SynThera Biomedical Private Limited

Regenerate | Repair | Revitalize
The SMART Way

www.synthera.in

Company Overview

India’s first bioactive glass company

- Focus on advanced smart material products based on **bioactive glass** technology
- **Pipeline of multiple products** (patented and off-patent) based on **bioactive glass smart biomaterial platform** that address a **global market**
- T**echnology team** from **Europe’s top universities** with **2+ decades combined experience** in biomaterials R&D and product development
- S**trong partnerships** with **India’s leading entities** in R&D, clinical research, manufacturing, science business incubation, biotech funding, angel investor crowdfunding

Vision and Mission

Our vision for tomorrow is to become the world leader in next-generation smart biomaterial technologies and products that aid human health and enhance quality of life

Our mission today is to conceptualize, develop, manufacture and commercialize generic and patented high-quality bioactive glass and allied products at affordable prices for customers worldwide

Core Team

Founder and CEO: Dr. Nilay Lakhkar

- MSc, Biomaterials and Tissue Engineering @ **University College London, UK**
- PhD, Biomaterials and Tissue Engineering @ **UCL Faculty of Medical Sciences, UK**
- Postdoc, **Helmholtz Institute** for Biomaterial Science, Germany
- Number of publications = 15

Director, R&D and Operations: Dr. Amol Chaudhari

- MSc, Applied Polymer Science @ **Martin Luther Universitaet, Halle-Wittenberg, Germany**
- PhD, Biomaterials Science @ **Katholieke Universiteit (KU) Leuven Faculty of Medicine**, Belgium)
- Postdoc, University of California - Davis, USA
- Number of publications = 20

General Manager, Corporate and Commercial: Mrs. Deepti Kulkarni-Lakhkar

- B.L.S. LL.B. (Dr D Y Patil Law College, Mumbai University)
- Company Secretaryship (Professional Program, Institute of Company Secretaries of India)
- Legal and company secretarial experience with Little and Co. & CS Madhav Kawde (Mumbai)

20+ years combined experience in applied R&D, product development and corporate affairs

What is Bioactive Glass?

Bioactive glass: *A* ***platform*** *of glass and glass-ceramic smart biomaterials that stimulate different hard and soft tissue types to undergo repair and regeneration*

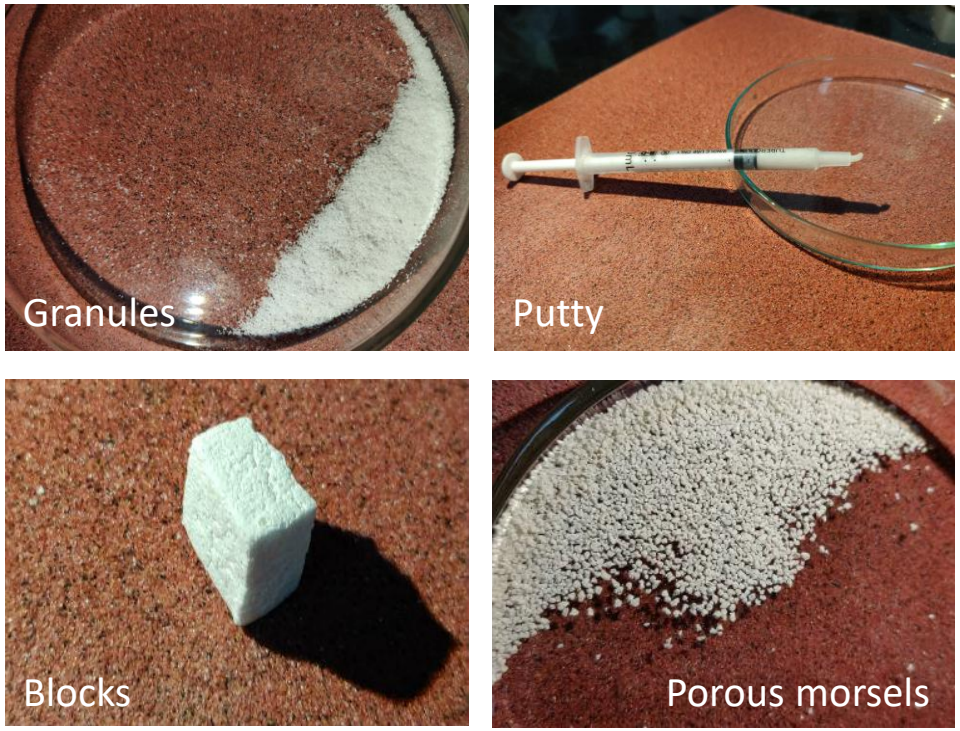
Bioactive Glass Is MS^3

Smart
(See next slide)

Multifunctional
(See next slide)

Scalable
Conventional mfg processes for scales from **micrograms to tons**

Safe
Synthetic material designed to produce **no adverse reactions or side effects**



Different forms of bioactive glass made by SynThera

Why Smart? Why Multifunctional?

