Novel and Safe Allografts and Xenograft Tissues for Orthopedic and Dental Reconstruction Surgeries

Super Critical CO2 ($scCO_2$) Processed Tissues

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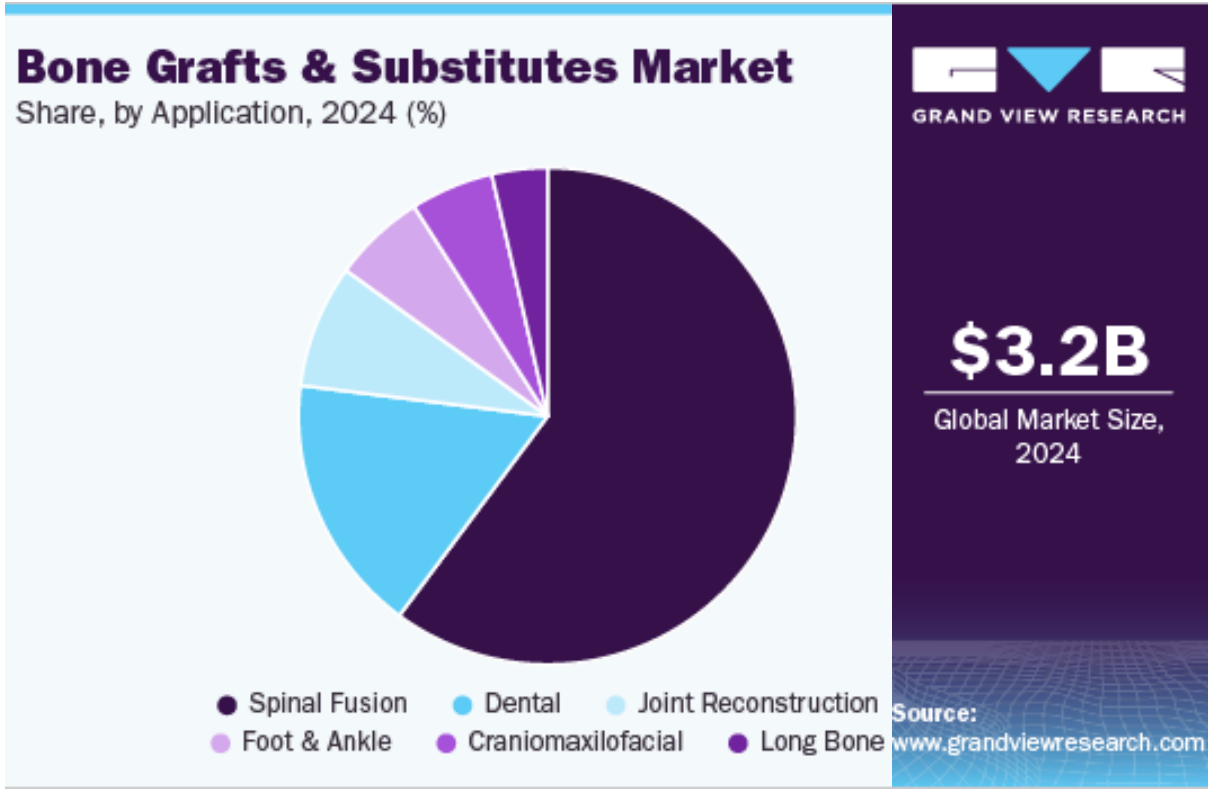
An Indo-Dutch Business Internationalization

Problem Statement

Globally **~2.2 million/year** bone graft procedures are performed for Dental and Orthopedic Reconstruction



