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**2023 PRODUCT  
CATALOG**



**PERFORMANCE DEFINED**



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# RECOMBINANT, SUSTAINABLE & SCALABLE



## Recombinant

Performance  
Regulatory Acceptance  
Chemically Defined



Animal Origin Free  
Reduce Carbon Footprint  
Made in USA

## Sustainable



## Scalable

Supply Chain Reliability  
Metric Ton Capacity  
45+ Therapeutic Approvals



# ABOUT US



InVitria was founded with the goal of providing the biotechnology industry with innovative products to improve cell culture, biomanufacturing, and final product formulation.

InVitria is a leading developer and manufacturer of high-quality recombinant proteins and supplements for use in a variety of applications, including cell and gene therapy, vaccines, biomanufacturing, and final formulation. Our portfolio is designed with sustainability in mind, utilizing our ExpressTec system that employs plants as the host and eliminates animal-derived components from gene to final product.

Our customers trust us to provide safe and effective alternatives to serum and serum proteins, which are often limited and can pose a risk of adventitious pathogen contamination. InVitria's customers choose these products to achieve the performance and scalability they need, while also making the most sustainable choice for their operations.

We invite you to explore our product catalog and contact our team of technical experts for personalized assistance in achieving your goals. Choose InVitria for the best in sustainable recombinant products.



# PRODUCT APPLICATIONS



## CELL CULTURE

Grow and maintain cells outside of their natural environment in a controlled setting for research, drug development, and therapeutic purposes.

Treat or prevent diseases by using living cells to regenerate or repair damaged tissues or boost the immune system.



## CELL THERAPY



## GENE THERAPY

Modify a patient's genes or introduce new genes to replace or supplement missing or defective ones to address disease.

Product that stimulates a person's immune system to produce immunity to a specific disease, protecting the person from that disease



## VACCINE PRODUCTION



## MEDICAL DEVICES & SURGICAL SEALANTS

Aid in the treatment and healing of medical conditions or injuries by providing support, sealing wounds, or replacing damaged tissues or organs.



# RECOMBINANT ALBUMIN

## The Trouble with Serum, HSA & BSA



- Lot-to-Lot Variability
- Supply Chain Problems
- Viral/Prion Contamination Risks
- Lot Qualification and Recalls
- Regulatory Concerns

### ▶▶ Raw Material Consistency

Reduce lot-to-lot variability and manufacturing inconsistencies with reliable, recombinant raw materials

### ▶▶ Scalability & Sustainability

Avoid unnecessary supply chain constraints with recombinant albumin capable of scaling with your manufacturing demands

### ▶▶ Reduced Contamination Risk

Lower risk of contamination and introduction of pathogens associated with serum and serum proteins (BSE/TSE, COVID-19, etc.)

### ▶▶ Regulatory Friendliness

Improve batch consistency and speed-to-market with Animal-Origin-Free, chemically defined components

upstream & downstream processing buffers, therapeutic final formulation, excipient for pharmaceuticals & nanoparticles, tissue preservation solutions, and medical device coatings.

Unique to InVitria's expression system is a sustainable and scalable source of recombinant albumin, free from typical supply chain constraints seen with sourcing serum and serum-derived components. Our recombinant albumin is manufactured according to cGMP standards in our ISO:9001 compliant facility providing a highly consistent & reduced-risk alternative to its serum-derived counterpart.

Explore our albumin product portfolio to find the animal-origin-free, recombinant albumin that's right for you.

## Recombinant Human Serum Albumin (rHSA)

InVitria has developed a suite of recombinant human serum albumin solutions designed to replace serum-derived albumin in bio-manufacturing systems. Our recombinant albumin can serve as a suitable replacement in a variety of applications including cell culture,



# RECOMBINANT HUMAN SERUM ALBUMIN

## Cellastim S



rHSA optimized for cell culture media supplementation and formulation

## Exbumin



Excipient-grade recombinant albumin for use in downstream processing buffers and final formulation

## Optibumin



rHSA optimized for select cell culture applications, cell therapy formulation, small molecule solubilization, & surgical sealants

## Cellastim S

Cellastim S is a recombinant albumin optimized specifically for use in animal-origin-free, chemically defined cell culture media formulation and supplementation, serving as a replacement for human & bovine serum albumin. Cellastim S has been used with a wide range of mammalian cell types including T-Lymphocytes, HEK293t, MSC, HSC, VERO, & NSO.



**Product Name:** Recombinant human albumin

**Product Type:** Recombinant Human Serum Albumin

**Product Number:** 777HSA017S

**Product Form:** Powder



For more information, scan the QR code on the left.