Environmental Inputs…

- Temperature
- pH
- Water content
- Mechanical forces
- 2D/3D Geometry

…Applied to Bioactive Glass…

…Yield Intelligent Outputs

- Controlled degradation
- Ion release
- Stimulate tissue growth
- Inhibit microbial growth

Multiple properties are built in…

Bioactive glass of customized composition

+

Other components (formulation)

+

Processing technique

=

… and deployed on demand

Product tailored to the requirement

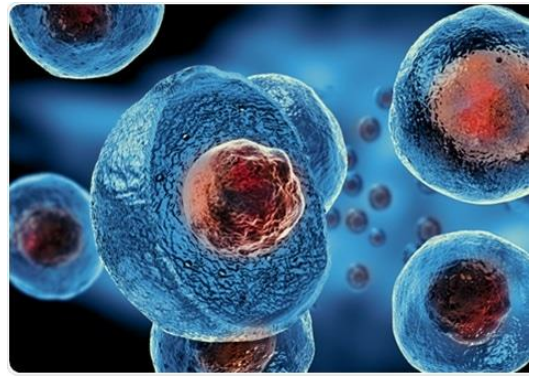
Our Technology Platform

Our technologies are the base for developing a pipeline of unique products that accomplish…

Bone regeneration

Dental enamel repair

Skin care and repair



Stem cell production

Surface disinfection

Water purification

Animal nutrition

…And so much more

The Problem

Bone graft: *A material that promotes bone healing, bone formation, and osseous reconstruction at one or more sites within the body where bone loss has occurred due to injuries, diseases or congenital deformities.*

No single product platform combines all the needs of a clinician

- ✘ 100% free from infection, toxicity and allergic reactions
- ✘ Highly predictable bone regeneration performance
- ✘ Bone biomimetic structure and function (porosity and resorption rate)
- ✘ Opportunities for personalized regenerative therapy (3D printed grafts, stem cell-graft combinations and more)
- ✘ Easy availability with more affordable pricing

SynThera's Solution: PoroSyn®

- Material platform: Bioactive phosphate glass
- Available in different forms for ease of clinical handling
- **100% synthetic and safe** – no adverse effects due to infection or adverse immune response
- **Quick healing** – bone formation within 4-6 months
- **Highly predictable performance** in animal studies
- **Near complete biomimetic behaviour** through optimization of material characteristics
- **Personalization at ever deeper levels within a single material platform:**

Traditional processing (milling and sieving) -> *Specialized processing* (3D printing, CAD/CAM) -> *Tissue engineering* (grafts + stem cells)

Overall Traction

- ✓ Material developed + proof of concept demonstrated
- ✓ 1 patent granted (India) + 4 patents filed (US, EU, China, South Korea)
- ✓ Preclinical validation complete
- ✓ Regulatory test licences in place in India
- ✓ Pilot (stage I) clinical trial regulatory approval received
- ✓ Launch in 2023 post pivotal (stage II) trial

* All launch dates are tentative and subject to COVID-related and other unforeseen delays from suppliers, service providers and/or regulatory authorities

Partnerships

Preclinical Research

Palamur bio

Clinical Research

ida
Indian Dental Association
Committed to Dental Excellence

Manufacturing

PRISM JOHNSON LIMITED
(FORMERLY PRISM CEMENT LIMITED)

Incubation and grant/equity funding

VENTURE CENTER

KIIT Technology Business Incubator
KIIT TBI

birac
Ignite Innovate Incubate

1crowd

India – Korea Joint R&D Program

Title of Project: Next-generation bone regeneration technologies based on OCP and bioactive glass		
Focus Area/Sector	Affordable Healthcare	
IPL & Partners	IPL Lead	Indian Project Partner
	SynThera Biomedical Pvt. Ltd.	**NA**
Partner Country Lead	Partner Country Lead	Partner Country Partner
	Hudens Bio Co., Ltd.	**KAIST-GCC**
Project Duration	**24 months (July 2021 to June 2023)**	

Objectives and Milestones

Milestones	Deliverables	Indicative Timeline
Milestone I	1. Conceptualization, design and production of prototype 2. Confirmation of batch-to-batch reproducibility in composition, porosity, and size of construct 3. Global Market research and commercialization strategy	July 21 – Feb 22 (8 months)
Milestone II	1. Material characterization/testing 2. Selection of material with optimum mechanical physico-chemical and in vitro biocompatible properties; and production of prototypes 3. Identification of potential countries and commercialization plan	March 22 – Oct 22 (8 months)
Milestone III	1. Demonstration of biocompatibility of selected biomaterial via in vivo animal studies 2. Planning and finalization of business models for target markets	Nov 22 – June 23 (8 months)

Commercialization Plan

- Partners to enter into separate definitive agreements for post-POC technology commercialization
- Aspects to be covered: go-to-market, IP, manufacturing, regulatory approvals, marketing, sales, distribution, import, export, in-licencing, out-licencing, etc.
- Partners to carry out global market research to accommodate the next-generation bone regeneration technologies for specific needs in various countries.
- Benefits:
  - Various commercial, societal and technology benefits
  - Easy availability at affordable prices for customers worldwide
  - Social impact: India and other developing countries (lack of availability and prohibitively high pricing)
  - Beneficiaries for social impact: Aged people, oral cancer survivors and children with congenital deformities.

Thank you!

Featured In

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