

MCL1 Inhibitor Drug Clinical Trials & Commercialization Opportunity Insights 2023

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Abstracts

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MCL1 Inhibitor Drug Clinical Trials & Commercialization Opportunity Insights 2023 Report Highlights:

Research Methodology

ML1 Inhibitor Drug In Clinical Trials: > 12 Drugs

Commercially Approved MCL1 Inhibitor Drug: 1 (Synribo)

ML1 Inhibitor Drug Clinical Trials Insight By Company, Indication & Phase

Global MCL1 Inhibitor Drug Market Opportunity Outlook

MCL1 Inhibitor Drug Clinical Innovation & Development Trends By Different Cancers

MCL-1 has been identified as a central protein in the pathogenesis of several cancers, majorly hematopoietic malignancies. It is a dynamic and unique protein, which is involved in a variety of cellular functions, including cell cycle progression, metabolism, and differentiation among others. However, its role as a pro-survival member of the BCL-2 that prevents apoptosis is what has brought it into the limelight as a promising therapeutic target for cancer. In addition, overexpression of MCL-1 also promoted drug resistance of both solid tumors and hematological malignancies to various

chemotherapeutic agents through different signaling mechanisms. Therefore, due its key role in promoting cell survival and the resistance to treatment, MCL-1 has emerged as a promising therapeutic target, and researchers are now working to find strategies to inhibit MCL-1.

Compared to other proteins, targeted inhibition of the MCL-1 is has more advantages. The protein is overexpressed in a number of cancers including breast and lung cancers, two cancers having the highest incidence and mortality rates. MCL-1 can prevent the process of apoptosis in cancer cells and promote survival, leading to increase in tumor mass. In preclinical trials, inhibition of the MCL-1 was shown to induce cell death. Additionally, it also increased the efficacy of other anticancer drugs administered in combination with the MCL-1 inhibitor.

Further, MCL-1 is also indicated in the development of resistance to current treatments. Especially in blood cancers, resistance to treatment is a common event occurring in cancer patients, and is something that has been challenging the treatment outcomes and survival of patients. Overexpression of MCL-1 plays a role in this as its upregulation can counteract the effects of drugs that induce apoptosis otherwise. Targeting the MCL-1 can overcome this resistance and enhance the effectiveness of chemotherapies used in treating hematopoietic cancers. Adding on to this, the combination of MCL-1 inhibitors with other targeted therapies and anticancer drugs can have a synergic effect on cancer cells, leading to enhanced cell death and improved treatment outcomes.

Research has also found that while normal cells rely on several survival mechanisms, most cancer cells become highly dependent on MCL-1 for their survival. Therefore, it is hypothesized that targeting the MCL-1 will be a highly targeted strategy specific towards cancer cells, and it will leave non-cancer cells unharmed. To some extent, results from clinical and preclinical trials conducted by researchers and drug developers have been able to justify this. Though there remain some limitations such as the emergence of unforeseen adverse effects such as cardiac problems, the potential of MCL-1 as a therapeutic target cannot be denied, and is an avenue that needs to be explored more with potential candidates.

Results from preclinical and clinical trials for many promising candidates have returned encouraging outcomes. S63845 was among the first candidates to enter preclinical trials, and till date it has been assessed in a number of solid and hematopoietic cancers, and has shown promising results. Servier and Novartis jointly developed S64315/MIK665, the clinical-trial version of S63845. As mentioned above, MCL-1 inhibitors can act as ideal combinatorial agents. Therefore, S64315 too is being

assessed in combination with azacitidine, a chemotherapeutic drug, and VOB560, an investigational BCL-2 inhibitor, in patients with hematopoietic cancers.

A compelling case has been made for the use of MCL-1 inhibitors in the treatment of cancer by the positive preclinical trial results of numerous other investigational candidates besides S63845. MCL-1 also has the potential to be used as a therapeutic target for a variety of malignancies, as evidenced by the outcomes of the expansion of these candidates to solid tumors. Research and development of MCL-1 inhibitors is still an emerging field, however, prominent pharmaceutical companies like Amgen, Novartis, and AstraZeneca have also invested in the development of these candidates, which vouches for the future potential of MCL-1 inhibitors and the unanticipated market growth in the coming years. There still remain certain drawbacks associated with MCL-1 inhibitors that need to be addressed to realize the prospective growth potential of the MCL-1 inhibitors market.

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