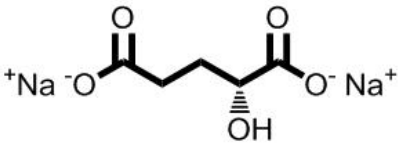
Xcess Biosciences Inc.
7144 N Harlem Ave #169
Chicago, IL 60631 USA

http://www.xcessbio.com
Toll free: 1-866-706-2330
Fax: 1-619- 810-0718
Email: info@xcessbio.com

α-KG-dependent dioxygenases inhibitor – (R)-2-HG

Chemical Name: sodium (R)-2-hydroxypentanedioate



Molecular Weight:	192.08
Formula:	$C_5H_6Na_2O_5$
Purity:	≥ 98%
CAS#:	103404-90-6
Solubility:	Water up to 100 mM
Storage	Powder: 4 °C 1 year DMSO: 4 °C 3 months -20 °C 1 year

Biological Activity:

Mutations in IDH1 and IDH2, the genes coding for isocitrate dehydrogenases 1 and 2, are common in several human cancers, such as leukemia and glioma, and result in overproduction of the (R)-enantiomer of 2-hydroxyglutarate [(R)-2-HG]. Elucidation of the role of IDH mutations and (R)-2-HG in leukemogenesis has been hampered by a lack of appropriate cell-based models. It has been recently reported that a canonical IDH1 mutant, IDH1 R132H, promoted cytokine independence and blocks differentiation in hematopoietic cells. These effects can be recapitulated by (R)-2-HG, but not (S)-2-HG, despite the fact that (S)-2-HG more potently inhibits enzymes previously linked to the pathogenesis of IDH mutant tumors, such as the 5'-methylcytosine hydroxylase TET2. This paradox is perhaps due to the ability of (S)-2-HG, but not (R)-2-HG, to inhibit the EglN prolyl hydroxylases. 2-HG has also been shown to inhibit the activity of multiple other a-KG-dependent dioxygenases, including the JmjC domain-containing histone demethylases (KDMs).

How to Use:

In vitro: (R)-2-HG was used at 100-250 μM final concentration in vitro and in cellular assays.

In vivo: n/a

Reference:

1. Losman JA, et al. (R)-2-Hydroxyglutarate Is Sufficient to Promote Leukemogenesis and Its Effects Are Reversible. (2013) Science. 339(6127):1621-5.
2. Ye D, et al. R-2-Hydroxyglutarate as the Key Effector of IDH Mutations Promoting Oncogenesis. (2013) Cancer Cell. 23(3):274-6.