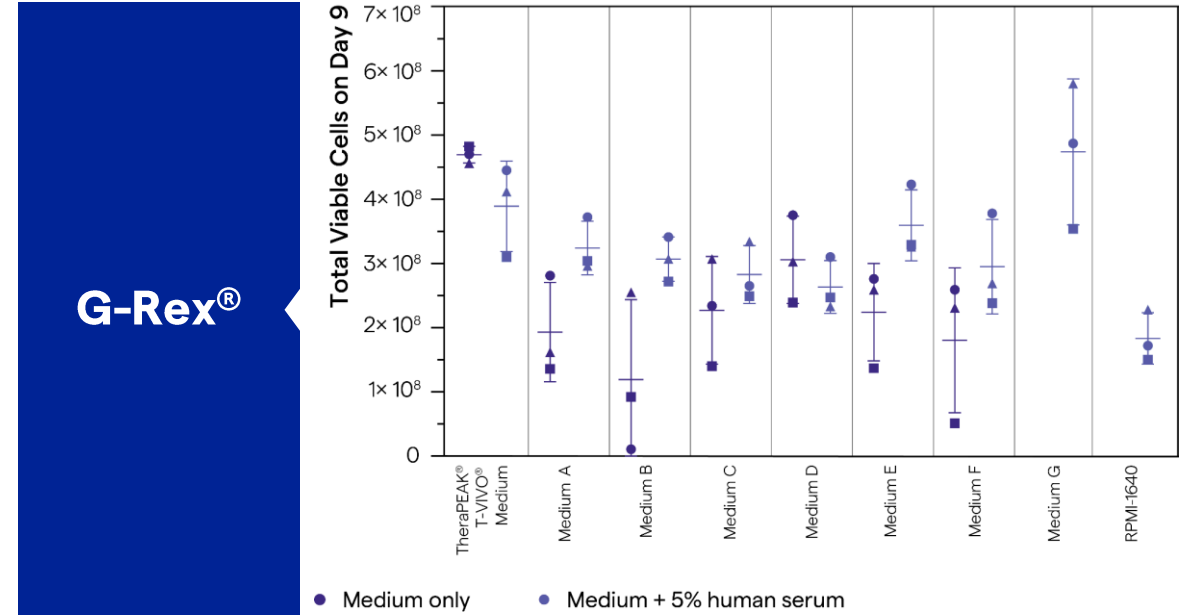
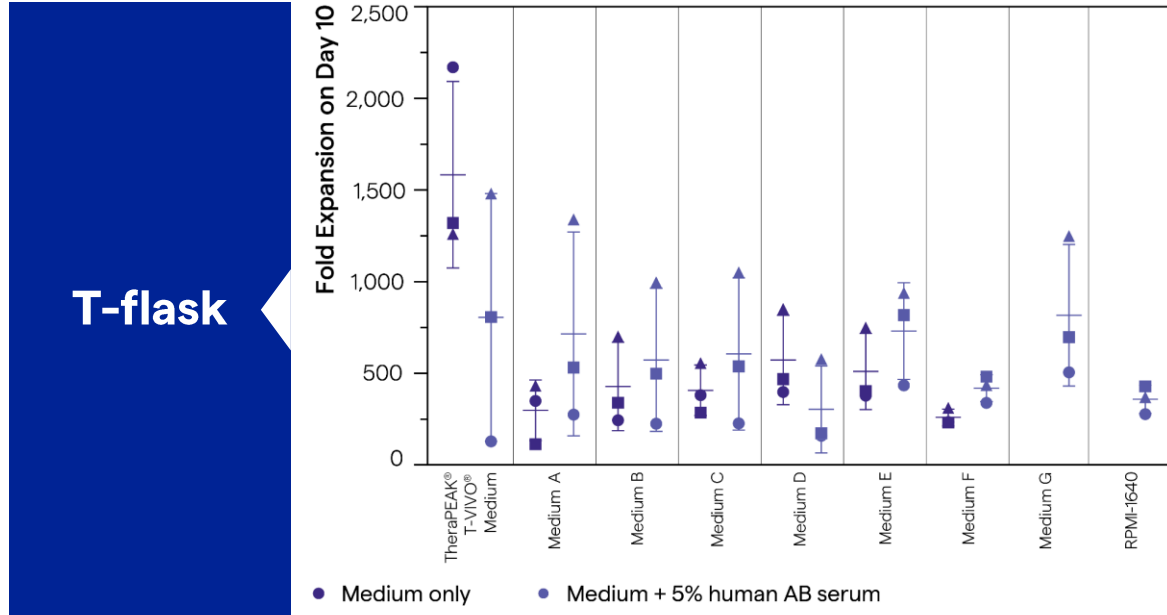


