## **Product** Data Sheet

## Phenformin-d<sub>5</sub> hydrochloride

Cat. No.: HY-16397AS Molecular Formula: C, H, D, ClN,

246.75 Molecular Weight: Target: AMPK; Autophagy; Isotope-Labeled Compounds

Storage: Please store the product under the recommended conditions in the Certificate of

Epigenetics; PI3K/Akt/mTOR; Autophagy; Others

Analysis.

HCI

## **BIOLOGICAL ACTIVITY**

Pathway:

Description	Phenformin-d <sub>5</sub> (hydrochloride) is the deuterium labeled Phenformin hydrochloride. Phenformin hydrochloride is an anti-diabetic agent from the biguanide class, can activate AMPK activity[1][2].
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs <sup>[1]</sup> .  MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## **REFERENCES**

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019;53(2):211-216. ;Zhang L, et al. Metformin and phenformin activate AMP-activated protein kinase in the heart by increasing cytosolic AMP concentration. Am J Physiol Heart Circ Physiol. 2007 Jul;293(1):H457-66.; Woollhead AM, et al. Phenformin and 5-aminoimidazole-4-carboxamide-1-beta-D-ribofuranoside (AICAR) activation of AMP-activated protein kinase inhibits transepithelial Na+ transport across H441 lung cells. J Physiol. 2005 Aug 1;566(Pt 3):781-92. Epub 2005;Sakamoto K, et al. Activity of LKB1 and AMPK-related kinases in skeletal muscle: effects of contraction, phenformin, and AICAR. Am J Physiol Endocrinol Metab.?2004 Aug;287(2):E310-7.;Dilman VM, et al. Inhibition of DMBA-induced carcinogenesis by phenformin in the mammary gland of rats. Arch Geschwulstforsch. 1978;48(1):1-8.; Moreira AL, et al. Thalidomide exerts its inhibitory action on tumor necrosis factor alpha by enhancing mRNA degradation. J Exp Med. 1993 Jun 1;177(6):1675-80.

- [2]. Zhang L, et al. Metformin and phenformin activate AMP-activated protein kinase in the heart by increasing cytosolic AMP concentration. Am J Physiol Heart Circ Physiol. 2007 Jul;293(1):H457-66.
- [3]. Alison M Woollhead, et al. Phenformin and 5-aminoimidazole-4-carboxamide-1-beta-D-ribofuranoside (AICAR) activation of AMP-activated protein kinase inhibits transepithelial Na+ transport across H441 lung cells. J Physiol. 2005 Aug 1;566(Pt 3):781-92. Epub 2005;Sakamoto K,
- [4]. Zhang L, et al. Metformin and phenformin activate AMP-activated protein kinase in the heart by increasing cytosolic AMP concentration. Am J Physiol Heart Circ Physiol. 2007 Jul;293(1):H457-66.
- [5]. V M Dilman, et al. Inhibition of DMBA-induced carcinogenesis by phenformin in the mammary gland of rats. Arch Geschwulstforsch. 1978;48(1):1-8.;Moreira AL,
- [6]. A L Moreira, et al. Thalidomide exerts its inhibitory action on tumor necrosis factor alpha by enhancing mRNA degradation. J Exp Med. 1993 Jun 1;177(6):1675-80.
- [7]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019 Feb;53(2):211-216.

 $\label{lem:caution:Product} \textbf{Caution: Product has not been fully validated for medical applications. For research use only.}$ 

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