

# Bilayered Composites for Localized Drug Delivery - 1972

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## Technology description

### Market Opportunities

Traumatic events, surgical procedures, and missing teeth often leave a condition in which there is poor quality and quantity of bone, requiring patients to receive a bone graft. An estimated 2.2 million bone grafting procedures are performed annually worldwide at a cost of \$2.5 billion. The capacity to quickly regenerate or augment bone loss is crucial to restoring function, and current autologous and allogenic bone grafts fall short, requiring second surgical procedures and introducing the potential for disease transmission respectively. Additionally, it is contemplated that providing mechanical support in conjunction with delivery therapeutic compounds at the surgical site can aid in improving the recovery process. However, the differing rates of absorption and metabolism can make effective delivery complicated.

### Technology Solution

Researchers at the University of Kentucky have invented subject matter that provides for a bilayered composite to provide both mechanical support and localized drug delivery for the improvement of bone regeneration or augmentation. The present invention relates generally to methods for the production of a strong biocompatible material that can effectively promote osteogenesis while simultaneously acting as an effective barrier and/or support, thus preventing disruptive tissue infiltration. Additionally, the bilayered compounds can degrade or erode at different rates in situ, allowing for administration of therapeutic compounds. Other advantages may include convenience, economy of cost, and technical time.

### Application area

Biomedical device companies interested in wound healing and bone repair  
Osteobiologics companies interested in bioceramic products

## Advantages

May repair dental, craniofacial, and orthopedic bone defects

May provide an alternative to autogenous and allogenic bone grafts

May provide for sustained, intermittent, or sequential drug delivery and support to recovering tissue(s) and areas surrounding

## Institution

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