High efficiency using **virus transduction and Nucleofector® Technology**



T-cell expansion at bench scale

T-flask and G-Rex[®]



All culture media are supplemented with recombinant human IL-2 (100 IU/mL)

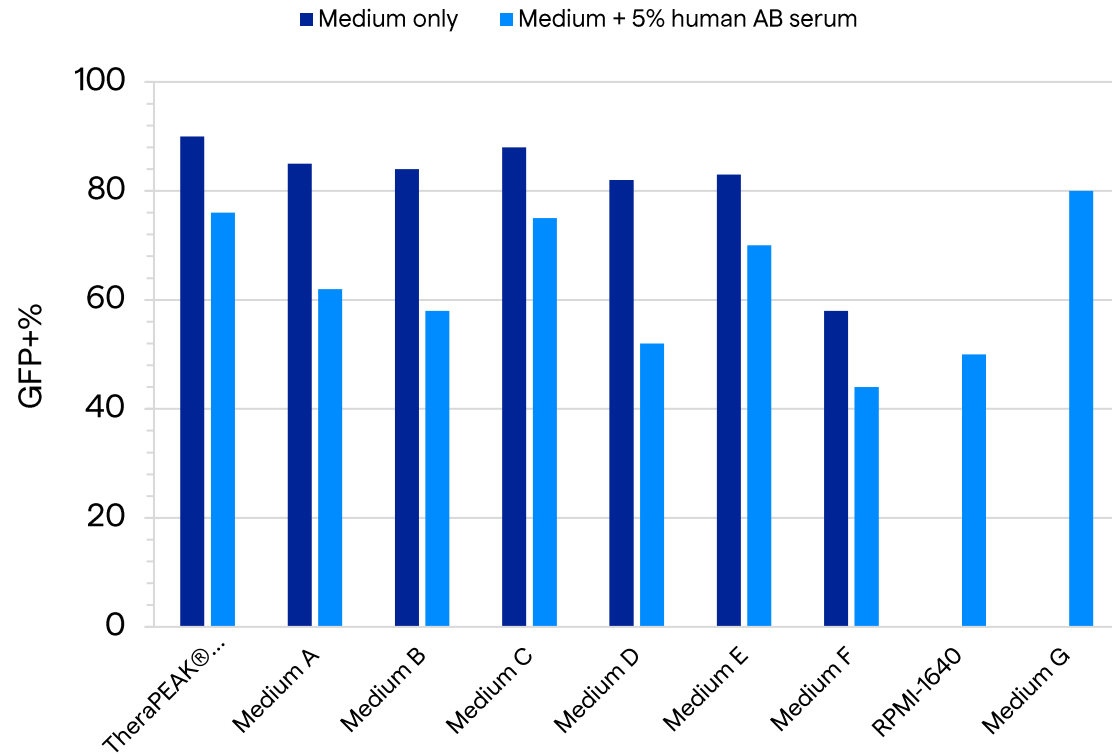


Medium G and RPMI-1640 do not support T-cell growth without the supplementation of human AB serum

