



PHOTOS BY RICH DENNISON

Nearly 7 million people suffer bone fractures each year in the U.S., costing \$215 billion.

But an innovative development by Dr. Hockin Xu, associate professor at the Dental School of the University of Maryland, Baltimore, provides significant promise.

With research funding from the National Institutes of Health and the Maryland Stem Cell Research Fund, Xu leads an interdisciplinary research team that has developed the first generation of injectable scaffold/stem cell constructs, suitable for minimally invasive surgical techniques as well as craniofacial and orthopedic applications.

The introduction of stem cells into the clinical setting has opened new horizons. However, says Xu, stem cell-based bone tissue engineering has been hindered by the lack of suitable carriers for cell delivery. That is what he has addressed with an innovation that could have a substantial impact on the methods and materials used in repairing bone fractures.

Xu says the number of bone fracture sufferers and related costs are likely to grow rapidly because of an aging population with lengthened life expectancy. He says other users of his breakthrough development include patients of accidents and other types of trauma, congenital anomalies, and tumor resection.

U.S. soldiers injured in battle also could be aided by the new stem cell delivery system. While they have armor to protect their bodies, there is none to protect their faces, where most penetrating injuries have occurred.

"Our innovation possesses highly useful features that are unavailable in current systems to enhance bone healing and regeneration and improve the health and quality of life for millions of people," Xu says.

— Alan Dessoff



**WINNER**

**Dr. Huakun  
(Hockin) Xu**

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