

An injectable lubricant that is more lubricating with longer in vivo retention than hyaluronic acid

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Unmet Need

Hyaluronic acid (HA) is commonly used to treat lubrication deficiencies experienced in eyes, lungs, and other visceral organs. However, the short *in vivo* residence time of creates a persistent challenge when used as treatment. The introduction of chemical crosslinks is a widely used approach to enhance *in vivo* longevity of HA, but this comes at a detriment to the properties of HA, including its ability to lubricate. There is a need for lubricating technologies that can be used more effectively than hyaluronic acid.

Technology

Duke inventors have reported an injectable lubricant. Specifically, this is a modified formulation of hyaluronic acid that exhibits self-healing properties using dynamic chemical crosslinking. Ureidopyrimidinone groups enable these properties via reversible secondary interactions. Intra-articular injection of the technology has been demonstrated to mitigate anterior cruciate ligament injury-mediated cartilage degeneration in rodents and improved *in vivo* retention.

Advantages

- A composition that surpasses hyaluronic acid with improved lubrication and *in vivo* retention
- Maintains injectable properties

Publications

- [Self-healing of hyaluronic acid to improve in vivo retention and function \(bioRxiv, 2021\)](#)



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 **Links**

- [From the lab of Dr. Shyni Varghese](#)

 **College**

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