

Bioresorbable Orthopedic Implants

Tech ID: 31663 / UC Case 2012-887-0

BACKGROUND

Metal implants made from titanium or steel are commonly used to align fractured bones to ensure proper healing.

However surgical removal of the metal hardware for internal fixation of broken bones may lead to complications and additional costs. Magnesium (Mg) and its alloys are advantageous and desirable materials for use as medical implants since they may be absorbed by the body.

BRIEF DESCRIPTION

Prof. Huinan Liu and her colleagues at the University of California, Riverside have developed a bioresorbable nutrient-based magnesium alloy that may be used for repairing fractured bones. This alloy offers comparable mechanical strength to current metal implants, and safely degrades in vivo to natural metabolic products with a controlled degradation rate. In addition, the degradation products of this alloy induce bone regrowth and promote fracture healing.

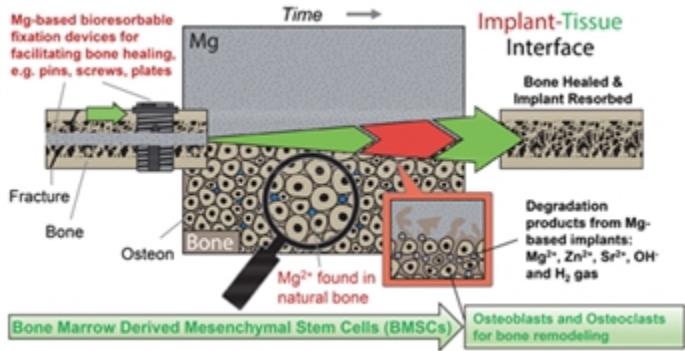


Fig. 1: Illustration of bioresorbable nutrient-based magnesium alloys for repairing bone fractures.

SUGGESTED USES

- This new alloy may be fabricated into orthopedic devices like plates, screws, and intramedullary nails
- Pediatric patients would greatly benefit from this new material where traditional metal implants can negatively impact a child’s skeletal growth

PATENT STATUS

| Country | Type | Number | Dated | Case |
|--------------------------|---------------|----------------------------|------------|----------|
| United States Of America | Issued Patent | 10,246,763 | 04/02/2019 | 2012-887 |

RELATED MATERIALS

- [Cipriano A.F. et al. Degradation of Bioresorbable Mg-4Zn-1Sr Intramedullary Pins and Associated Biological Responses In Vitro and In Vivo. ACS Applied Materials and Interfaces. 9\(51\): 44332-44355, 2017. - 12/27/2017](#)

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OTHER INFORMATION

KEYWORDS

magnesium, alloy, biodegradable,
implant, orthopedic, bioresorbable

CATEGORIZED AS

- [Medical](#)
- [Devices](#)

RELATED CASES

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