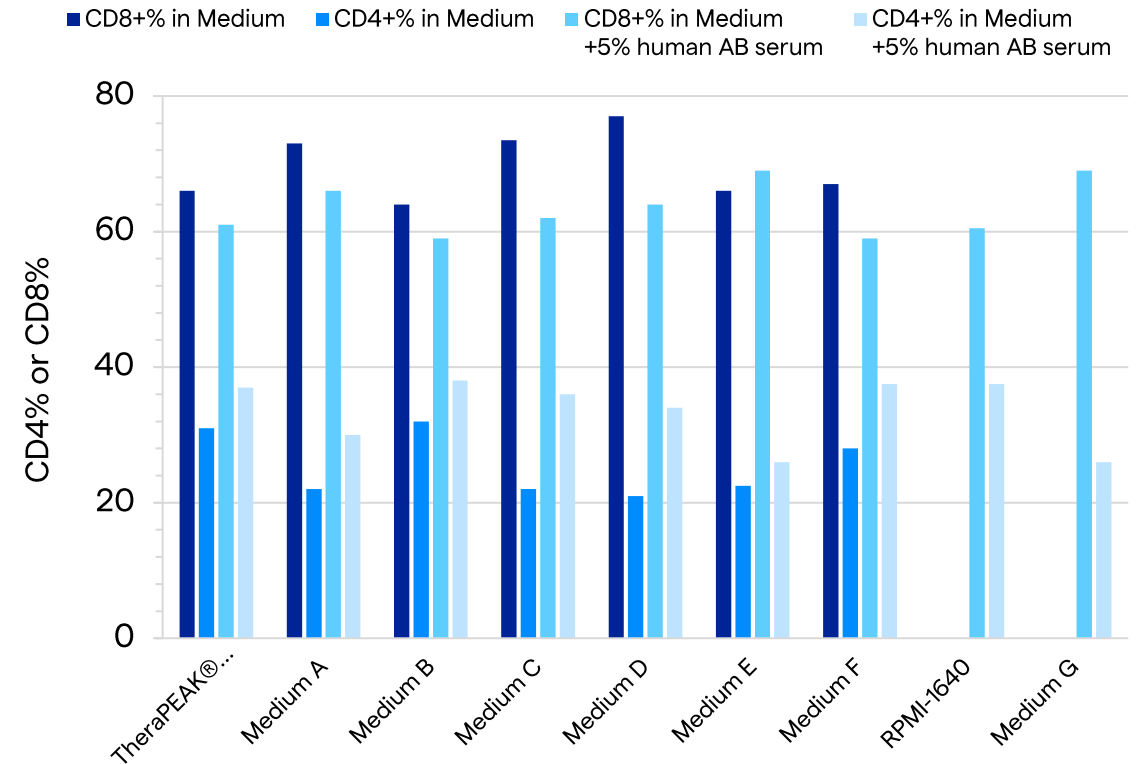


Human AB serum negatively impacts T-cell expansion in TheraPEAK[®] T-VIVO[®] Medium

Lentivirus transduction efficiency



T-cell phenotype (CD4% and CD8%)



TheraPEAK® T-VIVO® Medium

Superior formulation for your cells

| Cat. No. | Description | Size and packaging |
|-----------|--|--------------------|
| BP12-970Q | TheraPEAK® T-VIVO® Cell Culture Medium | 1 Liter bottle |
| BP08-970Y | TheraPEAK® T-VIVO® Cell Culture Medium | 1 Liter bag |
| BP08-970H | TheraPEAK® T-VIVO® Cell Culture Medium | 5 Liter bag |



Customization of packaging for specific applications is available upon request. Please contact your local salesperson or scientific support.

Learn more:

www.lonza.com/therapeak-t-vivo



TheraPEAK® X-VIVO® Cell Culture Medium

Lonza
Specialized Modalities



X-VIVO® cell culture mediums

For cell therapy applications from discovery to commercialization

TheraPEAK® X-VIVO® Media is a high performing media series providing nutritionally adequate and balanced environments for a variety of hematopoietic cells



T cells, CAR-T cells



Dendritic cells
Human monocytes and macrophages



Peripheral blood T lymphocytes (PBL)



Tumor infiltrating lymphocytes (TIL)



X-VIVO® is available in both GMP quality as well as RUO.

