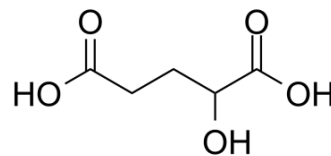


## $\alpha$ -Hydroxyglutaric acid

|                    |  |
|--------------------|--|
| Cat. No.:          | HY-113038B                                   |
| CAS No.:           | 2889-31-8                                    |
| Molecular Formula: | C <sub>5</sub> H <sub>8</sub> O <sub>5</sub> |
| Molecular Weight:  | 148.11                                       |
| Target:            | Histone Demethylase                          |
| Pathway:           | Epigenetics                                  |
| Storage:           | Solution, -20°C, 2 years                     |



### BIOLOGICAL ACTIVITY

#### Description

$\alpha$ -Hydroxyglutaric acid (2-Hydroxyglutarate) is an  $\alpha$ -hydroxy acid form of glutaric acid.  $\alpha$ -Hydroxyglutaric acid is a competitive inhibitor of multiple  $\alpha$ -ketoglutarate-dependent dioxygenases, including histone demethylases and the TET family of 5-methylcytosine (5mC) hydroxylases<sup>[1]</sup>.

#### In Vitro

Isocitrate Dehydrogenase 1 (IDH1) and IDH2 mutations occur frequently in gliomas and acute myeloid leukemia, leading to simultaneous loss and gain of activities in the production of  $\alpha$ -ketoglutarate ( $\alpha$ -KG) and  $\alpha$ -Hydroxyglutaric acid (2-Hydroxyglutarate), respectively<sup>[1]</sup>.

$\alpha$ -Hydroxyglutaric acid (2-Hydroxyglutarate) inhibits the activity of multiple histone demethylases.  $\alpha$ -Hydroxyglutaric acid occupies the same space as  $\alpha$ -KG does in the active site of histone demethylases.  $\alpha$ -Hydroxyglutaric acid (2-Hydroxyglutarate) inhibits the activity of TET 5-methylcytosine hydroxylases<sup>[1]</sup>.

Treatment of U-87MG cells with  $\alpha$ -Hydroxyglutaric acid (2-Hydroxyglutarate; 10-50 mM) increases HIF-1 $\alpha$  and decreases endostatin<sup>[1]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

### REFERENCES

[1]. Wei Xu, et al. Oncometabolite 2-hydroxyglutarate is a competitive inhibitor of  $\alpha$ -ketoglutarate-dependent dioxygenases. *Cancer Cell*. 2011 Jan 18;19(1):17-30.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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