To Reconstruct/Regenerate Bone, you need Bone or synthetic Bone Like Material

Source of Bone Graft & Substitutes

An Overview of BGS Used in Orthopedic Surgeries

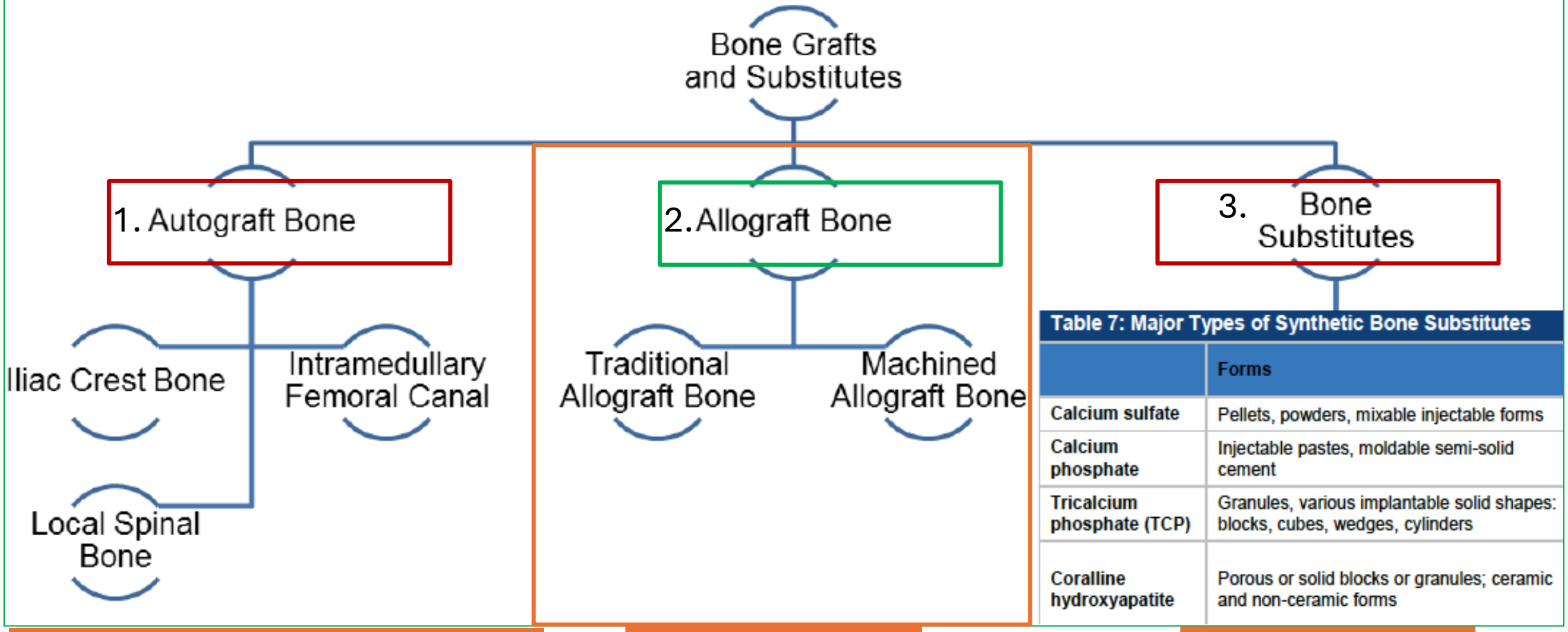


Table 7: Major Types of Synthetic Bone Substitutes

	Forms
Calcium sulfate	Pellets, powders, mixable injectable forms
Calcium phosphate	Injectable pastes, moldable semi-solid cement
Tricalcium phosphate (TCP)	Granules, various implantable solid shapes: blocks, cubes, wedges, cylinders
Coralline hydroxyapatite	Porous or solid blocks or granules; ceramic and non-ceramic forms

10% Allo+20% with Synthetic BGS

30% Market Share

40% Market Share

Current allograft processing

1. Autografts

Advantages

- Osteo-inductive
- Complete histocompatibility
- Non-immunogenic
- Better tissue integration

Disadvantages

- Donor site morbidity/Infection
- Increased blood loss
- Increased operative time
- Limited supply

2. Allografts (unprocessed and Chemically Processed tissues)

Advantages

- Availability in various shape/size
- No donor site morbidity
- Sterile products/no infection
- Osteoinductive

Disadvantages

- Risk of viral transmission
- Limited Oste-inductivity
- Lack of osteogenesis
- Potential host rejection
- Batch –to- batch variation

Growing need for safe processed Allograft and xenograft Bone Graft Substitutes

3. Synthetic Bone Grafts

Table 7: Major Types of Synthetic Bone Substitutes

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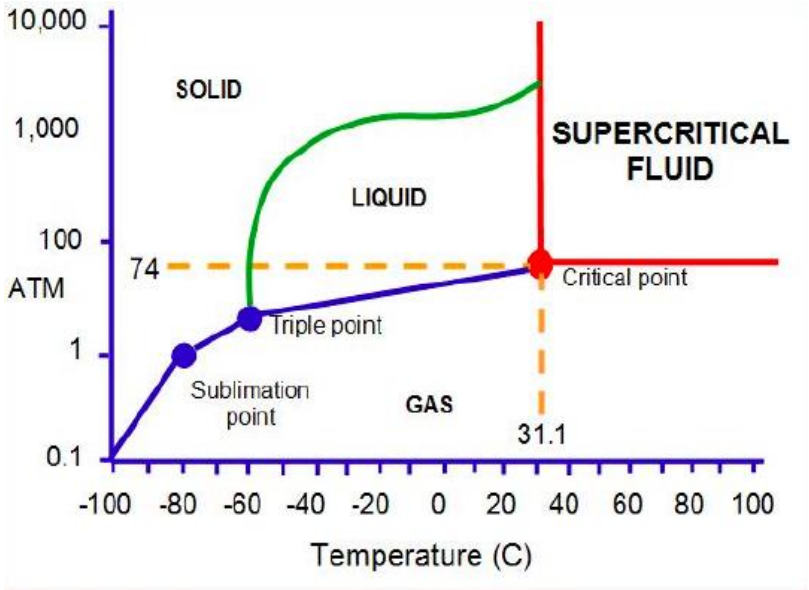
Advantages

- Available in quantity
- Batch-batch variation
- Different sizes
- Combine Growth Factors

Disadvantages

- Donor Integration
- Limited osteo-inductivity
- Mostly combined with Autograft Tissues

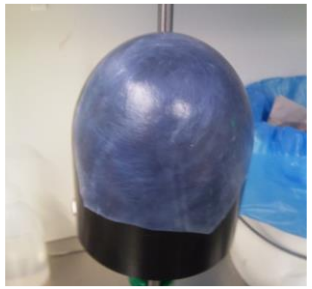
The Solution: Novel super critical CO_2 Technology



- **Properties of gas and density like liquid (Super Critical CO_2)**
- **High Tissue penetrability**
- **Removes cells, fat without damaging native tissue structure**
- **High tissue quality, better integration in new patient**
- **Osteo-inductive**

