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Scientists in Mohali design drug delivery system to revolutionise treatment of Rheumatoid Arthritis

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Offering a safer, more effective alternative to current rheumatoid arthritis treatments

Researchers from Institute of Nano Science and Technology (INST) Mohali, an autonomous institution of the Department of Science and Technology (DST), have developed an innovative “self-actuating” drug delivery system that could revolutionise the treatment of rheumatoid arthritis (RA) by targeting inflammation directly within the joints so that therapeutic agents are released only when needed.

It is a smart system that responds directly to the biochemical signals in the inflamed synovial environment. By targeting specific inflammatory enzymes present in the joints, the system ensures that therapeutic agents are released only when needed, offering a more precise and safer treatment option for RA patients.

This breakthrough could offer a safer, more effective alternative to current RA treatments by eliminating the need for frequent drug injections and reducing systemic toxicity. The system enhances drug effectiveness by improving bioavailability and retention in the affected joints, leading to longer-lasting relief with fewer doses.

Beyond arthritis, the technology holds promise for managing other inflammatory diseases, such as synovitis and inflammatory bowel disease. It could also pave the way for smart biomaterials in regenerative medicine and personalised treatments. Additionally, its potential use in veterinary medicine for managing arthritis in animals highlights its versatility.