

# Disease-Modifying Antirheumatic Drugs (DMARDs): Foundations and Advances in Rheumatic Disease Management

## Introduction

Disease-modifying antirheumatic drugs (DMARDs) are a class of medications designed to slow or halt the progression of inflammatory rheumatic diseases rather than merely relieve symptoms. They are central to the management of conditions such as rheumatoid arthritis, psoriatic arthritis, and other systemic autoimmune disorders. Unlike nonsteroidal anti-inflammatory drugs (NSAIDs) or corticosteroids, which primarily control pain and inflammation, DMARDs target underlying immune mechanisms responsible for joint damage and systemic complications.

## Classification of DMARDs

DMARDs are broadly categorized into three groups: conventional synthetic DMARDs (csDMARDs), biologic DMARDs (bDMARDs), and targeted synthetic DMARDs (tsDMARDs).

Conventional synthetic DMARDs include methotrexate, sulfasalazine, leflunomide, and hydroxychloroquine. Methotrexate is often considered the anchor drug due to its established efficacy and safety profile. These agents modulate immune responses through various mechanisms, including inhibition

of inflammatory cytokines and lymphocyte proliferation.

Biologic DMARDs are genetically engineered proteins that target specific components of the immune system. Examples include tumor necrosis factor (TNF) inhibitors, interleukin-6 (IL-6) inhibitors, and agents targeting B cells or T-cell co-stimulation. By selectively blocking inflammatory pathways, biologics have significantly improved disease outcomes.

## Clinical Application and Monitoring

Early initiation of DMARD therapy is critical in preventing irreversible joint damage and achieving remission or low disease activity. Treatment strategies often follow a treat-to-target approach, with regular monitoring of disease activity and adjustment of therapy as needed.

## Conclusion

Disease-modifying antirheumatic drugs have transformed the management of inflammatory rheumatic diseases by addressing underlying immune dysfunction and preventing structural damage. With expanding therapeutic options and personalized treatment strategies, DMARDs continue to improve long-term outcomes and quality of life for patients living with chronic autoimmune conditions.

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