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Review on Recent Advances in Nano Particles Based Drug Delivery System for Rheumatoid Arthritis

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Abstract: *Rheumatoid arthritis (RA) is the most prevalent autoimmune inflammatory joint disorder, characterized by chronic synovial inflammation, autoantibody production, and progressive destruction of cartilage and bone. This complex condition often leads to systemic complications affecting the cardiovascular, pulmonary, and skeletal systems. The pathogenesis of RA is largely driven by pro-inflammatory cytokines, including tumor necrosis factor-alpha (TNF-α,. Interleuki1 (IL-1), interleukin-6 (IL-6), and interleukin-8 (IL-8), which sustain inflammatory processes and disease progression. Current therapeutic strategies, such as disease-modifying anti-rheumatic drugs (DMARDs) and biologics, have improved patient outcomes but are hindered by variable efficacy, systemic side effects, and high costs.Nanotechnology has increasingly emerged as a promising tool for exploring new approaches, from treating complex conditions to early detection of the onset of multiple disease states .Recent advancements in treatment have significantly slowed the progression of the disease and improved the lives of many RA sufferers..*

Keywords: Rheumatoid Arthritis, Nano particles, Macrophages, Intra articular

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