QTY	SKU	PRICE	AVAILABILITY
10g	777HSA017S - 10 g	\$470.00	Available Online
100g	777HSA017S - 100 g	\$4,485.00	Available Online
1Kg	777HSA017S - 1 kg	Request a Quote	Contact Us for Availability

# RECOMBINANT HUMAN SERUM ALBUMIN



**Product Name:** Recombinant human albumin excipient  
**Product Type:** Recombinant Human Serum Albumin  
**Product Number:** 777HSA097  
**Product Form:** Powder

Exbumin® is the first & only recombinant albumin approved for use as an excipient in biologics formulation. It is the recombinant albumin of choice for industry leaders such as Merck, who leverages it in the FDA & EMA approved ERVEBO vaccine. Exbumin's unique properties lend it being a high performing alternative to serum-derived albumin in many applications including enhancing virus stability in vaccine formulation, stabilizing cell therapies in downstream processing buffers & formulation, & increasing vector yield during LV & AAV purification.

**Manufactured according to cGMP standards in a ISO9001:2015 compliant facility.**



QTY	SKU	PRICE	AVAILABILITY
10g	777HSA097 – 10 g	\$950	Available Online
100g	777HSA097 – 100 g	\$8,500	Available Online
1Kg	777HSA097 – 1 kg	Request a Quote	Contact Us for Availability



**Product Name:** Recombinant human albumin  
**Product Type:** Recombinant Human Serum Albumin  
**Product Number:** 777HSA047  
**Product Form:** Liquid

Optibumin® is the highest-purity recombinant albumin on the market and has exceptionally low levels of aggregates & lipids. With a high concentration of free-thiol/Cys-34 mercapto-albumin, Optibumin is ideal for small molecule solubilization and bioconjugation of therapeutics. Optibumin can be used for lipid customization with a 99% fatty acid-free profile. In addition, Optibumin can be leveraged in iPSC & hESC as well as in vitro fertilization applications.

QTY	SKU	PRICE	AVAILABILITY
100ml	777HSA047 – 100 ml	\$1,425	Available Online
1L	777HSA047 – 1 L	\$12,500	Available Online



For more information, scan the QR code on the left.



# RECOMBINANT HUMAN SERUM TRANSFERRIN



## Recombinant Human Transferrin for Cell Culture Iron Delivery

Optiferrin is a recombinant human transferrin designed to replace serum-derived transferrin and iron chelators in cell culture. Suitable for a broad range of cell types including bacteria culture, Optiferrin offers significant performance benefits over iron chelators and other free iron sources in cell culture. Unlike iron chelators & free iron, transferrin sequesters and delivers iron critical for cellular function while reducing circulating free iron that catalyzes the formation of reactive oxygen species (ROS) & free radicals.

Optiferrin is a more consistent and scalable alternative to serum-derived transferrin and suitable for a variety of applications including cell culture supplementation and chemically defined media formulation. Optiferrin has also been shown to improve antibody yield in hybridoma culture and improve transfection efficiency in HEK293/293t LV and AAV production.



**Product Name:** Recombinant human transferrin

**Product Type:** Recombinant Human Transferrin

**Product Number:** 777TRF029

**Product Form:** Powder

QTY	SKU	PRICE	AVAILABILITY
1g	777TRF029 - 1 g	\$275.00	Available Online
10g	777TRF029 - 10 g	\$1,925.00	Available Online
1Kg	777TRF029 - 1 kg	Request a Quote	Contact Us for Availability

### Advantages

- ▶ Manufactured according to cGMP standards
- ▶ Animal-Origin-Free (AOF)
- ▶ Unlimited scalability of supply
- ▶ Superior performance over iron chelators and free iron
- ▶ Shown to improve antibody production and transfection efficiency
- ▶ Currently leveraged in clinical manufacturing of FDA approved therapeutics



For more information, scan the QR code on the left.

# RECOMBINANT LACTOFERRIN AND GROWTH FACTORS



## Lacromin



**Product Name:** Recombinant human holo-lactoferrin

**Product Type:** Recombinant Human Lactoferrin

**Product Number:** 777LAC015

**Product Form:** Powder

Lacromin® is a recombinant human lactoferrin capable of increasing cell expansion while protecting from apoptosis (programmed cell death) in select cell types via activation of specific cellular signaling, similar to that of Insulin-Like Growth Factor (IGF).

Lacromin® is particularly well-suited as a cell culture media supplement for CHO and HEK cells and select primary and pluripotent cell types.