X-VIVO® 10

Available in both RUO and GMP grade
(TheraPEAK® X-VIVO)

- > Developed for slower growing less mature cells, like hematopoietic stem cells
- > Available with both native and recombinant transferrin
- > Able to be utilized as a serum-free media or with serum and serum replacement to suit the process
- > Application:
 - Lymphokine-activated killer cell
 - Hematopoietic stem cells

X-VIVO® 15

Available in both RUO and GMP grade
(TheraPEAK® X-VIVO)

- > Developed for rapidly growing cells. Cells of the immune system that are to be cultured to normal densities thrive well with this composition
- > Available with both native and recombinant transferrin
- > Able to be utilized as a serum-free media or with serum and serum replacement to suit the process
- > Application:
 - T Cells
 - CAR-T cells
 - Peripheral blood lymphocytes
 - Tumor infiltrating lymphocytes
 - Human monocytes and macrophages
 - Natural killer (NK) cells

X-VIVO® 20

Available as RUO only

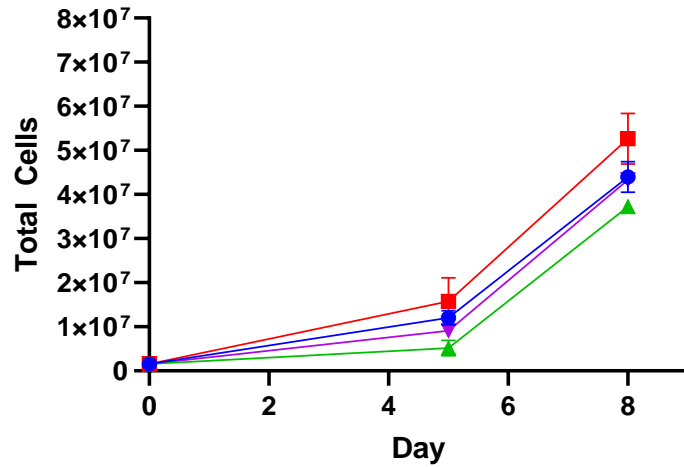
- > For very rapidly growing cells that you need to culture to high densities
- > Application:
 - Generation of lymphokine activated killer cells from monocyte-depleted PBL at high density

TheraPEAK® X-VIVO® 15 Medium

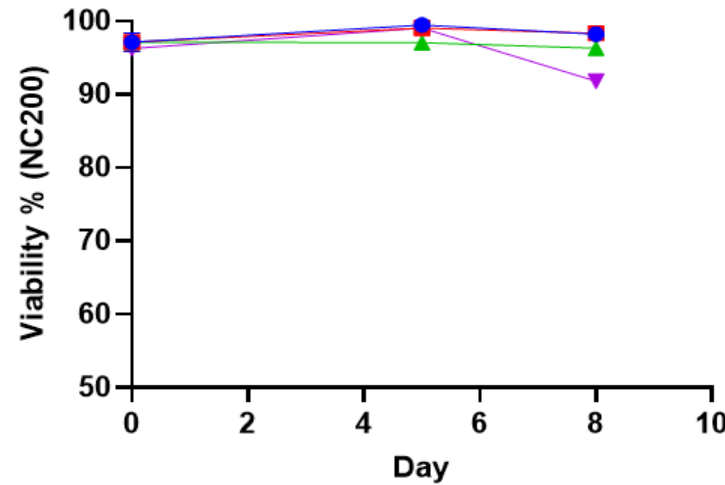
Comparison of human serum and three serum replacement products

Serum replacements deliver high-performing, low-risk T cell cultures, matching, or exceeding, the expansion and viability seen with human serum.

