

Novel Anticancer Drugs

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ABSTRACT

Cancer being one of the leading causes of death, is treated by one major mode of treatment, chemotherapy. The life expectancy has increased with the introduction of many anticancer drugs in the market yet the need for drugs with increased therapeutic benefit, less adverse effects, tendency to combat drug resistance and good patient tolerability is increasing. The major process in drug discovery of cancer is identifying the molecular targets and the lead molecules, promising compounds that targets the hallmarks of cancer. The rapid cell progression, resistance to apoptosis, resistance to immune destruction, angiogenesis, metastasis, promoting inflammation, epigenetic/genetic instability, shift in the metabolism to anaerobic glycolysis, epigenetic changes are the hall marks in the development of cancer. RAS inhibitors, Bcl2 inhibitors, angiogenesis inhibitors, immune check point inhibitors, cyclin dependent kinase inhibitors/ERCC1 inhibitor, histone deacetylase inhibitors, monoclonal antibodies, poly ADP ribose polymerase (PARP) inhibitor, antibody drug conjugates are the major anticancer drugs either approved or under investigation. Among the drugs approved by FDA in the year 2020 almost 19 drugs are used in the treatment of various cancer. Most of the drugs recently approved are tyrosine kinase inhibitors and monoclonal antibodies. The recent trend in the cancer drug discovery is that there is a transition from conventional cytotoxic drug therapy to targeted therapy and immunotherapy. These drugs that belong to the targeted therapy and immunotherapy include tyrosine kinase inhibitors, antibody drug conjugates, monoclonal antibodies, hormonal drugs etc. This review focusses on the various cancer targets, newer anticancer drugs recently approved and its importance.

Keywords: Cancer, Targeted therapy, Hallmarks, Newer drugs, Immunotherapy

Abbreviations

XPF: Xeroderma pigmentosum group F, ERCC1: Excision repair cross complementing group 1, Bcl: 2-B cell lymphoma 2, FDA: Food and drug administration

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