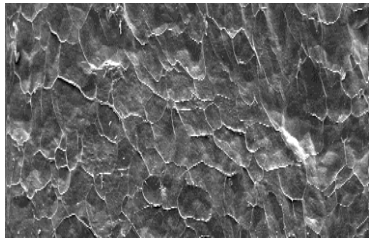
Native Tissue

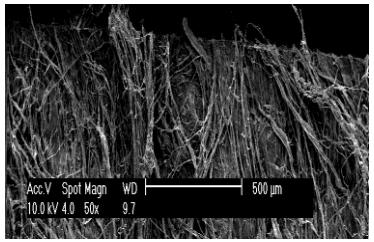
Porcine pericardium



Unprocessed

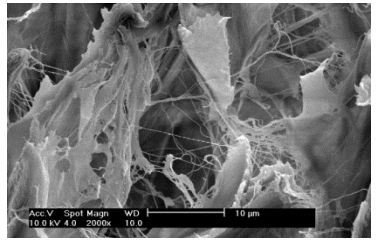
serous pericardium

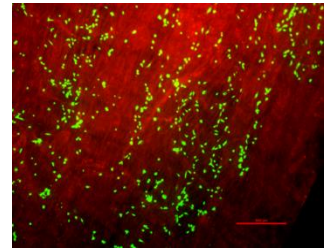


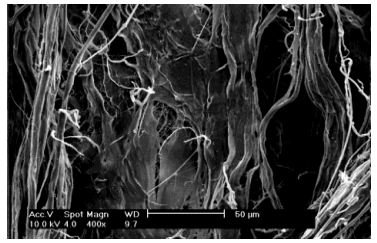


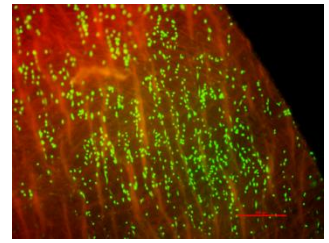
Fibrous pericardium

$scCO_2$ Processed Pericardium









Human Vascular Endothelial Cells

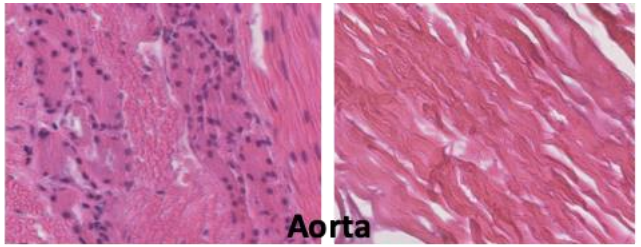
$scCO_2$ Any type of Tissue can be Processed

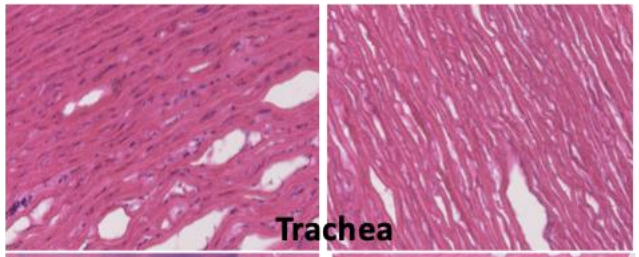
Soft/Hard Allo/Xenograft Tissue

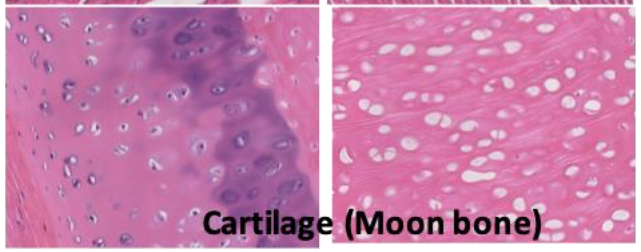
Control scCO2-Processed

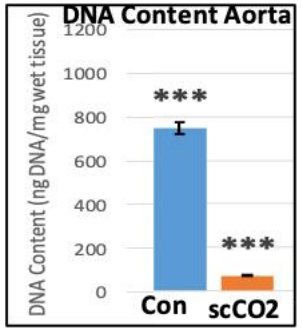
HE Staining: Allo/Xenograft Tissue

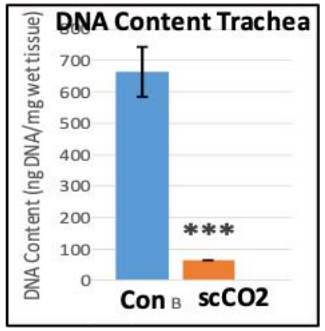
Control scCO2-Processed











CE approved Products in EU Market

Smartbrane: Resorbable Porcine Pericardium Membrane

Vital Bone Cortical-Cancellous Chips 0,5cc -2cc (0,25-2mm)
-with or without
Vancomycin (100mg)
Tobramycin (40mg)

Cortical Plate
20x10x1mm (allograft)
20X40X1mm (allograft)

Vital Bone Putty (30% in Hyaluronic acid 1cc)

Demineralized Bone Matrix (DBM) Sponge

DBM Putty

Broader Application of scCO2 Technology

- **De-cellularization of Xeno/Allograft**
- **Sterilization of biologically active (bio) materials**
- **Impregnation of biomaterials with APIs, Growth factors and Pharmaceutical ingredients**

$scCO_2$ Processed allografts: Clinical Data (EU Studies)