QTY	SKU	PRICE	AVAILABILITY
10g	777LAC015 – 10g	\$840	Contact Us for Availability
100g	777LAC015 – 100g	\$7,500	Contact Us for Availability

Recombinant Leukemia Inhibitory Factor for Enhancement of Cell Proliferation and Survival of Stem and Primary Cell Types

## LIF Leukemia Inhibitory Factor



**Product Name:** Leukemia Inhibitory Factor

**Product Type:** Recombinant Leukemia Inhibitory Factor

**Product Number:** 777LIF048

**Product Form:** Liquid

Leukemia Inhibitory Factor is commonly used to replace feeder cells in mouse embryonic stem cell culture.

This recombinant human LIF product and has the lowest endotoxin and highest purity of the commercial LIF products available today.

QTY	SKU	PRICE	AVAILABILITY
10ml	777LIF048 – 10 mL	\$5,200.00	Contact Us for Availability

## Cell Culture Media Supplements

**ITS** Animal-Free **ITSE** Animal-Free **ITSE+** Animal-Free

## Recombinant Cell Culture Media Supplements





# CELL CULTURE MEDIA SUPPLEMENTS

InVitria's supplies line of animal-origin-free, recombinant cell culture supplements as a replacement to serum-derived alternatives. Supplied at a 100x concentration, the supplements enable the formulation of chemically defined media & the reduction or elimination of human serum & FBS, helping to stretch the use of serum lots, reduce media costs, or eliminate serum altogether for AOF media formulation. cGMP-grade ITS, ITSE, & ITSE+A are a superior alternative to serum-derived counter parts, providing greater performance consistency during small-scale & clinical manufacturing.

See our [Guidelines for Use](#) for relative component inclusion levels.

## ▶▶ Insulin

Insulin promotes the uptake of glucose and amino acids and facilitates cellular signaling.

## ▶▶ Transferrin

Transferrin delivers intracellular iron via the transferrin receptor, drives cellular respiration, chelates free iron, and reduces generation of cytotoxic free radicals and peroxide.

## ▶▶ Selenium

Selenium is required for the activity of glutathione peroxidase, thioredoxin reductase, & other crucial antioxidant enzymes.

## ▶▶ Ethanolamine

Ethanolamine is a phospholipid pre-cursor that improves the performance of cells in serum-free media and is required for the growth of certain cell types.

## ▶▶ Albumin

Albumin binds, transports, & delivers ions, fatty acids, vitamins, hormones, small-molecule drugs, & toxins; regulates serum pH & osmotic pressure; & provides anti-oxidant activity.

## ITS<sub>Animal-Free</sub>



**Product Name:** Blood-free cell culture media supplement

**Product Type:** Recombinant Cell Culture Media Supplement

**Product Number:** 777ITS091

**Product Form:** Liquid

QTY	SKU	PRICE	AVAILABILITY
10ml	777ITS091 – 10 mL	\$52.00	Available Online
100ml	777ITS091 – 100 mL	\$452.00	Available Online
10 X 10ml	777ITS091 – 10 x 10 mL	\$485.00	Available Online
1L	777ITS091 – 1 L	Request a Quote	Contact Us for Availability

## ITSE<sub>Animal-Free</sub>



**Product Name:** Blood-free cell culture media supplement

**Product Type:** Recombinant Cell Culture Media Supplement

**Product Number:** 777ITS091

**Product Form:** Liquid

QTY	SKU	PRICE	AVAILABILITY
10ml	777ITS032 – 10 mL	\$54.00	Available Online
100ml	777ITS032 – 100 mL	\$465.00	Available Online
10 X 10ml	777ITS032 – 10 x 10 mL	\$495.00	Available Online
1L	777ITS032 – 1 L	Request a Quote	Contact Us for Availability



# CELL CULTURE MEDIA SUPPLEMENTS

## ITSE+AAnimal-Free



**Product Name:** Blood-free cell culture media supplement

**Product Type:** Recombinant Cell Culture Media Supplement

**Product Number:** 777ITS092

**Product Form:** Liquid

QTY	SKU	PRICE	AVAILABILITY
10ml	777ITS092 – 10 mL	\$58.00	Available Online
100ml	777ITS092 – 100 mL	\$495.00	Available Online
10 X 10ml	777ITS092 – 10 x 10 mL	\$525.00	Available Online
1L	777ITS092 – 1 L	Request a Quote	Contact Us for Availability

## OptiVERO

### Animal-Origin-Free, Chemically Defined VERO Expansion & Virus Production Media

Manufactured according to cGMP standards, OptiVERO enables superior cell expansion and virus production over leading serum-free media. Removing undefined serum components and plant hydrolysates, OptiVERO provides scientists with the unrivaled ability to minimize cell culture variability and maximize virus production, accelerating vaccine research and process development. OptiVERO supports both 2D and 3D cell expansion and virus production and has been tested with parental Vero cells and genetically modified Vero subclones.

