

Blood clotting protein linked to rheumatoid arthritis

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Researchers at Cincinnati Children's have issued the first study showing that a protein normally involved in blood clotting (fibrin), also plays an important role in the inflammatory response and development of rheumatoid arthritis. Inflammatory joint disease appears to be driven by the engagement of inflammatory cells with fibrin matrices through a specific integrin receptor, α 5 β 1.

the mesh-like matrices formed by fibrin to create blood clots may control local activity of inflammatory cells as well as support inappropriate tissue reorganization.

Source: Cincinnati Children's Hospital Medical Center

Writing in the November issue of *The Journal of Clinical Investigation*, researchers suggest that therapies designed to interrupt the localized interaction of inflammatory cells and fibrin may help arthritis patients.

"Our study establishes that fibrin is a powerful, although context-dependent, determinant of inflammatory joint disease," said Jay Degen, Ph.D., a researcher in Developmental Biology at Cincinnati Children's and the study's lead author. "These findings also suggest that pharmacologically interrupting the interaction of fibrin and α 5 β 1 might be efficacious in the treatment of arthritic disease as well as many other inflammatory diseases, such as multiple sclerosis."

Affecting 2.1 million people in the United States, rheumatoid arthritis is a painful and debilitating disease involving chronic inflammation, tissue degeneration, loss of cartilage and bone and ultimately loss of joint mobility and function, according to the National Institute of Arthritis and Musculoskeletal and Skin Diseases.

Although the disease's precise cause is not fully known, activation of specific components in the body's immune system seem to play a major role in its onset and early progression, according to researchers. Fibrin deposits are a prominent feature of arthritic joints and the protein appears to be a link between systems that control inflammation and bleeding within joints. Dr. Degen and his colleagues explained that in arthritic joints,

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