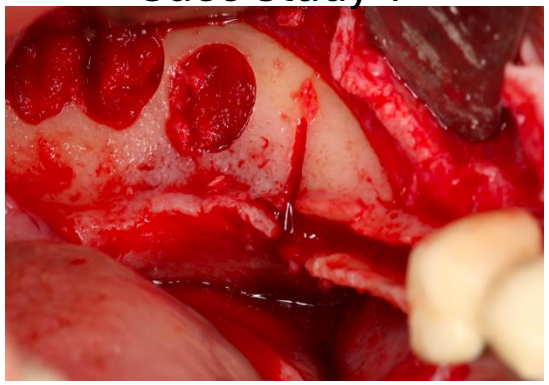
$scCO_2$ Processed bone allograft

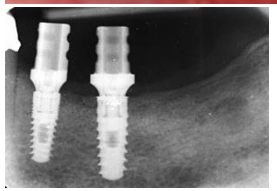
Resorbable Porcine Pericardium Membrane

Commercial Screws

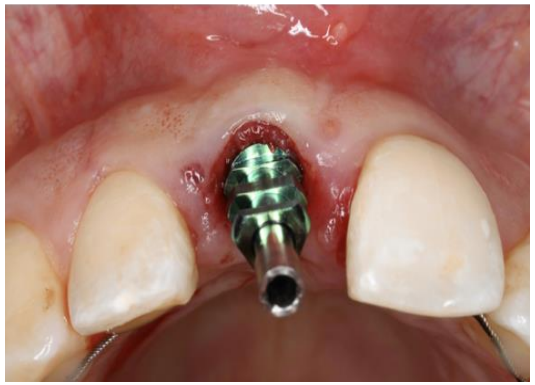
$scCO_2$ Processed Xenograft + $scCO_2$ Processed allograft

