

## Tips for Using UltraGRO™-Advanced to Grow Mesenchymal Stem Cells (MSCs)

HELIOS® Bioscience Brand, AventaCell Product, UltraGRO™-Advanced shows optimal growth of MSC at 5 % (v/v) in typical cell culture media, i.e. Alpha-MEM, which contains 2 mM L-Glutamine as final concentrate.

We recommend seeding MSCs at approximately  $3 \times 10^3 \sim 6 \times 10^3$  per  $\text{cm}^2$ .

For UltraGRO™-Advanced product, addition of exogenous Heparin is **NOT** required.

### UltraGRO™-Advanced Storage

UltraGRO™-Advanced product is most stable when stored frozen until needed.

The recommended storage temperature is  $-20\text{ }^\circ\text{C}$  (or  $-80\text{ }^\circ\text{C}$ ).

Please thaw frozen UltraGRO™ product in a  $37\text{ }^\circ\text{C}$  water bath before use. Once UltraGRO™-Advanced product is thawed, it is recommended to use for completed medium preparation (e.g. 5 %) the same day. The unused UltraGRO™-Advanced should be divided into single use aliquots and store at  $-20\text{ }^\circ\text{C}$  (or  $-80\text{ }^\circ\text{C}$ ).

### Precipitation in Cell Culture

Insoluble particles may form in thawed UltraGRO™-Advanced, it is recommended to remove particles by centrifuge at  $3,400 \times g$  for 3~5 minutes.

Filtering the completed medium (e.g. 5 %), after UltraGRO™-Advanced is diluted in the basal medium, will not affect UltraGRO™-Advanced supplemented cell culture performance. However,  $0.22\text{ }\mu\text{m}$  filtering is **NOT** recommended for 100 % concentrate UltraGRO™-Advanced, as this may reduce 5 % UltraGRO™-Advanced cell culture performance.

Repeated freeze-thaw cycles should be avoided as they will cause an increase in insoluble particles and potential decrease in UltraGRO™-Advanced performance.