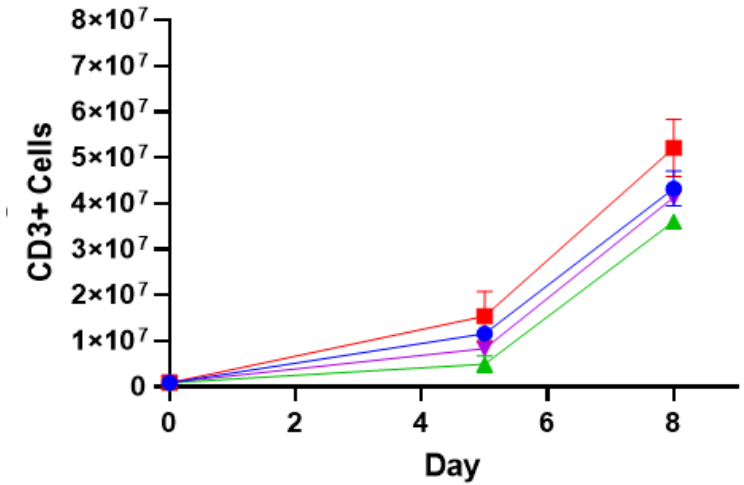
8 Day Total Cell Expansion



Viability



8 Day CD3+ Expansion



● X-VIVO® + Human serum ■ X-VIVO® + Serum replacement 1 ▲ X-VIVO® + Serum replacement 2 ▼ X-VIVO® + Serum replacement 3

TheraPEAK® X-VIVO® Medium

Find the right X-VIVO® Medium for your application

| With recombinant transferrin | Packaging | EU | America |
|---|-----------|----------------------------------|----------------------------|
| TheraPEAK® X-VIVO® 15 Medium with recombinant transferrin | 1L bottle | BEBP02-054Q | BP02-054Q |
| TheraPEAK® X-VIVO® 15 Medium with recombinant transferrin | 1L bag | BEBP02-054P1 | BP02-054P1 |
| TheraPEAK® X-VIVO® 10 Medium with recombinant transferrin | 1L bottle | BEBP02-055Q | BP02-055Q |
| With human transferrin | Packaging | EU | America |
| TheraPEAK® X-VIVO® 15 Medium w/o phenol red and antibiotics | 1L bottle | BEBP02-061Q | BP04-744Q |
| TheraPEAK® X-VIVO® 15 Medium w/o phenol red and antibiotics | 1L bag | BE08-879P1 | 08-879P1 |
| TheraPEAK® X-VIVO® 15 Medium w/o phenol red and antibiotics | 5L bag | BE08-879H | 08-879H |
| TheraPEAK® X-VIVO® 10 Medium w/o phenol red and antibiotics | 1L bottle | BP04-743Q | |

Learn more: www.lonza.com/therapeak-t-vivo

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TheraPEAK® AmpliCell® Cytokines



TheraPEAK® AmpliCell® Cytokines

For cell therapy applications from discovery to commercialization

Our recombinant cytokines provide activity comparable to natural human cytokines with high lot-to-lot reproducibility, giving you confidence from early discovery through clinical development.



Provides high potency and functional consistency



Provides high reproducibility and safety profiles



Ideal for developing cell therapies where quality, safety, and consistency are of the utmost importance