Case Study 1

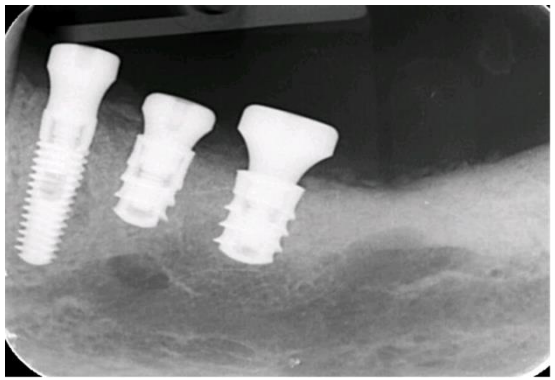


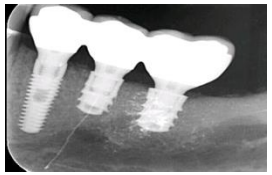


Case Study 2

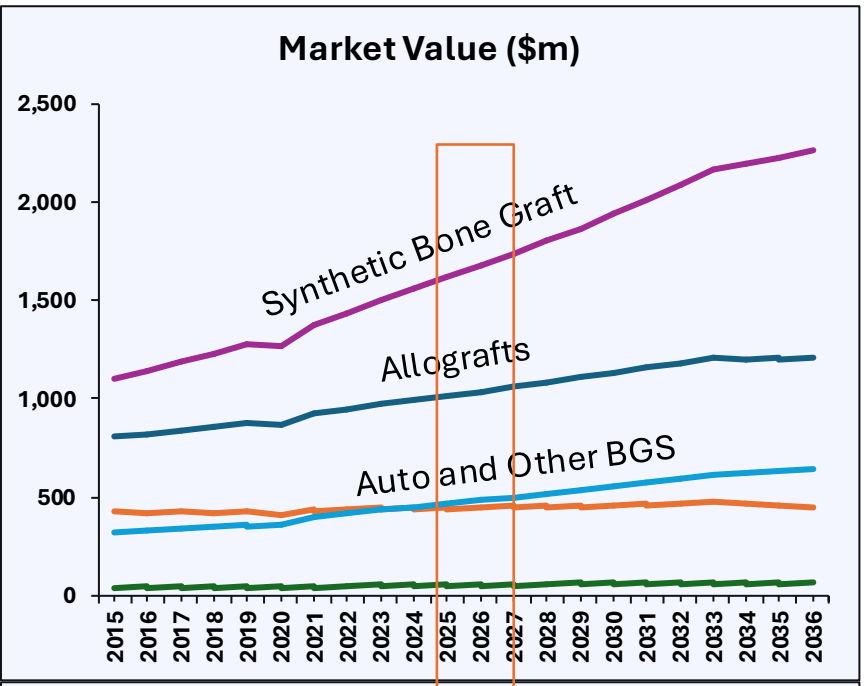


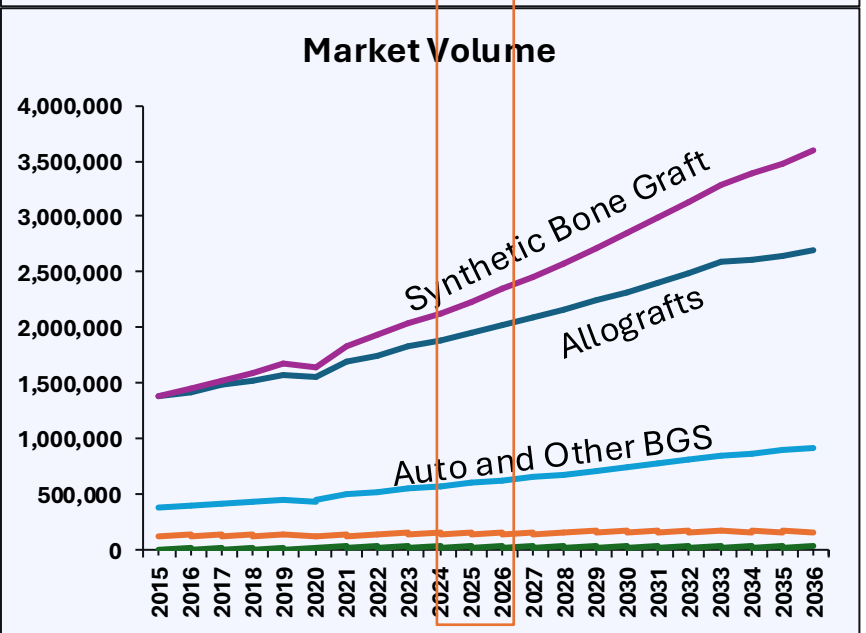
Case Study 3

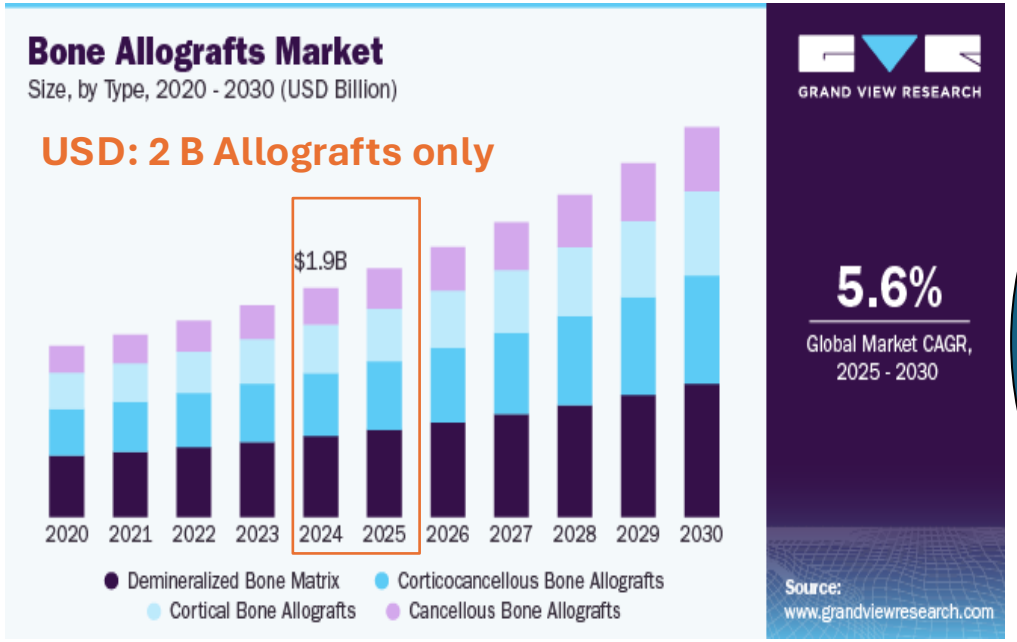


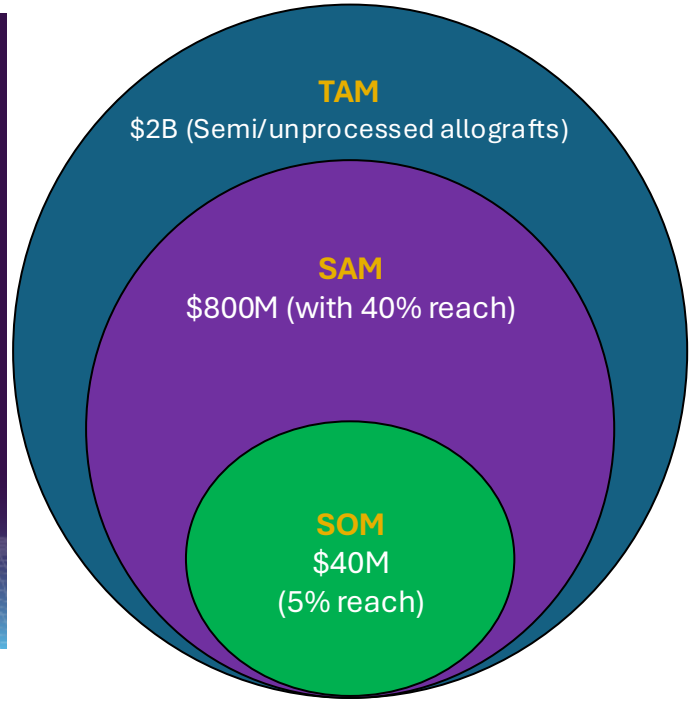


The Market: Bone Graft Substitutes: Allografts







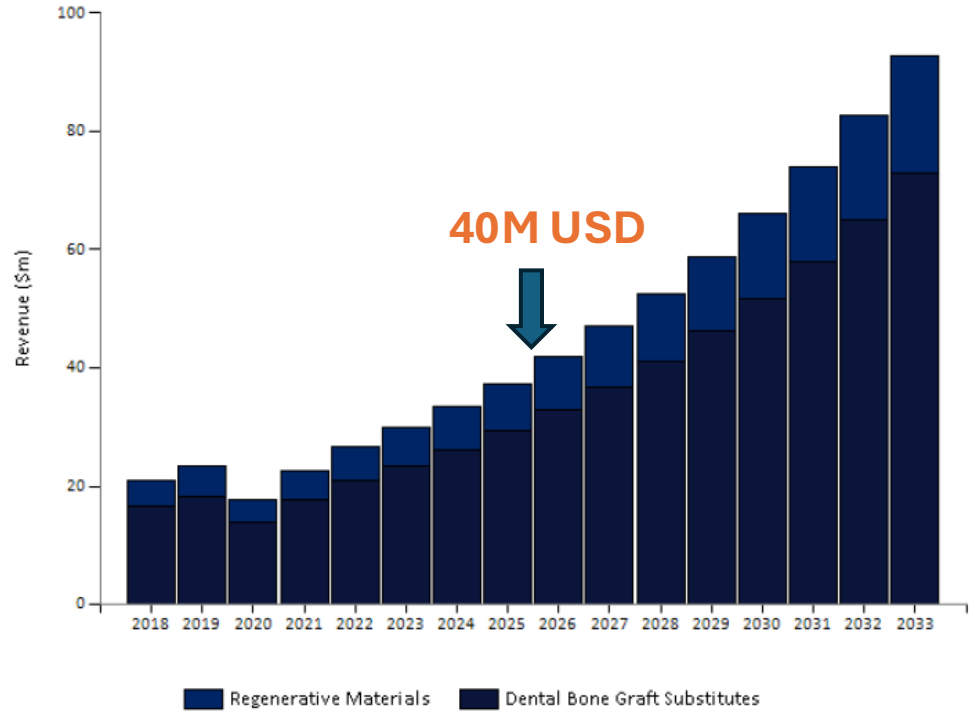


- **Assumptions:**
- **2 B Allografts only (TAM)**
- **800 M With 40% Market Allograft Reach (SAM)**
