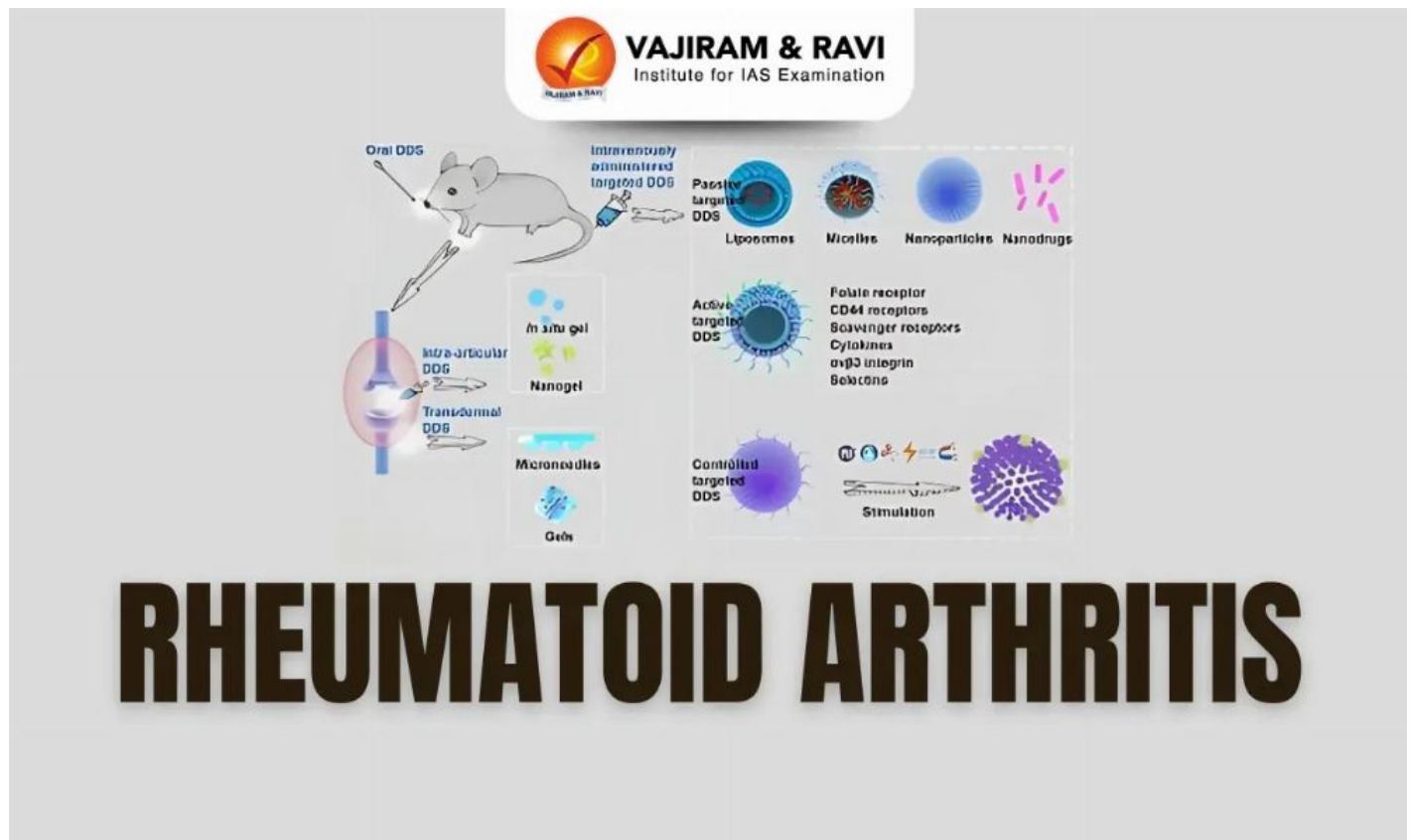


What is Rheumatoid Arthritis (RA)?

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Rheumatoid Arthritis Latest News

Recently, researchers have developed an innovative “self-actuating” drug delivery system that could revolutionize the treatment of rheumatoid arthritis (RA) by targeting inflammation directly within the joints so that therapeutic agents are released only when needed.

About Rheumatoid Arthritis

- It is an **autoimmune and inflammatory disease**, wherein your immune system attacks healthy cells in your body by mistake, and causing inflammation in the affected parts of the body.
- It mainly **attacks the joints**, usually many joints at once. RA commonly affects joints in the hands, wrists, and knees.
- **Symptoms of Rheumatoid Arthritis:** In a joint with RA, the lining of the joint becomes inflamed, causing damage to joint tissue. This tissue damage can cause long-lasting or chronic pain, unsteadiness (lack of balance), and deformity (misshapeness).

- It can also affect other **tissues throughout the body** and **cause problems in organs** such as the lungs, heart, and eyes.
- **Cause of Rheumatoid Arthritis:** It is the result of **an immune response** in which the body's immune system attacks its own healthy cells. The specific causes of RA are unknown.
- **Treatment for Rheumatoid Arthritis:** Its treatment usually includes the use of medications that slow disease and prevent joint deformity, called disease-modifying antirheumatic drugs (DMARDs).

Key Points of The Research

- Researchers have **developed a smart system** that responds directly to the biochemical signals in the inflamed synovial environment.
- The system uses specially **designed microspheres** loaded with **methotrexate**, a **commonly used anti-rheumatic drug**.
- The formulation consists of **polymer-lipid hybrid micro-composites**, where the lipid component (soya lecithin) ensures high drug encapsulation efficiency, and the polymer component (gelatin) provides responsiveness to **Matrix metalloproteinases** (MMP).
- The system **leverages the unique biochemical signals** present in the inflamed synovial microenvironment to release therapeutic agents precisely when needed. When exposed to these enzymes, the gelatin substrate is cleaved, triggering the release of the encapsulated drug in a controlled, pulsatile manner.

Rheumatoid Arthritis FAQs

Q1: What is the main cause of rheumatoid arthritis?

Ans: Rheumatoid arthritis is an autoimmune condition, which means it's caused by the immune system attacking healthy body tissue.

Q2: What is the best way to manage rheumatoid arthritis?

Ans: Rest and exercise.

Q3: What do you mean by immunity?

Ans: Immunity is the ability of the body to defend itself against disease-causing organisms.

Source: **PIB**

Source: <https://vajiramandravi.com/current-affairs/rheumatoid-arthritis-ra/>

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