New biomaterial has potential to repair damaged bone with lower risk of inflammation
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In laboratory conditions, researchers successfully demonstrated that damaged bone tissue is restored as the particular microRNA delivered by the biomaterial works to increase cells responsible for bone repair. The technology also assists in promoting a pro-repair immune system response, lowering the risk of inflammation and other complications.

"The results of our research are a promising step towards improving health outcomes for patients with fractures that fail to repair naturally or have degenerative bone diseases such as osteoporosis, although further pre-clinical and clinical trials are still required before the technology could be used to treat humans," said Dr. Caroline Curtin, Lecturer in Anatomy and Regenerative Medicine at RCSI.

"We are confident that this biomaterial system will have several potential applications beyond bone repair, as it can be tailored to deliver other therapeutic molecules that address degenerated or diseased tissue in the body. At RCSI Tissue Engineering Research Group, we are exploring these possibilities through the development of similar methods to repair articular joints like the knee and hip, and attempting to apply the microRNA delivery systems to inhibit breast cancer cell growth and other novel research," said Prof. Fergal O'Brien RCSI Director of Research and Innovation, Professor of Bioengineering and Regenerative Medicine and Deputy Director of the SFI AMBER Centre.
