

## Bone Fracture Repair by Targeting of Bone Anabolic Agents

**Track Code:** 2015-LOW-67195

**Categories:**

- Biomedical Engineering
- Pharmaceuticals

**Keywords:**

- Biomedical Engineering
- Orthopedics
- Regenerative Medicine

Current research on healing bone fractures either focuses on localized application of a nontargeted bone anabolic agent or a systematic administration of a nontargeted bone anabolic agent that have off-target effects. Both methods lack the desired efficiency and effectivity to treat bone fractures.

Researchers at Purdue University have developed a targeted bone anabolic agent capable of accelerated fracture healing. By using a construct that self-assembles into micelles, the technology targets bone fractures to a greater extent than healthy bone, releases drug under physiological conditions, and accelerates fracture healing. This technology utilizes a nontoxic acidic oligopeptide that increases accumulation of the drug in fractures, reduces the accumulation in healthy tissue, and uses a cleavable linker to extend the release of the drug in the fracture site, resulting in faster fracture healing.

**Advantages**

-Nontoxic acidic oligopeptide increases accumulation of the drug in fractures and decreases drug accumulation in healthy tissue.

**Potential Applications:**

- Medical/Health
- Orthopedics
- Pharmaceuticals

**People:**

- Low, Philip Stewart (Project leader)
- Galliford, Christopher
- Kopecek, Jindrich
- Low, Stewart A

- Yang, Jiyan

**Intellectual Property:**

**Application Date:** January 31, 2019

**Type:** CON-Patent

**Country of Filing:** United States

**Patent Number:** 10,744,203

**Issue Date:** August 18, 2020

**Application Date:** November 29, 2017

**Type:** NATL-Patent

**Country of Filing:** United States

**Patent Number:** 10,279,044

**Issue Date:** May 7, 2019

**Application Date:** July 13, 2020

**Type:** CON-Gov. Funding

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** May 29, 2016

**Type:** PCT-Patent

**Country of Filing:** WO

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** May 29, 2015

**Type:** Provisional-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** (None)

**Type:** NATL-Patent

**Country of Filing:** Japan

**Patent Number:** (None)

**Issue Date:** (None)

**Contact OTC:**

Purdue Office of Technology Commercialization

The Convergence Center

101 Foundry Drive, Suite 2500

West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: [otcip@prf.org](mailto:otcip@prf.org)