
Preface

Gene therapy has expanded rapidly over the last decade. The number of clinical trials reported by 2001 included 532 protocols and 3436 patients. Phase I trials predominate with 359 trials of 1774 patients versus Phase II (57 trials with 507 patients) and Phase III (3 trials of 251 patients). The disease overwhelmingly targeted by gene therapy is cancer: involving 331 trials with 2361 patients. Despite the somewhat disappointing results of clinical trials to date, gene therapy offers tremendous promise for the future of cancer therapy.

The area of gene therapy is vast, and both malignant and nonmalignant cells can be targeted. *Suicide Gene Therapy: Methods and Reviews* covers gene therapy that targets malignant cells in a treatment that has become known as “suicide gene therapy.” Basically, this approach uses the transduction of cancer cells with a gene for a foreign enzyme that, when expressed, is able to activate a nontoxic prodrug into a highly cytotoxic drug able to kill the cancer cell population. This is a major area in cancer gene therapy—in 2001 this technique was represented by 52 clinical protocols with a total of 567 patients. Additional trials used multiple gene therapy protocols that also involved suicide gene therapy (83 with 497 patients), indicating that the interest in this area is considerable.

Suicide Gene Therapy: Methods and Reviews aims to cover comprehensively, both in theoretical and practical terms, the rapidly evolving area of suicide gene therapy for cancer. A multidisciplinary approach to this topic is presented here, focusing always on the state-of-the-art—from basic research to clinical practice. *Suicide Gene Therapy: Methods and Reviews* is the first book on this topic to integrate theory and practice. The reader will find an extensive review of the theoretical background of suicide gene therapy, covering all major aspects, including the design and use of vectors for gene transduction, various enzyme and prodrug systems, the mechanistic analysis of the bystander effect, the design and synthesis of prodrugs, immunological implications, and the clinical impact. The reader will find also the basic methodology used to explore, study, and expand this area.

Finally, I’d like to emphasize that in my opinion suicide gene therapy represents an area where outstanding progress has been made and that provides new hope for the treatment of cancer, especially cancer of solid tumors.

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