

# Sustained release scaffold and a process for its preparation

Domin: Healthcare and life science

## Unmet Need & Opportunity

- Bone-related disorders, including osteoporosis, fractures, and non-union defects, pose significant healthcare challenges worldwide.
- Traditional bone grafting faces challenges such as limited availability, immune rejection, and donor site complications.
- Current treatments rely on synthetic drugs or growth factors, which often come with high costs, limited bioavailability, and potential side effects.
- Despite the vast therapeutic potential of phytocompounds, their direct clinical translation remains limited due to poor solubility, rapid degradation, and inefficient delivery.
- This invention offers a novel approach for delivering phytocompounds using polymeric nanoparticles incorporated into porous biocomposite scaffolds, ensuring sustained and prolonged release, promoting osteoblastic differentiation, and enhancing bone regeneration.

## Stage of Development

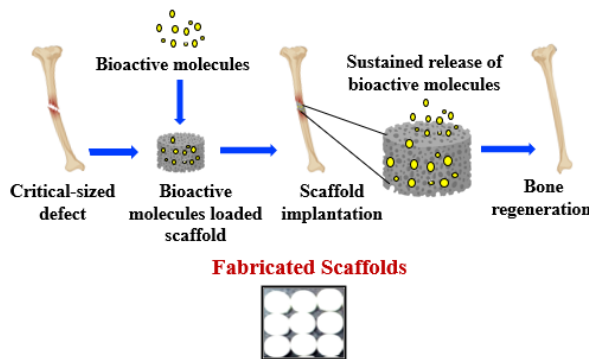
TRL: 4

- The nano-drug delivery system has demonstrated sustained release and osteogenic potential in preclinical studies.
- The next step involves *in vivo* validation, scaling up and regulatory approvals.

## Applications / Use case

- Orthopedic and trauma implants
- Dental and maxillofacial surgery
- Elderly and osteoporotic patient care
- Veterinary orthopedics implants

## Technology Description



## Market Scope

The global scaffold technology market was valued at USD 1.76 billion in 2022 and is expected to grow at a CAGR of 13.87% from 2023 – 2030.

## Value Proposition

- Ease of fabrication
- Cost effective and scalable
- Promotes biomineralization
- Enhanced osteogenesis
- Biocompatible and biodegradable

## IP Status

Indian Patent: **IN421396** (Priority date/Filing date: 05/07/2022)

## Transaction Opportunity

Exclusive, Non-Exclusive Licensing & Option License Agreement (co-develop or collaboration for further validation)