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Treatment strategies for multiple myeloma treatment and the role of high-throughput screening for precision cancer therapy

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Abstract

In the past few years, development of approved drug candidates has improved the disease management of multiple myeloma (MM). However, due to drug resistance, some of the patients do not respond positively, while some of the patients acquire drug resistance, thereby these patients eventually relapse. Hence, there are no other therapeutic options for multiple myeloma patients. Therefore, this necessitates a precision-based approach to multiple myeloma therapy. The use of patient's samples to test drug sensitivity to increase efficacy and reduce treatment-related toxicities is the goal of functional precision medicine. Platforms such as high-throughput-based drug repurposing technology can be used to select effective single drug and drug combinations based on the efficacy and toxicity studies within a time frame of couple of weeks. In this article, we describe the clinical and cytogenetic features of MM. We highlight the various treatment strategies and elaborate on the role of high-throughput screening platforms in a precision-based approach towards clinical treatment.