

## Preface

Targeted therapy or molecularly targeted therapy is one of the major modalities of medical treatment (pharmacotherapy) for cancer,[1] others being hormonal therapy and cytotoxic chemotherapy. As a form of molecular medicine, targeted therapy blocks the growth of cancer cells by interfering with specific targeted molecules needed for carcinogenesis and tumor growth,[2] rather than by simply interfering with all rapidly dividing cells (e.g. with traditional chemotherapy). Because most agents for targeted therapy are biopharmaceuticals, the term biologic therapy is sometimes synonymous with targeted therapy when used in the context of cancer therapy (and thus distinguished from chemotherapy, that is, cytotoxic therapy). However, the modalities can be combined; antibody-drug conjugates combine biologic and cytotoxic mechanisms into one targeted therapy.

Another form of targeted therapy involves the use of nanoengineered enzymes to bind to a tumor cell such that the body's natural cell degradation process can digest the cell, effectively eliminating it from the body.

Targeted cancer therapies are expected to be more effective than older forms of treatments and less harmful to normal cells. Many targeted therapies are examples of immunotherapy (using immune mechanisms for therapeutic goals) developed by the field of cancer immunology. Thus, as immunomodulators, they are one type of biological response modifiers.

The most successful targeted therapies are chemical entities that target or preferentially target a protein or enzyme that carries a mutation or other genetic alteration that is specific to cancer cells and not found in normal host tissue. One of the most successful molecular targeted therapeutics is imatinib, marketed as Gleevec, which is a kinase inhibitor with exceptional affinity for the oncofusion protein BCR-Abl which is a strong driver of tumorigenesis in chronic myelogenous leukemia. Although employed in other indications, imatinib is most effective targeting BCR-Abl. Other examples of molecular targeted therapeutics targeting mutated oncogenes, include PLX27892 which targets mutant B-raf in melanoma.

There are targeted therapies for lung cancer, colorectal cancer, head and neck cancer, breast cancer, multiple myeloma, lymphoma, prostate cancer, melanoma and other cancers.<sup>i</sup>

In the present book, twelve typical literatures about Targeted Therapy published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on Targeted Therapy. We hope this book can demonstrate advances in Targeted Therapy as well as give references to the researchers, students and other related people.

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<sup>i</sup> [https://en.wikipedia.org/wiki/Targeted\\_therapy](https://en.wikipedia.org/wiki/Targeted_therapy)