3D Cell Culture Market, 2015 - 2025

Description: The concept of growing tissues outside their natural system in an artificially created microenvironment is known as tissue culturing. It is a common tool for developing model systems that are useful for studying the basic human molecular and cell biology metabolisms. Cell culturing was first initiated in flat plastic or glass dishes as 2D cell culturing. Since then, all the tissue engineering, stem cell, molecular biology work is being carried out on the widely popular petri dishes. However, there are several limitations associated with 2D cell culture that hamper the morphology, growth rate, cell function, viability and the overall behaviour of the cell as compared to the natural environment. As a result, 2D cell culture is not efficient for studying complex molecular metabolisms.

To carry out studies in vitro, cells have to be supplemented with an environment that is a close replica of the natural environment. This can be accomplished by using 3D cell cultures which are physiologically more relevant as compared to the 2D cell cultures. Cells in a 3D culture form natural cell to cell interactions and synthesize extracellular material as they do in vivo. These cells exert forces on each other, moving and migrating as they do in natural environment. In addition, the interactions between them include gap junctions that facilitate exchange of ions, electrical currents and small molecules enhancing the signalling and communication between them. Such a close representation of the natural system in vitro gives insights about the behaviour of the cell when stimulated with a potential drug or a chemical.

Presently, there are several scaffold-based and scaffold-free 3D systems in the market that are widely being used for the purpose of research in a variety of application areas. Although 2D cultures are still more prominent, the encouraging results of 3D cultures have motivated researchers across the world to gradually transition to 3D cultures systems.

The ‘3D Cell Culture Market, 2015-2025’ report provides an extensive study on the marketed 3D cell culture systems and those under development. There are a number of 3D cell culture systems that are already commercially available. However, these systems are primarily being used in a variety of research applications; therapeutic applications are still being explored. In addition, there are several promising 3D culture systems which are currently being developed worldwide; the approach is likely to result in many commercial success stories in the foreseen future. The report covers various aspects, such as, key players in the industry, 3D culture products in various biomedical applications and upcoming opportunities for several stakeholders.

As pharmaceutical companies continue to expand their research programs in this area, one of the key objectives outlined for this report is to understand the current and future potential of the market. This is done by analysing current trends in the wider cell culture market and the specific parameters which are likely to influence evolution of 3D cultures during the same time period. In addition, we have provided our outlook on the sub-market evolution of 3D culture instruments, 3D culture related consumables, 3D culture services and other biomaterials. We have also reviewed, in detail, the likely contribution to be made by different applications areas such as cancer research, drug and toxicity screening, stem cell research and regenerative medicines. The report also provides a snapshot of the likely evolution of the market across key geographies (US, EU and Asia).

To address the uncertainties in the market, we have provided three market forecast scenarios for the time period 2015 - 2025. The conservative, base and optimistic scenarios represent three different tracks of industry evolution. Our opinions and insights, presented in this study, were influenced by the discussions that we conducted with experts in this area. All actual figures have been sourced and analysed from publicly available information and discussions with industry experts. The figures mentioned in this report are in USD, unless otherwise specified.

Contents: 1. Preface
1.1. Scope of the Report
1.2. Research Methodology
1.3. Chapter Outlines
2. Executive Summary

3. Introduction
3.1. Chapter Overview
3.2. Classification of Cell Cultures
3.2.1. Primary Cell Cultures
3.2.2. Secondary Cell Cultures
3.2.3. Cell Lines
3.3. Morphology of Cells in Culture
3.4. Process for Obtaining Cell Culture
3.4.1. Isolating Cells From Tissues
3.4.2. Maintaining Cells in Culture
3.4.3. Plating Density and Sub-Culturing
3.4.4. Cryogenic Storage
3.4.5. Issue of Cross-Contamination
3.5. The Need of Cell Culturing
3.5.1. Model Systems
3.5.2. Drug Screening and Pharmacological Testing
3.5.3. Cancer Research and Drug Discovery
3.5.4. Virology
3.5.5. Genetic Engineering and Gene Therapy
3.6. Basic Requirements for Cell Culture
3.6.1. Cell Culture Facility And Safety
3.6.2. Avoiding Contamination
3.6.3. Cell Culture Health And Optimal Conditions
3.7. Transition From 2D To 3D Cell Culture
3.8. The Concept of 3D Cell Culture
3.8.1. What is Extra Cellular Matrix (ECM)?
3.8.2. In Vitro Cell Culture
3.9. Advantages and Limitations of 3D Cell Culture

