

Review Anti-rheumatoid drugs advancements: New insights into the molecular treatment of rheumatoid arthritis Reda Ben Mrid, Najat Bouchmaa, Hassan Ainani, Rachid El Fatimy, Gabriel Malka, Loubna Mazini * Institute of Biological Sciences (ISSB-P), Mohammed VI Polytechnic University (UM6P), 43150 Ben-Guerir, Morocco

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ABSTRACT Rheumatoid arthritis (RA) is one of more than 100 types of arthritis. Under normal conditions, the synovial membrane is almost acellular, consisting of a thin layer of cells composed mainly of macrophage and fibroblast-derived cells [2], while it displays an inflammatory phenotype and becomes more hypertrophic in patients with RA [3]. These consist of the activation and infiltration into the synovial tissue of different immune cells, mainly macrophages, T cells and dendritic cells (DCs), in addition to B cells, neutrophils and mast cells, which are all involved in the production of different chemical mediators and (interleukins) ILs, making the tissue inflammatory [4]. Indeed, non-steroidal anti-inflammatory drugs (NSAIDs) and corticosteroids are a widely used category of molecules reported to be very efficient for alleviating pain and stiffness in RA patients, without moderating the disease progression.

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Non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, and disease-modifying antirheumatic drugs (DMARDs) remain the most known treatments used against RA. However, not all patients respond well to these drugs and therefore, new solutions are of immense need to improve the disease outcomes. Even worse, if RA is poorly controlled, other pathological manifestations may be developed, including pericarditis/pleuritis, keratitis, small vessel vasculitis, and pulmonary granulomas [2]. The disease-modifying antirheumatic drugs (DMARDs), are another class of molecules used for the management of inflammation including conventional synthetic DMARDs, targeted synthetic DMARDs (tsDMARDs), and biological DMARDs (bDMARDs). However, efforts are nowadays devoted in order to develop new DMARDs with low

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