

'Lubricin' molecule discovered to reduce cartilage wear

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A team of researchers in North Carolina has discovered that lubricin, a synovial fluid glycoprotein, reduces wear to bone cartilage. This result, which has implications for the treatment of sufferers of osteoarthritis, will be presented today at the AVS 57th International Symposium & Exhibition, taking place this week at the Albuquerque Convention Center in New Mexico.

Osteoarthritis is the most common form of arthritis, the degenerative joint disease. It mostly affects cartilage, the slippery tissue that covers the ends of bones where they meet to form a joint, and allows bones to glide over one another with limited friction and wear. [Osteoarthritis](#) causes cartilage to be broken down through a vicious cycle of mechanical and metabolic factors, and mechanical wear of cartilage is widely believed to contribute to this process. Eventually, the bones under the cartilage rub together, which can cause a tremendous amount of pain, swelling, and loss of motion at the joint.

Many studies have examined cartilage friction and lubrication with the goal of understanding cartilage wear prevention. Very few studies have focused on measuring wear directly, though, and until now no other studies have directly assessed the effects of synovial fluid constituents in mediating wear.

"We measured the effect of the synovial fluid protein lubricin on cartilage wear," explains research team member Stefan Zauscher, an associate professor of mechanical engineering and materials science, as

well as biomedical engineering, at Duke University in Durham, N.C.

"Our measurements were performed at the surface level using an atomic force microscope with pressures and sliding speeds comparable to those seen in joints. The measurements show a direct link between lubricin in solution and reduction of cartilage wear," says Zauscher.

This indicates that lubricin is important for [cartilage](#) preservation physiologically, which may have important implications for treating or preventing joint disease in the future.

More information: The presentation, "Lubricin Reduces Microscale Cartilage Wear" is at 4:00 p.m. on Wednesday, October 20, 2010.

ABSTRACT: www.avssymposium.org/Open/Search?number=TR+NS+SS-WeA-7

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