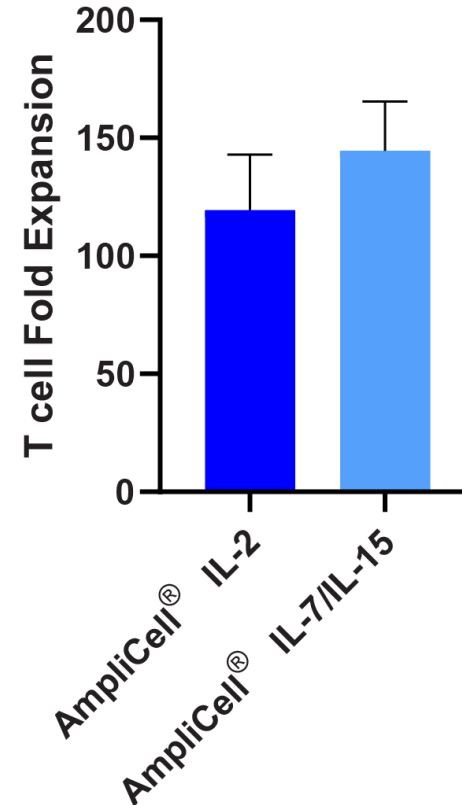
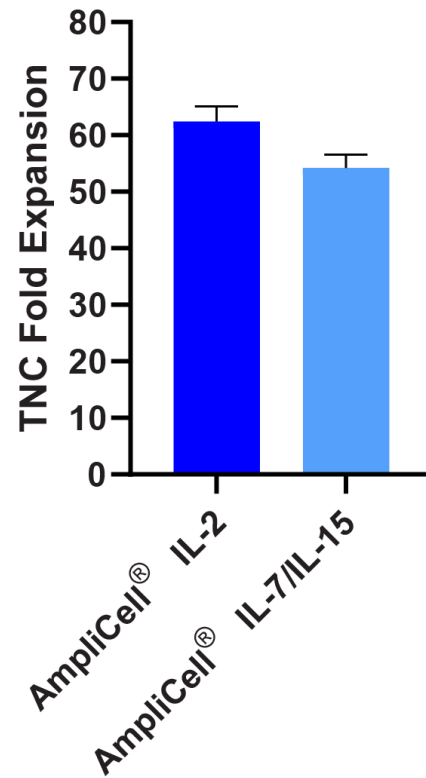
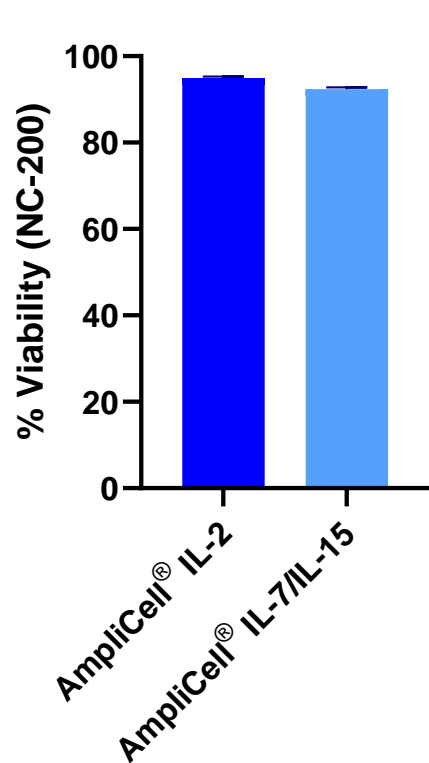
RUO and GMP versions available to support your entire product lifecycle