4. Classification of 3D Culture Methods
4.1. 3D Culture Classification: An Overview
4.2. Scaffold-based 3D Cultures
4.2.1. Hydrogels Or ECM Analogs
4.2.2. Solid Scaffolds
4.2.3. Micropatterned Surfaces
4.2.4. Microfluidic Surfaces
4.2.5. Microcarriers
4.3. Scaffold-Free 3D Cultures
4.3.1. Attachment Resistant Cell Surfaces
4.3.2. Suspension Cultures

5. 3D Matrix Fabrication
5.1. Chapter Overview
5.2. Methods for Fabricating Porous Scaffolds
5.2.1. Particulate Leaching
5.2.2. Solvent Casting
5.2.3. Emulsion Templating
5.2.4. Gas Foaming
5.2.5. Melt Molding
5.2.6. Microsphere Sintering
5.3. Methods for Fabricating Fibrous Scaffolds
5.3.1. Fiber Mesh
5.3.2. Fiber Bonding
5.3.3. Electro Spinning
5.3.4. Phase Separations
5.3.5. Self Assembly
5.4. Methods for Fabricating Hydrogels
5.4.1. Solvent Casting And Particulate Leaching
5.4.2. Gas Foaming
5.4.3. Freeze Drying
5.4.4. Co-Polymerisation / Crosslinking Methods
5.4.5. Microfluidics
5.5. Methods for Fabricating Custom Scaffolds / Rapid Prototyping / Solid Free-Form (SFF) Technique
5.5.1. Stereolithography
5.5.2. 3D Printing And Organ Printing
5.5.3. Selective Laser Sintering (SLS)
5.5.4. Fused Deposition Modeling
5.5.5. Membrane Lamination
5.6. Methods for Fabricating Microspheres
5.6.1. Solvent Evaporation
5.6.2. Single and Double Emulsification Technique
5.6.3. Particle Aggregated Scaffold
5.7. Methods for Fabricating Native Scaffolds
5.7.1. Decellularisation

6. 3D Culture Market Landscape
6.1. Chapter Overview
6.2. 3D Culture System Market Overview
6.3. Scaffold-Based Formats Make A Significant Contribution In The Market
6.3.1. 3D Culture Systems: Distribution By Type of Hydrogels/ECMs
6.3.2. 3D Culture Systems: Distribution By Type of Solid Scaffolds
6.4. 3D Culture Systems: Distribution of Scaffold-Free Systems
6.4.1. 3D Culture Systems: Distribution by Type of Suspension Cultures
6.4.2. 3D Culture Systems: Distribution of Attachment Resistant Culture Surfaces
6.5. 3D Culture System Manufacturers: Regional Outlook
6.6. Other 3D Culture Consumables
6.7. 3D Culture Services

7. 3D Culture in Cancer Research
7.1. Chapter Overview
7.2. Reasons to Adopt 3D Culture Systems in Cancer Research
7.3. Improving Cancer Drug Screening with 3D Culture System
7.4. 3D Culture Models Used in Oncology
7.4.1. AlgiMatrix, Life Technologies
7.4.2. Cell-Mate3D, BRTI Life Sciences
7.4.3. CELLSTAR Cell-Repellent Surface, Greiner Bio-One International
7.4.4. Elplasia Micro-Space Cell Cultures, Kuraray
7.4.5. Matrigel Matrix, Corning Life Sciences
7.4.6. OncoSpheres, CYTOO
7.4.7. PetakaG3 Cell Culture Devices/Bioreactors, Celartia
7.4.8. QGel, QGel Bio
7.4.9. RAFT System, TAP Biosystems
7.4.10. REALBio D4 Culture System, REALBio Technology

8. 3D Culture in Drug and Toxicity Screening
8.1. Chapter Overview
8.2. Drug Screening
8.3. Application of 3D Cultures In Toxicity Studies
8.3.1. Liver As A Key Driver for 3D Innovation
8.3.2. Liver Metabolism
8.3.3. Liver Toxicity: Important Aspect In Toxicology Studies
8.3.4. Liver In Vitro Models
8.4. 3D Cultures Systems Used in Toxicological Studies
8.4.1. 3D Aligned NanoFiber Solutions, NanoFiber Solutions
8.4.2. 3D InSight Human Pancreatic MicroIslets, Insphero
8.4.3. 3D InSight Liver Microtissues, Insphero
8.4.4. 3D Liver Prototissue System, MC2 Biotek
8.4.5. DataChip/MetaChip, Solidus Biosciences
8.4.6. Epiderm Tissue Model, MatTek
8.4.7. exVive3D Liver, Organovo
8.4.8. Gravity PLUS Hanging Drop System, Insphero
8.4.9. LiverChip, CN Bio Innovations Ltd (Formerly Zyoxel Ltd.)
8.4.10. Mimetas OrganoPlates, Mimetas
8.4.11. Multizyme Chip: Multiple Enzyme Chip, Solidus Biosciences
8.4.12. RegeneTOX, Regenemed
8.4.13. TeamChip, Solidus Biosciences