OptiVERO replaces plant hydrolysates, common in other serum-free media such as VP-SFM, to create a culture morphology that allows for higher cell densities, viral titers and improved ease of downstream virus purification. OptiVERO is compatible with a variety of culture platforms including microcarriers and Pall's iCELLis bioreactor. OptiVERO can also be customized for individual virus production systems to further improve viral titers.



**Product Name:** OptiVERO ®

**Product Type:** Complete Media Kit

**Product Number:** 555OCM039

**Product Form:** Liquid

- 980mL 1x Base Media

- 20mL 50x Protein Supplement

QTY	SKU	PRICE	AVAILABILITY
1L	555OCM039 – 1L	\$170.50	Available Online
200L	555OCM039 – 200L	Request a Quote	Contact Us for Availability

### Advantages

- ▶▶ Animal-Origin-Free (AOF) & Chemically Defined
- ▶▶ Manufactured according to cGMP standards
- ▶▶ Enables higher viable cell densities and increased virus production
- ▶▶ Improves consistency of virus production
- ▶▶ Currently leveraged in clinical manufacturing
- ▶▶ Can be further customized for individual virus production systems

# DMSO-FREE CRYOPRESERVATION



**DMSO-Free, chemically defined cryopreservation media optimized for high post-thaw viable cell recovery.**

InVitria's DMSO-free, chemically defined cryopreservation media, OptiFRZ®, is formulated without the use of any animal or human-derived components. OptiFRZ is designed to eliminate the use of DMSO to improve post-thaw cell viability, expansion, & potency. Leveraging our recombinant protein portfolio, OptiFRZ ensures consistency in your freezing process by removing variable and undefined serum components and hydrolysates. OptiFRZ is compatible with a variety of mammalian cell types including mesenchymal stem cells, iPSCs, T-Lymphocytes, & Vero. etc. & has shown comparable or improved post-thaw performance over the leading DMSO-containing cryopreservation media in including CryoStor CS10.

The media can be leveraged for the cryopreservation of leukapheresis material, PBMCs, cell banking, & cell therapy final formulation.



**Product Name:** DMSO-Free Cryopreservation Media  
**Product Type:** Cryopreservation Complete Media  
**Product Number:** 555OFR0067  
**Product Form:** Liquid

QTY	SKU	PRICE	AVAILABILITY
10ml	555OFR0067-10mL	\$70.00	Available Online
10 X 10ml	555OFR0067 – 10 x 10mL	\$650.00	Available Online

## Advantages

- ▶▶ Animal-Origin-Free (AOF) and Chemically Defined
- ▶▶ Preservation of a wide range of cell types in low temperature conditions (-80oC to -196oC)
- ▶▶ Improved consistency and performance of freezing process
- ▶▶ Can be used as a 1x or 2x concentration
- ▶▶ Drug Master File (DMF) registration in progress

## SPECIALTY RECOMBINANT COMPONENTS



**Product Name:** Recombinant human lysozyme  
**Product Type:** Recombinant Human Lysozyme  
**Product Number:** 777LYS016  
**Product Form:** Powder

QTY	SKU	PRICE	AVAILABILITY
10g	777LYS016 – 10g	\$285.00	Available Online
100g	777LYS016 – 100g	\$2,550.00	Contact Us for Availability



## **MEDIA OPTIMIZATION SERVICES**

Start with our platform media formulations and further customize to your cell line, application, and manufacturing process

**Animal-Origin-Free, Chemically Defined Custom Media Formulation Services for Any Cell Type**

### **PHONE NUMBER**

1-800-916-8311

### **WEBSITE**

[www.invitria.com](http://www.invitria.com)



# CUSTOM MEDIA FORMULATION AND OPTIMIZATION

Start with a panel of our platform media formulations and let us do the optimizing or start from scratch to build a fully customized, animal-origin-free media for your cell therapy, gene therapy, vaccine, or any other biologics manufacturing process. InVitria’s team of scientists have over a decade of experience leveraging our recombinant proteins and tailoring each media component to create chemically defined formulations to meet your goals. Our tech transfer experts and network of media manufacturers are ready to help support the transition of your custom formulation to large-scale cGMP manufacturing. We have the knowledge to optimize for a variety of adherent and suspension platforms.

## Cell Lines

HEK

T-Lymphocyte

iPSC

MSC

VERO

and more...

Batch Sizes	5L - 200L
Standard Cell Culture Media Kit Packaging	1L Media Kits: 1L Base Media Bottle + Concentrated Protein Supplement
Standard Buffer and Solution Packaging	100mL, 1L

\*\*\*Batch sizes and minimum order quantities (MOQs) may be dependent upon media formulation complexity. Custom packaging formats may also be available.



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**WEBSITE**

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