Innovations
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

WEE1 Kinase Inhibitors for the Treatment of Glioblastoma

Product

WEE1 Kinase Inhibitors

Indication

Cancer Treatment in Combination with DNA Damaging Chemo

Value Propositions

- Improved ability to penetrate blood brain barrier
- Reduced myelosuppression toxicity

Market

- $550M—Glioblastoma Therapeutic Market Size in 2020 (CAGR of 4.7% through 2030)

Intellectual Property

- Patents Pending*
- Available for Licensing

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Background on CU3468H

Glioblastoma multiforme (GBM) is the deadliest primary brain malignancy. The 5-year survival rate remains at <10% for those over 45 years of age. An estimated 13,000 people will be diagnosed with the disease in 2021. Despite therapeutic advancement, GBM continues to be a disease with some of the highest unmet needs in oncology. Treatment options available to GBM patients are minimal. The lack of therapies is primarily due to the inability of drugs to penetrate the blood-brain barrier (BBB). The temozolomide-radiotherapy protocol and Avastin (bevacizumab) remain the standard of care for GBM. Therefore, novel therapeutics are the disease are needed.

Technical Innovation

Dr. Philip Reigan and his team at the University of Colorado have developed WEE1 kinase inhibitors for the treatment of GBM, along with other solid and blood cancer types. WEE1 directly regulates cell-cycle checkpoints critical for DNA repair in cancer cells supporting cancer growth, survival, and resistance to chemotherapy. Targeting WEE1 with small molecules and compromising the G2/M checkpoint (sensitizing the cancer) presents the opportunity to potentiate DNA-targeted chemotherapy. The inventor's lead compounds have demonstrated several improvements over existing WEE1 kinase inhibitor AZD1775 including improved ability to cross the blood brain barrier and reduced myelosuppression toxicity. A xenograft in-vivo mouse model study suggests improved survival when the therapeutic was used in combination with Cisplatin.

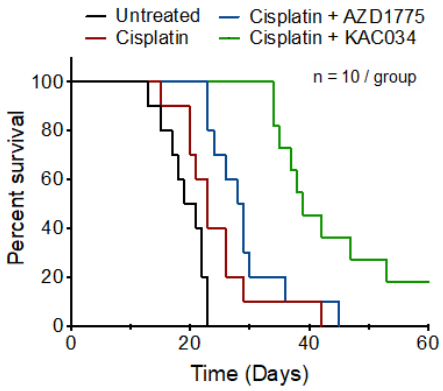

Figure: : Intracranial athymic nude mouse xenograft study showed improved survival with use of the lead WEE1 inhibitor + Cisplatin combination compared to AZD1775 + Cisplatin or Cisplatin alone.

US, EU, CA, AUS, JAP patents pending: PCT/US21/52449—"1,2,3,6-Subsituted Pyrazolopyrimidine Inhibitors of WEE1 Kinase"—Filed 2020.