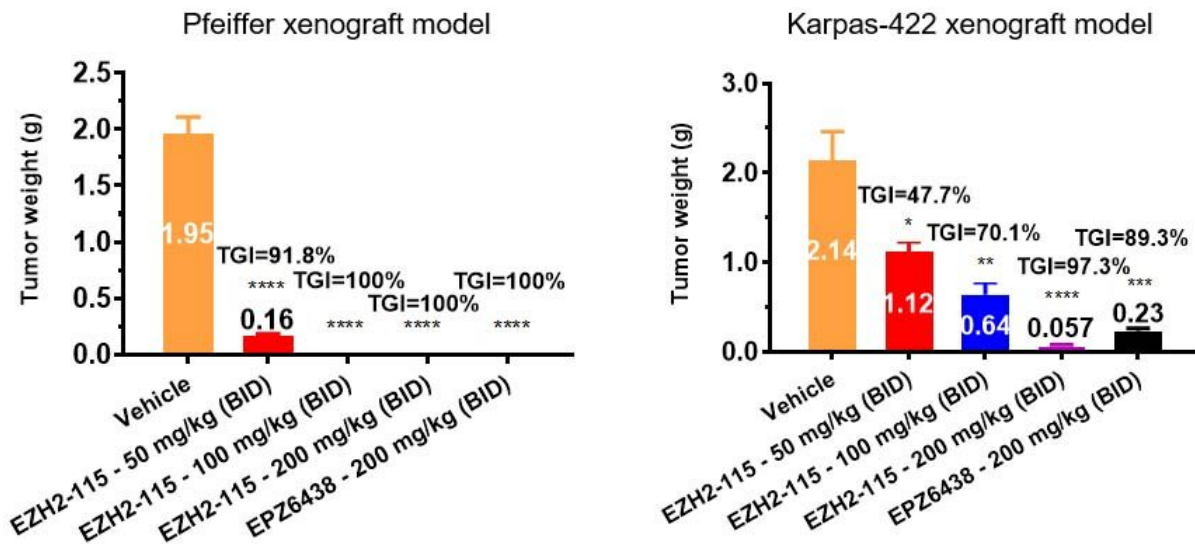


# Novel inhibitor discovered for B-cell lymphoma treatment

November 1 2021, by Zhang Nannan



Anti-tumor efficacy evaluation of IHMT-EZH2-115 in xenograft mouse models.  
Credit: ZHOU Bin

A potent and selective enhancer of zeste homolog 2 (EZH<sub>2</sub>) inhibitor IHMT-EZH<sub>2</sub>-115 was recently discovered by researchers led by Prof. Liu Qingsong from the Hefei Institutes of Physical Science of the Chinese Academy of Sciences for the treatment of B-cell lymphomas.

EZH<sub>2</sub> is the enzymatic subunit of polycomb repressive complex 2. As a [therapeutic target](#) for the treatment of cancer, it has been extensively

studied. Overexpression or mutation of EZH<sub>2</sub> has been identified in hematologic malignancies and solid tumors. EPZ6438 (Tazemetostat) is the first selective inhibitor of EZH<sub>2</sub> wild-type and mutants approved by the Food and Drug Administration (FDA). Despite the clinical success, the diversity of EZH<sub>2</sub> inhibitors is still highly demanded for both the preclinical mechanistic and clinical pathological studies.

In this study, starting from EPZ6438 which exhibited anti-B-cell lymphoma efficacies in the [preclinical models](#), the researchers obtained IHMT-EZH<sub>2</sub>-115 using a focused medicinal chemistry approach guided by computer-aided drug design.

According to the biochemical assay, IHMT-EZH<sub>2</sub>-115 was highly potent to both EZH<sub>2</sub> wild-type and mutants. Meanwhile, it showed high selectivity over a broad range of histone methyltransferases. Furthermore, the inhibitor exhibited excellent antiproliferative activities against cells carrying the heterozygous EZH<sub>2</sub> A677G, Y641F, Y641N, and Y641S mutations.

In vivo, IHMT-EZH<sub>2</sub>-115 exhibited favorable pharmacokinetic characteristics for oral administration and demonstrated dose-dependent antitumor efficacies in two xenograft mouse models of diffuse large B-cell lymphoma cell lines harboring EZH<sub>2</sub> mutations, Pfeiffer (EZH<sub>2</sub> A677G) and Karpas-422 (EZH<sub>2</sub> Y641N).

These results indicate that IHMT-EZH<sub>2</sub>-115 may be a potential clinical development candidate for the EZH<sub>2</sub> mutant driven tumors.

**More information:** Bin Zhou et al, Discovery of IHMT-EZH<sub>2</sub>-115 as a Potent and Selective Enhancer of Zeste Homolog 2 (EZH<sub>2</sub>) Inhibitor for the Treatment of B-Cell Lymphomas, *Journal of Medicinal Chemistry* (2021). [DOI: 10.1021/acs.jmedchem.1c01154](https://doi.org/10.1021/acs.jmedchem.1c01154)

Provided by Chinese Academy of Sciences

Citation: Novel inhibitor discovered for B-cell lymphoma treatment (2021, November 1)  
retrieved 4 July 2023 from <https://medicalxpress.com/news/2021-11-inhibitor-b-cell-lymphoma-treatment.html>

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