



Bioengineering for Life

## Mitogen Solves Zone-Specific Cartilage Regeneration

### *Medical Implant Regenerates Knee Meniscus*

**New York & Indianapolis, — Mitogen** has developed a medical device implant that stimulates the body's internal stem cells to regenerate the meniscus, or cartilage, of the knee. The implant, MEN-001, induces both type I and type II collagen to be produced, similar to the natural meniscus. Collagens I & II are required in a zone-specific manner for proper mechanical properties. Mitogen's technology platform takes MRI scans of a meniscus and 3D-prints an exact copy, in shape and dimensions, for the implant. Meniscus tears happen frequently in athletes and are often surgically removed, substantially increasing the chance of arthritis and degeneration of the knee. Cartilage sparing procedures are more favorable today, and now with a means to regenerate the meniscus, Mitogen believes its first-in-class implant fills a market void. To commercialize the device, Mitogen entered into a partnership with Columbia University and enable the first phase of human clinical trials.

"At present there's little that orthopedists can do to regenerate a torn knee meniscus," said Dr. Jeremy Mao, Chief Scientific Officer & co-founder of Mitogen. "Removal of a torn meniscus leaves the knee without the natural shock absorber, substantially increasing the risk of osteoarthritis." Scientists at Columbia University have successfully completed animal trials in sheep, which have a meniscus very similar to humans. The animal study was funded by the National Institute of Arthritis, Musculoskeletal and Skin Diseases, an institute of the National Institutes of Health. "We are encouraged by the results," said Nelson Scharadin, co-founder & CEO of Mitogen. "The research demonstrates the potential for an innovative approach to meniscus regeneration," said Dr. Scott Rodeo, orthopedic surgeon at Hospital for Special Surgery, and co-founder of Mitogen. "This would potentially be applicable to the many patients who undergo meniscus removal each year."

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## **Mitogen**

Mitogen is a medical device company whose mission is to advance this product into human clinical trials, beginning 1H 2016, and co-develop and commercialize additional products in the future. The company's R&D pipeline includes novel technologies that regenerate cartilage, tendons and ligaments. Additional product applications can be viewed on the company's website at [www.mitogeninc.com](http://www.mitogeninc.com)

### **Columbia Technology Ventures, Columbia University**

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