

Small Molecules

(2R)-Octyl- α -hydroxyglutarate

Inhibits α -ketoglutarate-dependent dioxygenases

Catalog #100-0514
100-0515

1 mg
5 mg



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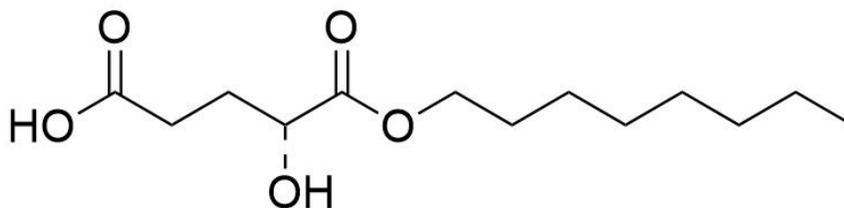
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Product Description

(2R)-Octyl- α -hydroxyglutarate is a cell-permeable derivative of α -hydroxyglutarate (2-HG). D- and L-2-hydroxyglutarate dehydrogenases convert 2-HG to α -ketoglutarate (α KG or 2-oxoglutarate), which, along with oxygen, are co-substrates for a large family of α KG-dependent dioxygenases. 2-HG itself inhibits α KG-dependent dioxygenases by competing with α KG for binding to this family of enzymes (Xu et al.). Mutations in isocitrate dehydrogenase 1 (IDH1) and IDH2 are associated with certain cancers (Reitman et al.; Sulkowski et al.). These enzymes convert isocitrate to 2-HG rather than α KG, and this results in high levels of accumulated 2-HG in cancer cells. (2R)-Octyl- α -hydroxyglutarate is useful for investigating oxidative mitochondrial processes of IDH mutations in cancer.

Molecular Name:	(2R)-Octyl- α -hydroxyglutarate
Alternative Names:	(2R)-Octyl-2-HG
CAS Number:	1391194-67-4
Chemical Formula:	C ₁₃ H ₂₄ O ₅
Molecular Weight:	260.3 g/mol
Purity:	≥ 95%
Chemical Name:	2R-hydroxy-pentanedioic acid, 1-octyl ester
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	<ul style="list-style-type: none">• PBS (pH 7.2) ≤ 3.8 mM• DMSO ≤ 35 mM• Absolute ethanol ≤ 75 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 384 μ L of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Published Applications

CANCER RESEARCH

· Inhibits α KG-dependent dioxygenases (Sulkowski et al.; Xu et al.).

References

Reitman ZJ et al. (2014) Cancer-associated isocitrate dehydrogenase 1 (IDH1) R132H mutation and D-2-hydroxyglutarate stimulate glutamine metabolism under hypoxia. *J Biol Chem* 289(34): 23318–28.

Sulkowski PL et al. (2017) 2-Hydroxyglutarate produced by neomorphic IDH mutations suppresses homologous recombination and induces PARP inhibitor sensitivity. *Sci Transl Med* 9(375).

Xu W et al. (2011) Oncometabolite 2-hydroxyglutarate is a competitive inhibitor of α -ketoglutarate-dependent dioxygenases. *Cancer Cell* 19(1): 17–30.

Related Small Molecules

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