Growth Factors for Cell Culture Market Trends

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The focus of this GEN Market & Tech Analysis Report is to present the market segmentation and quantitative landscape for growth factors as they are currently utilized for cell culture in various application spaces.

We’ve characterized the marketplace based on telephone interviews and surveys of researchers around the world and based on this bottom-up analysis we’ve identified the top growth factors that are currently utilized in the research environment.

This analysis frames the market opportunity for various classes of growth factors and frames the market segments into which this opportunity can be assigned.
Market Segmentation: Growth Factors for Cell Culture

The Research Market

Customer Characteristics:
1. **Life Science Research Marketplace**—Basic scientific research.
2. **Drug Discovery & Development**—R&D in Pharmaceutical and Biotechnology Companies performing drug discovery/development.
3. **Bioproduction Marketplace**—Development of monoclonal antibodies, and other biologically-active reagents (such as recombinant proteins) via cell/tissue culture methodologies.
Overall Market Metrics: Media, Serum, and Growth Factors

Worldwide Market Growth Rate = 7-8% yearly

US Market Growth Rate = 10% yearly

Market Size and Growth Rate of the Market for Media, Serum, and Supplements (e.g., Growth Factors) For Cell Culture in Life Science Research & Bioproduction
The Various Growth Factor Classes used in Cell/Tissue Culture

- Activins
- Bone Morphogenetic Proteins (BMPs)
- Epidermal Growth Factors (EGFs)
- Fibroblast-derived Growth Factors (FGFs)
- Hepatocyte Growth Factor (HGF)
- Insulin-like Growth Factors (IGFs)
- Neurotrophic Factors
- Platelet-derived Growth Factors (PDGFs)
- Sonic Hedgehog (SHH)
- Transforming Growth Factors (TGFs)
- Vascular Endothelial Growth Factors (VEGFs)

This List of Growth Factor Classes for Cell Culture has been Identified via our Bottom-up Industry Research as Encompassing a Wide Terrain of the Growth Factor Marketplace
Market Penetrance of Various Growth Factors in Cell/Tissue Culture in the Research Marketplace

Top 6 Growth Factors in terms of Market Penetrance into Cell/Tissue Culture For the Research Marketplace:

EGF, FGF-basic, IGF-I, LIF, TGF-β1, VEGF
Utilization of Various Classes of Growth Factors in Cell/Tissue Culture

1. These Data Present the Various Classes of Growth Factors added to Cell/Tissue Culture.
2. EGF, the FGFs, and LIF are key Primary Components added to Culture.
3. The PDGFs serve as Secondary Components added to Culture.

[The size of the bar is proportional to the market penetrance of a given class of growth factor]
Utilization of Various Classes of Growth Factors in Cell/Tissue Culture
[Market Penetration of Growth Factors added to Different Cell Types for Cell Culture]

These Data Present the Various Classes of Growth Factors added to Cell/Tissue Culture of Different Cell Types as summarized below:

1. For Established Cell Lines: EGF is the key growth factor.
2. For Adult Stem Cells: BMPs, EGF, FGFs, and VEGFs.
3. For hESCs: Activins and FGFs.
4. For mESCs: Leukemia Inhibitory Factor (LIF) is a key growth factor.
5. For iPSCs: Leukemia Inhibitory Factor (LIF).
6. For Primary Cells: EGF, FGFs, IGFs, PDGFs, and VEGFs.
7. For Freshly-Explanted Stem Cells: No particular growth factors are used.

<table>
<thead>
<tr>
<th>Classes of Growth Factors for Cell/Tissue Culture</th>
<th>Primary Cells</th>
<th>Established Cell Lines (eg., HeLa, HEK, CHO)</th>
<th>Freshly-explanted Stem Cells</th>
<th>Adult Stem Cells</th>
<th>Human Embryonic Stem Cells (hESCs)</th>
<th>Mouse Embryonic Stem Cells (mESCs)</th>
<th>iPSCs</th>
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<tbody>
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Framing the Market Opportunity

- The bottom-up [demand-based] analyses of the market opportunity for growth factors addresses a broader question of how the market need for supplements and raw materials can be ascertained especially in the context of stem cell culturing and cellular therapy requirements.
- By analyzing cellular requirements vis-à-vis specific cell types, we are in a position to pinpoint the market opportunity and accurately forecast industry demand.
- In a subsequent report, we’ll be describing the market shares of the various companies in the space as a means to benchmark their relative position in the space as well as detail the industry structure.