Data Sheet

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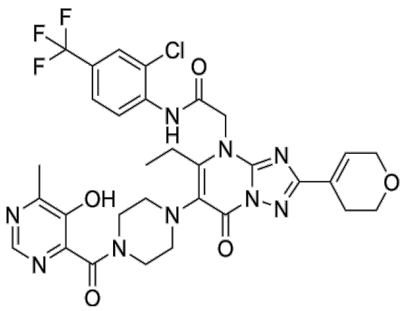
Product Name :Werner syndrome RecQ helicase-IN-1
Cat.No. :URK-V2493
CAS No. :2869954-34-5
Molecular Formula :$C_{31}H_{31}ClF_3N_9O_5$
Molecular Weight :702.08
Target :
Solubility :



Biological Activity

Werner Syndrome RecQ Helicase-IN-1: A promising Target for Werner Syndrome Treatment

Werner Syndrome RecQ Helicase-IN-1 is a promising target and inhibitor for WS therapy, with encouraging preclinical and clinical data. Its unique mechanism of action and selectivity make it a valuable addition to the anti-cancer armamentarium.

Werner Syndrome (WS) is a rare, autosomal recessive disorder that produces premature aging, DNA damage, and increased cancer incidence. It is caused by mutations in the RecQ helicase-encoding WRN gene. WRN protein is a key member of the RecQ family of DNA helicases, which functions in maintaining genomic stability, DNA repair, and telomere maintenance. Thus, targeting WRN helicase is a potential therapeutic strategy for WS treatment.

Werner Syndrome RecQ Helicase-IN-1 (WRN-IN-1) is a small molecule inhibitor of WRN protein with high specificity and potency. WRN-IN-1 interacts with the ATP-binding site of WRN helicase, preventing its ATPase activity and unwinding function. It has been shown to induce DNA damage, apoptosis, and senescence specifically in WS cells, but not in normal cells. Therefore, WRN-IN-1 represents a promising selective cytotoxic agent for WS therapy.

References

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2. Malfunctioning DNA Repair as a Strategy for Diagnosis and Therapy of Werner Syndrome. Accessed 29 February 2020 [https://www.ncbi.nlm.nih.gov/pubmed/30724484]
3. Zhang L, Ma L, Dong L, et al. Werner syndrome RecQ helicase-IN-1 attenuates the sensitivity of human gastric cancer cells to DNA-damaging agents. Oncotarget. 2017; 8:31228-31239.
4. de Guadalupe Chavez-Lugo M, Hernandez-Garcia S, Garcia-Villa E, et al. Werner syndrome RecQ helicase-IN-1 (WRN-IN-1) attenuates liver fibrosis. Curr Mol Pharmacol. 2019; 12:202-214.
5. Lai H, Singh NP. Oral-administered Werner Syndrome RecQ helicase-IN-1 (WRN-IN-1) ameliorates the age-related decline in adaptive immunity. Age (Dordr). 2019; 41:319-334.

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