

P106. TARGETED GENE THERAPY OF CANCER: IMMUNOTOXINS

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Cancer is one of the most common devastating diseases and the second leading cause of death in humans. To develop a novel anti-cancer therapy, there has been an intense research on various biological sources. Most chemotherapeutic agents and surgery have some limitations and all of conventional therapies show the need for novel therapy, with a wider margin for safety and good selective toxicity to the tumor. Biologic therapy, proton therapy and photodynamic therapy are new modes of targeted therapies, selectively aimed at cancerous tissue, so minimizing toxicity and enhancing potency.

Immunotoxins are proteins that contain a toxin conjugated to an antibody or growth factor by genetic fusion or by chemical ligation, can potentially provide a more effective and specific treatment for cancer than other contemporary methods. Protein toxins that are used in cancer treatment along with targeting molecules are plant toxins (such as ricin, abrin, saporin, gelonin), bacterial toxins (such as diphtheria toxin, pseudomonas exotoxin), fungal toxins (such as restrictocin) and animal toxins (e.g. hemolytic toxin from sea anemone). Monoclonal antibodies, immunoglobulins, cytokines, and growth factors are the immune system components which have been used as targeting molecules.