

Preface

To reduce the adverse effects of chemotherapy agents, various targeted cancer therapies have been developed. Target-based cancer therapy has revolutionized cancer treatment, and several agents have shown more specific effects on tumor cells than chemotherapies. Small molecule inhibitors and monoclonal antibodies are specific agents that mostly target tumor cells but have few side effects on normal cells. Although these agents have been very useful for cancer treatment, however, the presence of natural and acquired resistance has often blunted the potential of targeted therapies. A better understanding of tumor cell resistance mechanisms to current treatment agents may provide an appropriate platform for developing and improving new treatment modalities.

Tyrosine kinases represent one of the commonest and most important enzyme classes in the cell physiome. Tyrosine kinases on the cell surface often act as receptors for important intercellular mediators, while intracellular tyrosine kinases are fundamental mediators of signal transduction from receptors to effector proteins.

This volume will provide readers with a primer on tyrosine kinase inhibitors (TKIs) in cancer, resistance to TKIs, and how to overcome resistance to TKI. The reader will be first introduced to the pathways stemming from tyrosine kinase signaling and then to the common denominators of resistance. Then specific reviews will focus on resistance to the most commonly used classes of tyrosine kinase inhibitors, namely, BCR-ABL, FLT3, angiokinase, and ALK family members.

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