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Special Issue Reprint

Omics Approaches to Immune-Mediated Inflammatory Diseases: Towards Novel Biomarkers and Potential Therapeutic Targets

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Chronic immune-mediated inflammatory diseases (IMIDs), usually accompanied by cardiovascular disease and neoplasias, are now prevailed worldwide. The limited efficacy of current therapeutics and a proportion of non-responders are linked to missing aspects in their pathophysiology at the molecular and cellular levels. High-throughput single- and multi-omics approaches and their combinations are expected to pinpoint the key players underlying IMIDs' establishment and/or progression, thus suggesting potential therapeutic targets and biomarkers. This Reprint gathered 13 papers presenting recent relevant data related to the assessment of CVD risk in RA, tailored therapeutics in RA-interstitial lung disease, IgG4-related RA, and Sjögren's syndrome, enabling early identification of PsA and improving outcomes in patients' with psoriasis. Also, novel non-invasive biomarkers for endoscopic activity and mucosal healing in ulcerative colitis, IBD, and cell-death-associated inflammatory syndromes are proposed. Moreover, a certain subset of telocytes is suggested as the pilot governor of epithelial behavior in preneoplastic gastric lesions, a newer member of IL-1 family, as it is a critical partner in lung adenocarcinoma, while distinct transcriptomic signatures and pathway profiles in human melanocytes corresponding to different Staphylococcal superantigenic enterotoxins are possible targets for therapeutic intervention in cases of toxic shocks. Lastly, Tregs- and dendritic cell-based IMID biomarkers are recommended to enable at more efficient, personalized, and precise treatment strategies.