9. 3D Culture Applications in Stem Cell Research
9.1. Chapter Overview
9.2. Potential of 3D Culture Systems in Stem Cell Differentiation
9.3. In Vitro 3D Microenvironment to Induce Embryoid Body Formation
9.4. Organogenesis from Stem Cells
9.5. 3D Culture Systems in Stem Cell Research
9.5.1. AlphaMAX3D ECM, AlphaGenix
9.5.2. Cultrex BME PathClear, Trevigen
9.5.3. Lipidure-COAT Plates, NOF Corporation
9.5.4. MaxGel Human ECM, Sigma Aldrich
9.5.5. Nunclon Sphera, Thermo Fisher Scientific
9.5.6. Perfecta3D Hanging Drop Plates, 3D Biomatrix
9.5.7. PGMatrix, PepGel
9.5.8. PrimeSurface Cell Culture Plate, Sumito Bakelite
9.5.9. StemFit 3D, Prodizen

10. Market Size and Forecast
10.1. Chapter Overview
10.2. Forecast Methodology
10.3. Overall 3D Culture Market, 2015-2025
10.4. 3D Culture Market Forecast, 2015-2025: Distribution by Components
10.5. 3D Culture Market Forecast, 2015-2025: Geographical Analysis
10.6. 3D Culture Market Forecast, 2015-2025: Distribution by Application
10.7. 3D Culture Market Forecast, 2015-2025: Distribution by Type of 3D System

11. Company Profiles
11.1. Chapter Overview
11.2. Corning Life Sciences
11.2.1. Company Overview
11.2.2. Financial Details
11.2.3. Product Portfolio
11.2.4. Collaborations
11.2.5. Future Outlook
11.3. Life Technologies
11.3.1. Company Overview
11.3.2. Financial Details
11.3.3. Product Portfolio
11.3.4. Future Outlook
11.4. Sigma Aldrich
11.4.1. Company Overview
11.4.2. Financial Details
11.4.3. Product Portfolio
11.4.4. Future Outlook
11.5. Insphero
11.5.1. Company Overview
11.5.2. Product Portfolio
11.5.3. Collaborations
11.5.4. Future Outlook
11.6. 3D Biotek
11.6.1. Company Overview
11.6.2. Product Portfolio
11.6.3. Collaborations
11.7. Reinnervate
11.7.1. Company Overview
11.7.2. Product Portfolio
11.7.3. Alvetex 3D Culture Scaffold
11.7.4. Collaborations
11.7.5. Future Outlook
11.8. Synthecon
11.8.1. Company Overview
11.8.2. Product Portfolio
11.8.3. Collaborations
11.8.4. Future Outlook
11.9. Neuromics
11.9.1. Company Overview
11.9.2. Product Portfolio
11.9.3. Collaborations
11.10. Cosmo Bio
11.10.1. Company overview
11.10.2. Financial Details
11.10.3. Product Portfolio
11.10.4. Future Outlook

12. Conclusion
12.1. 3D Cultures Rapidly Replacing 2D Systems
12.2. 3D Cultures Have Invaded A Myriad Of Applications
12.3. 3D Cultures Yet to Unveil Potential in Therapeutics
12.4. With High Adoption Rates, 3D Cultures Will Emerge As A Multi-Billion Dollar Market