- **40 M Annual Revenue with 5% reach with allograft only**

The Market: Dental & Bone Grafts; Indian Market Only

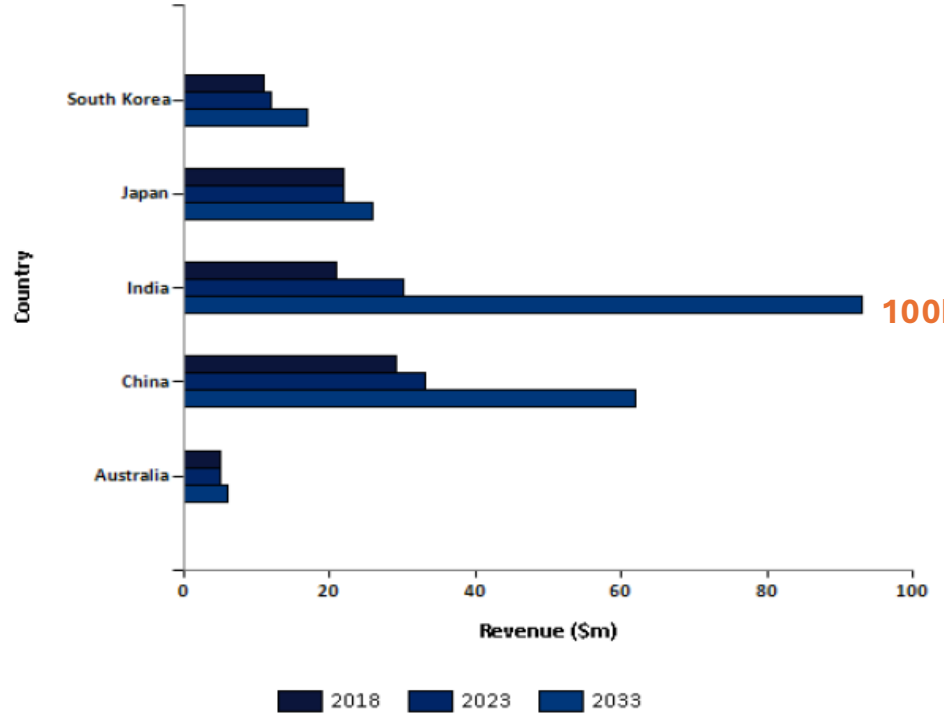
3.1 Dental Bone Graft Substitutes & Regenerative Materials Market, India, Revenue ($m), 2018-2033

Figure 1: Dental Bone Graft Substitutes & Regenerative Materials Market, India, Revenue ($m), USD Constant, 2018-2033



Source: GlobalData

Figure 1: Dental Bone Graft Substitutes & Regenerative Materials Market, Cross Country Comparison, Asia-Pacific, Revenue ($m), USD Constant, 2018-2033



