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Translational Medicine: Open Access

Commentary

# Note on Cancer Therapy by Using Translational Medicine

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## DESCRIPTION

Translational medicine is a rapidly growing disiple in biomedical science, preclinical research, evidence-based research, or illness-targeted research, and it is a field of study aimed at improving human health and longevity by assessing the relevance of fresh biological discoveries to human disease. Clinical observations are incorporated into scientific hypotheses in the laboratory, and translational medicine aims to coordinate the use of new knowledge in clinical practise. Thus, it is a bi-directional concept, which aim to improve the efficiency with which new therapeutic strategies developed through basic research and are tested clinically, which provide feedback on how new treatments are being used and how they can be improved. The characterization of disease processes and the formulation of innovative hypotheses based on direct human observation are made easier with translational medicine.

Although the phrase "translational medicine" was coined in the 1990's, it was not widely used until the early 2000s. Its definition changes according to Patients, physicians, and other practitioners. commonly used word to refer to the need to speed up the integration of research findings into clinical medicine and bridge, the gap between "what we know" and "what we practise." Commonly define translational medicine as the application of unique concepts from basic research to clinical conditions, allowing for the discovery of new concepts. In the pharmaceutical industry, it refers to a method that aims to speed up the development of medicines.

Over twelve million new cases diagnosed each year, cancer is responsible for one out of every eight deaths worldwide. Despite rigorous treatment, a high number of patients die after contracting cancer, indicating the need for novel cancer therapies. Translational cancer research has benefited from the desire to create new diagnostic and therapeutic agents. Genomic and proteomic technologies have created a massive amount of data that will help us better understand cancer biology.

New study into the variations between normal and malignant cell biology has cleared the road for the development of medications that target specific biological molecules, potentially enhancing antitumor efficacy while lowering patient toxicity. Regulators of cell cycle, angiogenesis, apoptosis, DNA repair, and growth factors and their receptors are among the current targets. Clinical trials that transform laboratory findings into practically usable medicines require collaboration among researchers, clinicians, and pharmaceutical corporations. We analyse current therapeutic techniques and provide an overview of a wide variety of subjects under investigation. With the goal of emphasizing the relevance of translational research in the development of clinically meaningful therapeutic strategies.
Cancer is also treated by Ionizing radiation, Chemotherapy, Molecular targeted therapy.

### Ionizing radiation

Ionizing Radiation (IR) has been routinely employed as a cancer treatment. High-energy radiation is used to destroy cancer cells by generating deadly DNA damage, and it is frequently used in conjunction with surgery or chemotherapy. Secondary malignancies, bone difficulties, radiation-induced heart disease, and lung illness are all typical side effects of radiation therapy, despite the fact that it is normally well tolerated. Because of radiation's toxicity, great emphasis has been spent on enhancing cancer cell selectivity. This involves studies into chemicals that make cancer cells more sensitive to radiation or protect normal cells from radiation-induced damage.

### Chemotherapy

Chemotherapy is a common therapeutic strategy that entails the administration of systemic medicines that target different components of cell growth. Over 100 medications are currently available for use, with numerous compounds frequently used in conjunction with other treatments or therapy alternatives. Chemical composition, function, specificity, and toxicity of these compounds vary greatly. Chemotherapeutic drugs, while generally efficient, are extremely toxic, generating significant side effects in both normal and malignant cells. To improve treatment efficacy, new types of chemotherapy drugs are being developed for use in both single and combination therapy. Because some chemotherapy medications are administered in solvents that are difficult for the body to absorb, research into new drug delivery systems and better drug solubility.

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## Molecular targeted therapy

The Epidermal Growth Factor Receptor (EGFR), Vascular Endothelial Growth Factor (VEGF), Mesenchymal-Epithelial Transition Factor (C-MET), Insulin-like Growth Factor-1 Receptor (IGF-1R), and Human Epidermal Growth Factor Receptor-2 (HER2) are only a few of the molecular targets for cancer therapy. Increased cell proliferation, angiogenesis, invasion, metastasis, and decreased cell death are all related with amplification of these genes and proteins, all of which are hallmarks of cancer formation.