

Preface

Signal Transducer and Activator of Transcription (STAT) proteins were discovered over two decades ago as transcription factors mediating the actions of interferons on responsive cells. Over the intervening time period, STATs have become recognized as a paradigm for facilitating rapid changes in gene transcription in response to an array of external factors, with additional ‘non-canonical’ functions also established. STATs have diverse roles in normal biology, but especially in the development and function of blood and immune cells. However, they also represent important mediators of a number of diseases, especially various cancers, which has led to the development of a variety of direct and indirect inhibitors of relevance to oncology.

In this volume, Liongue et al. provide a broad summary of STATs in normal biology and its perturbation in disease (Chap. 1), with O’Keefe and Grandis extending this to their role in cancer specifically (Chap. 2). Liu and Frank then present an overview of the approaches applicable to STAT inhibition, highlighting the key challenges and most promising strategies (Chap. 3). The next two chapters focus on inhibitors of the most important STAT in cancer, STAT3, with Yu et al. detailing the history of STAT3 inhibitors along with early clinical studies (Chap. 4) and Bharadwaj et al. providing a wide-ranging description of the various STAT3 inhibitors being investigated (Chap. 5). Finally, the last two chapters examine approaches to indirectly inhibit STATs through targeting upstream activators, with Rasighaemi and Ward focusing on Janus kinase inhibitors (Chap. 6) and Kumar detailing inhibitors of receptors and other kinases (Chap. 7). Collectively, this work provides comprehensive and state-of-the-art information about STAT inhibitors in cancer.

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