TheraPEAK® AmpliCell® Cytokines cultured with TheraPEAK® X-VIVO® 15 Medium

With 5% human serum in a G-Rex6® Well Plate

- AmpliCell IL-2
- AmpliCell IL-7/IL-15

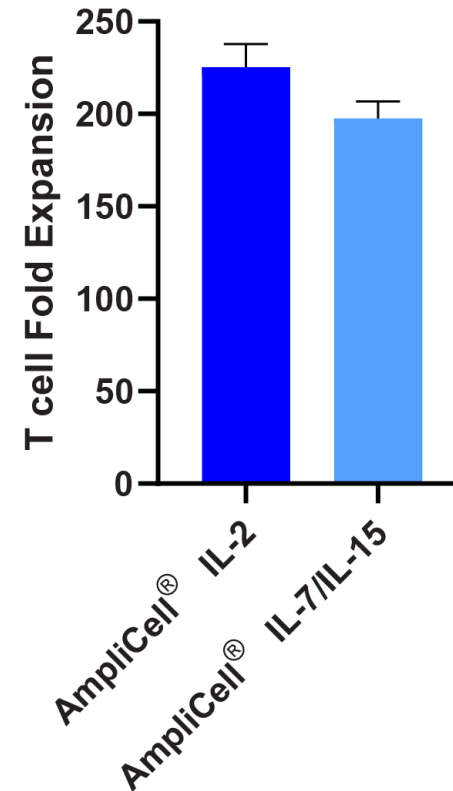
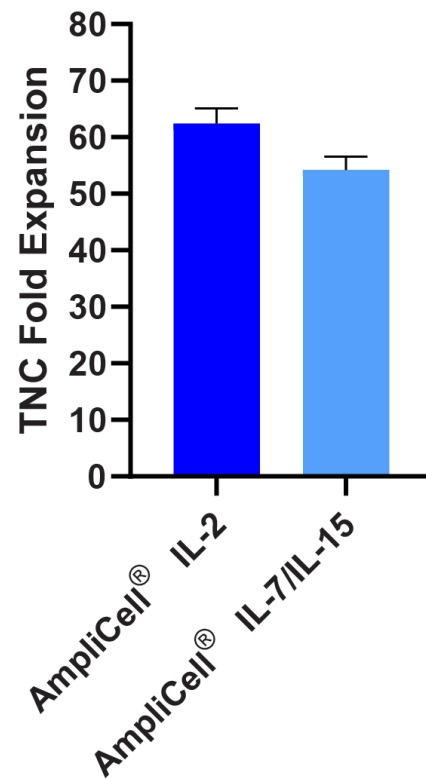
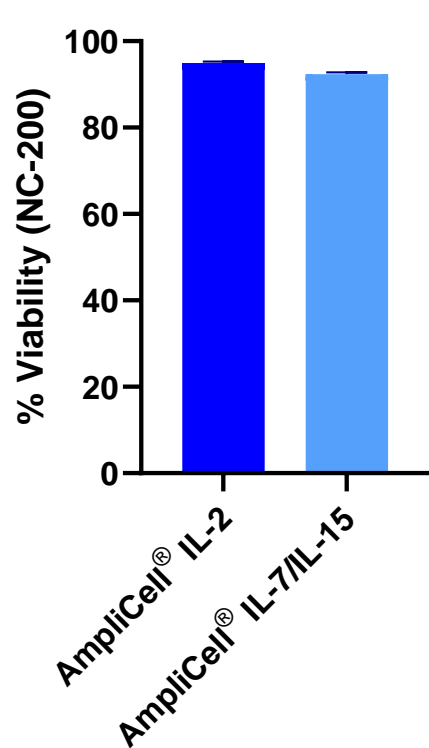


PBMC-derived cultures demonstrated strong performance, with high cell viabilities observed at day 9 across two healthy donors. Both IL-2 and IL-7/IL-15 conditions supported robust T cell expansion, confirming the medium's ability to maintain healthy, proliferative cells.

TheraPEAK® AmpliCell® Cytokines cultured with TheraPEAK® T-VIVO® Medium

Serum-free culture in a G-Rex6® Well Plate

- AmpliCell IL-2
- AmpliCell IL-7/IL-15



TheraPEAK® AmpliCell® Cytokines supported robust T cell growth in serum-free culture conditions. Compared to serum-containing media, higher T cell fold expansion was observed, demonstrating the effectiveness of the cytokines in driving proliferation without serum supplementation.

