

## Description

UltraGRO™ cell culture supplement is a non-xenogeneic, animal serum-free, and heparin-requiring media supplement for replacing FBS (fetal bovine serum) to support cell expansion from research through clinical trials to commercial use. UltraGRO™ contains abundant growth factors and cytokines necessary for research or industrial cell growth and proliferation of multiple cell types (e.g. MSCs).



Product	Catalog No.	Spec.	Storage	Shelf Life*
UltraGRO™ (Research grade)	HPCPLCRL05	50mL	Store at -20°C	30 months
	HPCPLCRL10	100mL		
	HPCPLCRL50	500mL		
UltraGRO™ (GMP grade)	HPCPLCGL05	50mL		
	HPCPLCGL10	100mL		
	HPCPLCGL50	500mL		

\*Shelf life duration is determined from Date of Manufacture, continuously stored frozen in original bottle.

## Intended use

For human ex-vivo tissue and cell culture processing applications.

## Important information

Clotting or insoluble particles may form in thawed UltraGRO™ cell culture supplement. Published research has shown that particles will not alter the performance of the product.

## Safety information

- Follow the handling instructions outlined in the Material Safety Data Sheets (MSDSs). Wear appropriate protective eyewear, clothing, and gloves.
- 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.

## MSC culture conditions

### Media:

Complete medium is comprised of a basal media (e.g.  $\alpha$ -MEM or other supportive media), heparin and UltraGRO™

**Culture type:** Adhesion

**Culture vessels:** Cell culture plates, T-flasks, G-Rex flasks or cell culture bags

**Temperature range:** 36°C to 38°C

**Incubator atmosphere:** Humidified atmosphere of 4–6% CO<sub>2</sub>. Ensure that proper gas exchange is achieved in culture vessels.

## Precipitation in Cell Culture

- Clotting or insoluble particles may form in thawed UltraGRO™, it is recommended to centrifuge at 3,400  $\times$ g for 3 ~ 5 minutes or to filter the liquid concentrate with a sterile 40 $\mu$ m Cell Strainer to remove insoluble particles.
- Filtering the completed medium (e.g. 5%), after UltraGRO™ is diluted in the basal medium, will not affect UltraGRO™ supplemented cell culture performance. However, 0.22  $\mu$ m filtering is **NOT** recommended for the 100% UltraGRO™ concentrate, as this may reduce 5% UltraGRO™ cell culture performance.
- Repeated freeze-thaw cycles should be avoided as they will cause an increase in insoluble precipitates and resulting potential decrease in UltraGRO™ performance.

## Protocol

- UltraGRO™ shows optimal growth of MSC at 5% (v/v) in typical cell culture media, i.e.  $\alpha$ -MEM, which contains 2mM L-Glutamine as final concentrate.
- We recommend seeding MSCs at approximately 3 $\times$ 10<sup>3</sup> ~ 6 $\times$ 10<sup>3</sup> per cm<sup>2</sup>.
- UltraGRO™ requires heparin at a final concentration of 2IU/ml to be added in the culture media when supplemented with 5% UltraGRO™. Failure to add heparin will result in coagulation during cell culture in typical media.

## Storage

UltraGRO™ is most stable when stored frozen until needed. The recommended storage temperature is -20°C or -80°C. Thaw frozen UltraGRO™ product in 37 °C water bath before use. Once UltraGRO™ is thawed, it is recommended to fully use for completed medium preparation (e.g. 5%) the same day, or to divide it into single-use aliquots and store unused aliquots at -20°C or -80°C.

## Cell Lines

Bone marrow mesenchymal stem cells

Adipose tissue derived mesenchymal stem cells

Umbilical cord derived mesenchymal stem cells

Other mesenchymal stem cells

## References

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上海锐信生物技术有限公司

服务热线：18516041338（微信同号）

邮箱：sales@ruixinbio.net

网址：http://www.ruixinbio.net/

For additional technical information such as Safety Data Sheets (SDS), Certificates of Analysis, visit [www.atcbiomed.com](http://www.atcbiomed.com). For further assistance, email [sales@atcbiomed.com](mailto:sales@atcbiomed.com)

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