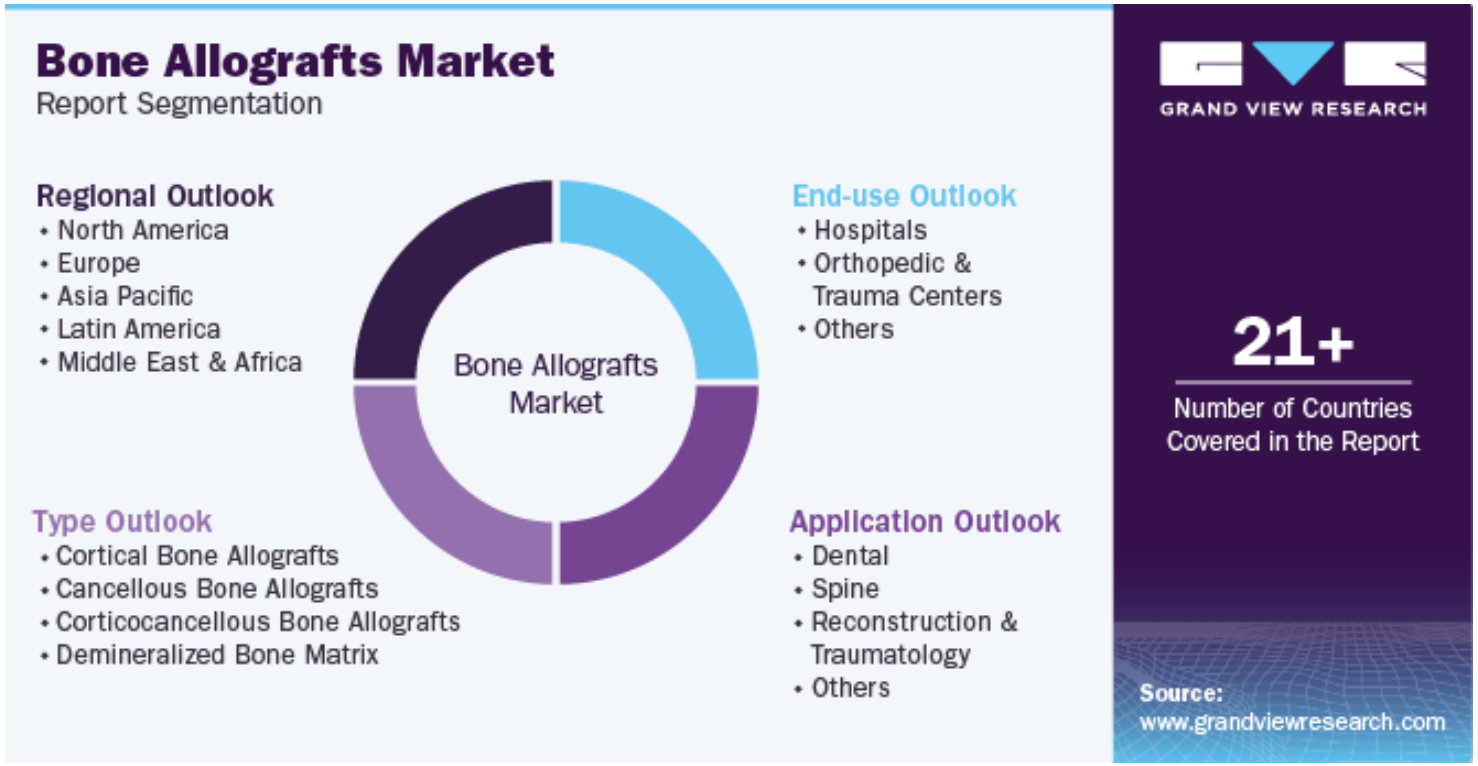
Source: GlobalData

- The Indian market allografts is 40 M in 2025 and expect to reach 100M by 2030
- Even if we reach 10% market share, we would generate 4-10 M revenue/year

The Market: Bone Allografts Competitive Landscape

Key Bone Allografts Companies (Chemically Processed Allografts)

- Zimmer Biomet
- Medtronic
- Stryker
- Smith+Nephew
- Lynch Biologics, LLC.
- Biomatlante
- Johnson & Johnson Services, Inc.
- Royal Biologics
- Baxter
- Leader Biomedical
- Straumann Holding AG
- Dentsply Sirona Inc
- Zimmer Biomet Holdings Inc
- NuVasive Inc
- Lifenet Health



The Business Model: Current Status

Build a local GMP plant at an International Site (India).

Network with Local Bone Biobanks

Process, Package and Storage

Sales and marketing: Locally and Export to EU and USA (Cost reduction strategy)

Current Status

NTBRC
Novo Tissue Bank And Research

VENTURE CENTER

RFC
REGULATORY INFORMATION & FACILITATION CENTER

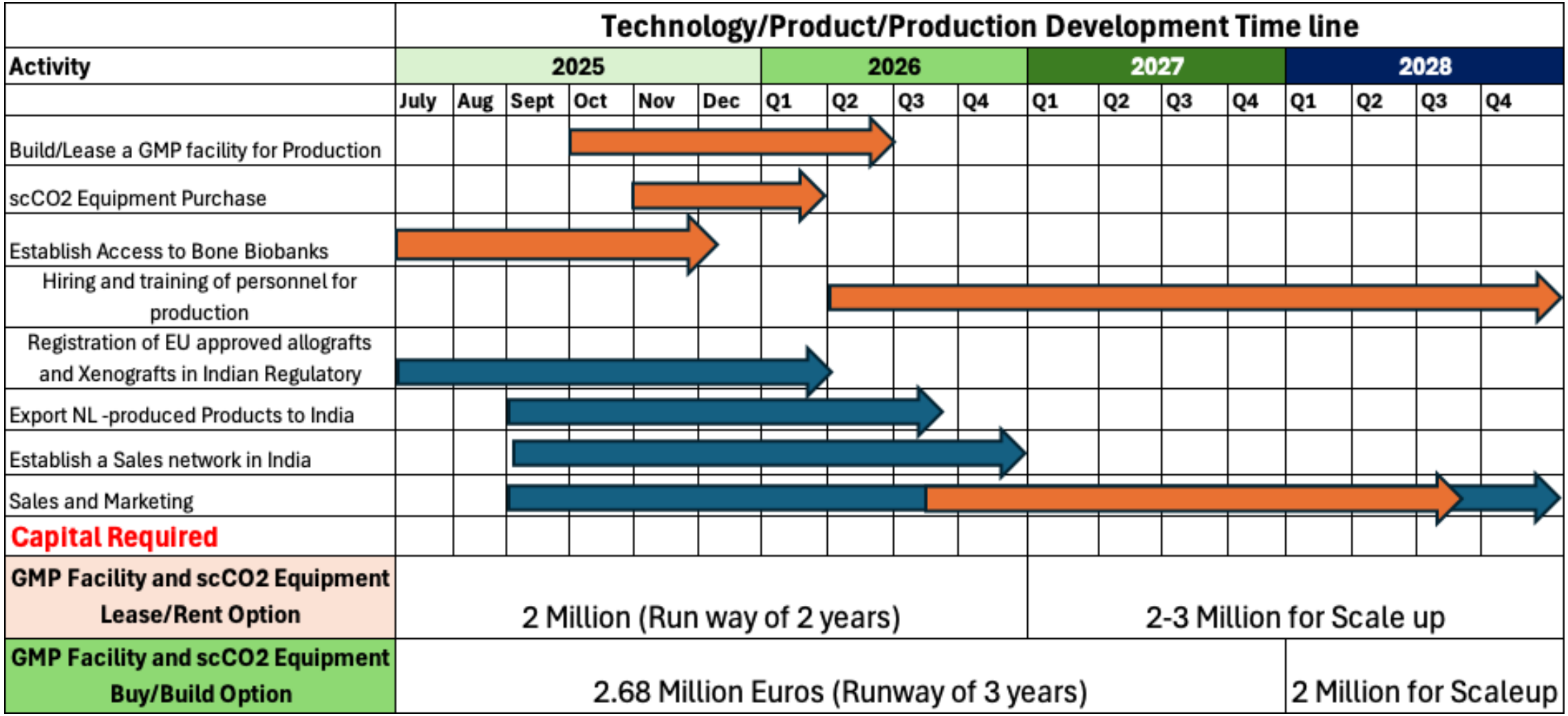
- Well Established Dental and Orthopedic Surgeon Network
- Vast Access to Indian Hospitals