TheraPEAK® AmpliCell® Cytokines

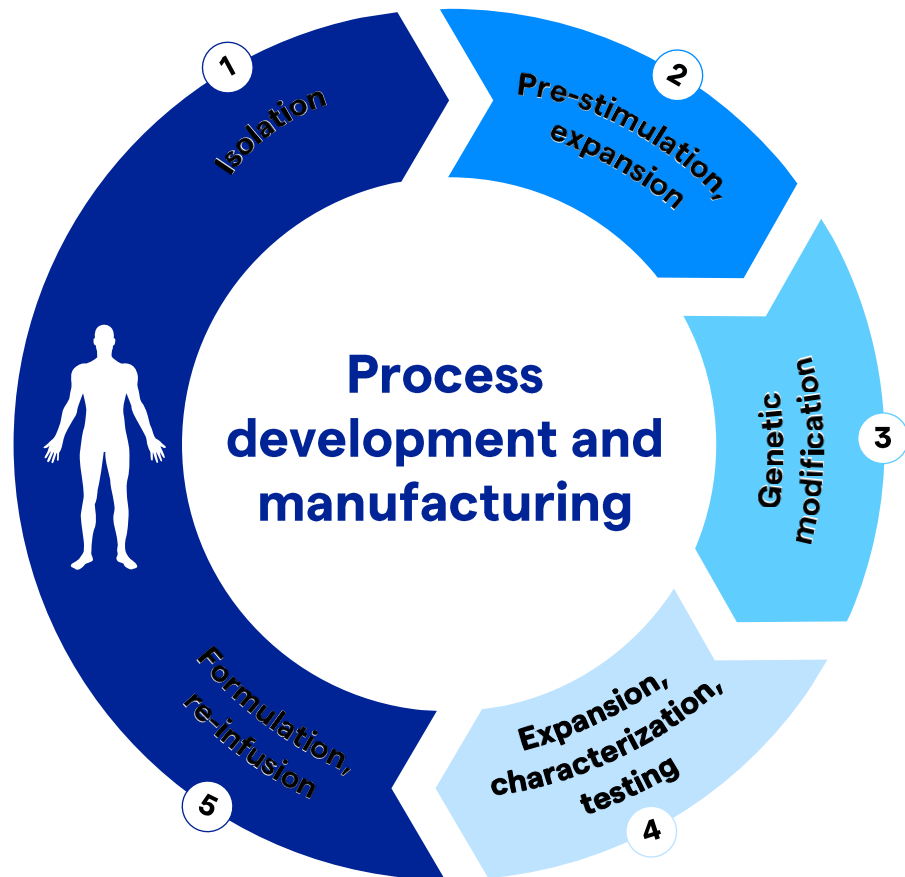
Enabling the reliable expansion, activation, and differentiation of immune cells

| Description | Available variety | Size and packaging |
|--------------|---|---|
| IL-2 | TheraPEAK® AmpliCell® Cytokines and RUO AmpliCell® Cytokines | <ul style="list-style-type: none">• 10 µg• 100 µg• 1 mg |
| IL-7 | TheraPEAK® AmpliCell® Cytokines and RUO AmpliCell® Cytokines | <ul style="list-style-type: none">• 10 µg• 100 µg• 1 mg |
| IL-12 | TheraPEAK® AmpliCell® Cytokines and RUO AmpliCell® Cytokines | <ul style="list-style-type: none">• 10 µg• 100 µg• 1 mg |
| IL-15 | TheraPEAK® AmpliCell® Cytokines and RUO AmpliCell® Cytokines | <ul style="list-style-type: none">• 10 µg• 100 µg• 1 mg |
| IL-21 | TheraPEAK® AmpliCell® Cytokines and RUO AmpliCell® Cytokines | <ul style="list-style-type: none">• 10 µg• 100 µg• 1 mg |



Enabling technologies for cell and gene therapy

Your partner for accelerating your cell and gene therapy



TheraPEAK® Media and Reagents (Steps 2, 4)

Therapeutic cell-culture media enable robust, consistent and cost-effective processes

MODA® solutions (Steps 4 – 5)

Paperless, GMP-compliant data capture in laboratory and manufacturing, cost-effective and easy to implement

TheraPEAK® Nucleofector® products (Step 3)

Flexible non-viral transfection technology for various applications in cell and gene therapy

Cell and gene therapy development and manufacturing services (Steps 1 – 5)

Extensive service offering from process development to GMP manufacturing

The Cocoon® platform (Steps 2 – 4)

Substantial cost reduction in manufacturing cell therapies through a functionally closed and automated platform. Provides flexibility and scalability for your process

Primary cells and tissues – for workflow set-up and training

Immune and adult stem cells readily available and cryopreserved, fresh blood and bone marrow or custom made-to-order products for your specific workflow needs

Endotoxin testing (Steps 4 – 5)

Regulatory compliant BET products and services help ensure your cell therapy can be used with confidence

Thank you
www.lonza.com

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