13. Interview Transcripts

14. Appendix 1: Tabulated Data

15. Appendix 2: List of Companies and Organisations

List of Tables:
Table 3.1 Morphology of Cells in a Culture
Table 4.1 Advantages and Disadvantages of Scaffold-Based and Scaffold-Free Systems
Table 4.2 Advantages and Disadvantages of Natural and Synthetic Scaffolds
Table 4.3 Advantages and Disadvantages of Natural and Synthetic Hydrogels
Table 4.4 Cell Cultures Used in Magnetic Levitation
Table 5.1 3D Culture Studies Using Porous Scaffolds
Table 5.2 Fabrication of Porous Scaffolds: Merits and Demerits
Table 5.3 3D Cell Culture Studies using Fibrous Scaffolds
Table 5.4 Fabrication of Fibrous Scaffolds: Merits and Demerits
Table 5.5 3D Cell Culture Studies Using Hydrogels
Table 5.6 Fabrication of Hydrogels: Merits and Demerits
Table 5.7 3D Culture Studies Using Custom Scaffolds
Table 5.8 Fabrication of Custom Scaffolds: Merits and Demerits
Table 5.9 3D Cell Culture Studies Using Native Scaffolds
Table 5.10 Fabrication of Native Scaffolds: Merits and Demerits
Table 6.1 3D Culture System Market Landscape
Table 6.2 3D Culture Market Landscape: Assay Kits, Reagents Suppliers
Table 6.3 3D Culture Market Landscape: Services
Table 7.1 Examples of 3D Culture Systems Used in Cancer Research
Table 7.2 Elplasia Micro-Space Cell Culture Plate: Specifications
Table 8.1 Examples of 3D Culture Systems Used in Drug and Toxicity Screening
Table 8.2 OrganoPlates: Specifications
Table 9.1 Example of 3D Culture Systems Used in Stem Cell Research
Table 9.2 Product Specification: CultrexBME
Table 11.1 Corning Life Science Product Specification: Matrigel Matrices
Table 11.2 Corning Life Science Product Specification: Collagen I
Table 11.3 Corning Life Sciences Product Specification: ULA Dishes
Table 11.4 Corning Life Science Product Specification: ULA Flasks
Table 11.5 Life Technologies Product Specification: AlgiMatrix
Table 11.6 Life Technologies Product Specification: Collagen I Proteins
Table 11.7 Sigma-Aldrich Product Specification: HydroMatrix Hydrogels
Table 11.8 Sigma-Aldrich Product Specification: MaxGel ECM
Table 11.9 InSphero Product Specification: 3D InSight Liver Microtissues
Table 11.10 InSphero Product Specification: 3D InSight Pancreatic Microtissues
Table 11.11 InSphero Product Specification: 3D InSight Tumour Microtissues
Figure 7.1 Cell-Mate3D: Cell Embedding Process
Figure 7.2 Types of Petaka Bioreactors Manufactured by Celartia
Figure 7.3 QGel Matrix: Key Features
Figure 7.4 QGel Bio: Validated Disease Models
Figure 7.5 RAFT Process Simulation
Figure 9.1 3D Culture: Effect on Stem Cell Differentiation
Figure 9.2 Methods for Embryoid Body Formation
Figure 9.3 AlphaMAX3D: Key Advantages
Figure 9.4 Lipidure-COAT Plates: Spheroid Formation
Figure 9.5 Lipidure-COAT Dishes: Diameter of Embryoid Bodies (in µm)
Figure 9.6 MaxGel Human ECM: Procedure for Thin Layer Coating
Figure 9.7 Perfecta3D Hanging Drop Culture Plates: Types of Co-Culture Spheroids
Figure 9.8 PGMatrix: Key Advantages
Figure 10.1 3D Culture Market Forecast, 2015 - 2025: Base Scenario (USD Million)
Figure 10.2 3D Culture Market Forecast, 2015-2025: Sub Market Evolution by Components (USD Million)
Figure 10.3 3D Culture Market Forecast, 2015-2025: Distribution by Components
Figure 10.4 3D Culture Market Forecast, 2015-2025: Geographical Analysis
Figure 10.5 3D Culture Market Forecast, 2015-2025: Distribution by Application
Figure 10.6 3D Culture Market Forecast, 2015-2025: Distribution by Type of 3D Culture System (USD Million)
Figure 11.1 Corning: Revenues by Business Divisions, 2014 (USD Billion)
Figure 11.2 Corning Life Sciences: Revenues 2011-2014 (USD Million)
Figure 11.3 Life Technologies: Revenues 2010-2013 (USD Billion)
Figure 11.4 Sigma-Aldrich: Revenues, 2010-2014 (USD Billion)
Figure 11.5 Cosmo Bio: Revenues, 2011 - 2014 (USD Million)
Figure 12.1 Cell Behaviour and Signalling: 2D versus 3D Cultures
Figure 12.2 3D Culture Market (USD Million), 2015, 2020 and 2025

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