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# Recent advances in intra-articular drug delivery systems for osteoarthritis therapy

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## Highlights:

1. Precision medicine is necessary to treat multiple facets of osteoarthritis
2. Disease-modifying osteoarthritis drugs (DMOADs) and drug delivery systems (DDSs) are discussed
3. DMOADs should be combined with adequate DDSs for long-term intra-articular (IA) therapy
4. Clinical trials of small molecules delivered by IA injections are summarized
5. Hydrogels, liposomes, nanoparticles and microparticles are reviewed

*Teaser:* Optimized intra-articularly administered drug delivery systems associated with potent disease-modifying osteoarthritis drugs that can stop and/or reverse osteoarthritis evolution represent a promising approach for effective therapy.

Osteoarthritis (OA) is the most common degenerative disease of the joint. Despite many reports and numerous clinical trials, OA is not entirely understood, and there is no effective treatment available for this disease. To satisfy this unmet medical need, drug delivery systems (DDSs) containing disease-modifying OA drugs (DMOADs) for intra-articular (IA) administration are required to improve the health of OA patients. DDSs should provide controlled and/or sustained drug release, enabling long-term treatment with a reduced number of injections. This paper reviews the role and

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