Preface

In this second issue of “Immunity and Inflammatory Diseases,” there are four reviews that cover important topics that include the field of artificial medicine and precision medicine as it relates to immunotherapy and hepatocellular carcinoma (HCC), the role of γδ T cells in breast cancer, the role of CD4 T cells in Parkinson’s disease (PD), and targeting the tumor microenvironment with natural chalcones in colon cancer (CC). These four reviews are interrelated and discuss up-to-date information on the complexity of the immune response in various disease manifestations.

Theodros and Nagaraju’s article, “Artificial Intelligence and Precision Medicine: Outcome of Immunotherapy in Hepatocellular Carcinoma,” reviews the current applications of artificial intelligence (AI) in medicine, a field that is gaining significant momentum and applications in most diseases, and here they focus on immunotherapy in HCC. Clearly, the implementation of AI has consolidated the huge amount of available data that are useful for their evaluations and outcomes, a task that is impossible to generate by traditional methods in a time- and cost-effective way. AI applications have advanced the management of diseases through diagnostic and treatment decisions. In this review, the authors cover how the use of AI can be evaluated by ultrasound techniques for HCC to improve early detection, exploration of AI for biomarker analyses for early HCC diagnosis, how AI can make predictions for clinical responses and survival for treatment of HCC with immunotherapy, and the implementation of AI in precision medicine for HCC. The authors also discuss the limitations of AI that need to be addressed, although the advantages of AI are significant overall.

Malla et al.’s article, “Natural Chalcones and Their Derivatives Target the Tumor Microenvironment in Colon Cancer,” reviews the current pharmacological and immunological properties of chalcones and their mechanisms of action against cancer cells. The authors discuss the pathophysiology of CC, the tumor microenvironment in CC, chalcone properties and activities, the anti-cancer activities of natural and synthetic chalcones, means to target chalcones specifically to cancer cells, and the ease of preparing various chalcone analogs with different ways of targeting the desired therapeutic benefits. The authors suggest that chalcones are potential novel therapeutics for CC that are urgently needed to treat this deadly disease.

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