
Preface

Tumor necrosis factor (TNF)- α is a pleiotropic cytokine involved in a variety of physiological and pathological processes. After initial discovery of its ability to induce cell death and animal cachexia, it was soon realized that this cytokine played pivotal roles in the regulation of homeostasis and inflammatory-immune responses. This led to an explosion of interest in basic and translational research activities on the role of TNF in many diseases, such as cancer, septic shock, rheumatoid arthritis, and infectious diseases of the central nervous system. Because of its potential therapeutic value, many academic and industrial research groups have worked to discover compounds that can block its activity. These studies have led to the approval of anti-TNF antibodies and soluble TNF receptors for the therapy of rheumatoid arthritis and Crohn's disease. TNF also can be an attractive anticancer agent capable of damaging tumor-associated vessels and of inducing tumor necrosis in patients. The unique properties of TNF have led to its registration as a drug for locoregional treatment of sarcomas of the extremities, and stimulated many preclinical studies aimed at improving its therapeutic index for systemic use.

Tumor Necrosis Factor: Methods and Protocols provides an overview of basic and translational research along with a series of practical procedures on TNF production, characterization, mutagenesis, detection in biological specimens, as well as several in vitro assays and animal models for studying the role of TNF in various diseases. This collection of protocols is a practical response to the great pathophysiological, therapeutic, and toxicological interest in these fields and should be of help to biochemists, molecular biologists, pharmacologists, and clinicians involved in TNF pathophysiology studies or in discovering new drug entities.

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<http://www.springer.com/978-1-58829-223-0>

Tumor Necrosis Factor
Methods and Protocols
Corti, A.; Ghezzi, P. (Eds.)
2004, XII, 280 p., Hardcover
ISBN: 978-1-58829-223-0
A product of Humana Press