- Clinical Validation

Sales

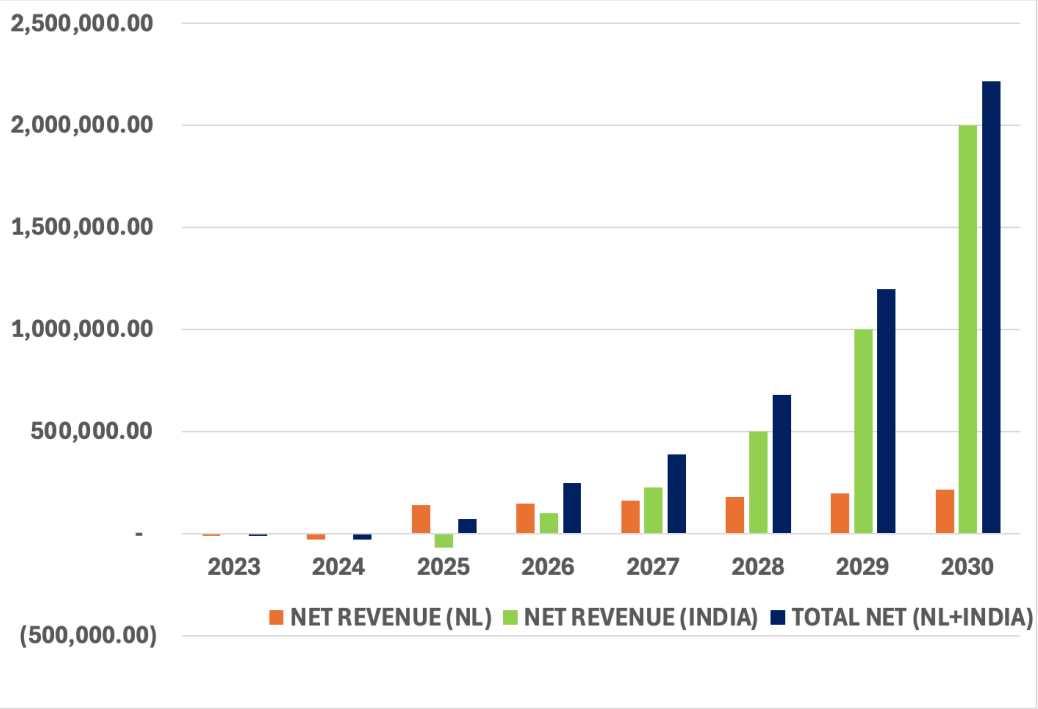
2025 2026

The Capital Ask



OssiTiss: Financials and Use of Proceeds

Revenue Forecast: NL, India, NL+India



Use of Proceeds:

Task	Expenses
Registration of Vital Tissue Products	23000
Registration and Admin	27000
GMP Clean room facility lease/construction	2000000
scCO2 Equipment	160000
Bone Mill	23000
Freeze dryer	23000
Sealing Equpiment	23000
Tools and Devices	23000
Personnel hiring, training etc.	23000
infrastructure, bone biobank, sales and marketing activities	45000
preclinicinal study	287000
quality system and licensing	50000
Total	**2707000**

The OssiTiss Pvt Ltd Team

Dr. Ram Siddappa, PhD, MBA
Chief Executive Officer (CEO)

Biomedical scientist & a business strategist with 15+ years of experience in regenerative medicine, biomaterials, Ortho biologics, and translational product development.

Dr. Digvijay Gahtory, PhD
Chief Business Officer (CBO)

A serial Entrepreneur with 15+ years of experience in business development, strategic consulting, networking, fund raising in life sciences sector.

Ernst Elhorst
Chief Operating Officer (COO)

A passionate venture builder and leader in the medtech and pharmaceutical sector with over 25+ years of experience.

Kalpesh Saglani
Investor, Business Partner

Kalpesh has over 20+ years of experience in the pharma and medtech sector as a strategic sourcing and supply of drugs, hard-to-obtain medicines, including newly launched medicines and medical devices

Founders

Other Investors

Come and Join us to provide the world with safe Bone Allografts and Xenografts processed with scCO2 Technology

Investor Relations

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