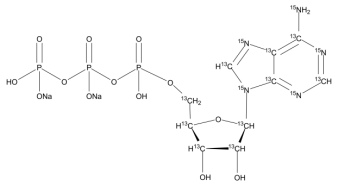
ATP-$^{13}C_{10}$,$^{15}N_5$ disodium

Cat. No.:	HY-B2176S1
Molecular Formula:	$^{13}C_{10}H_{14}{}^{15}N_5Na_2O_{13}P_3$
Molecular Weight:	566.04
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	Solution, -20°C, 2 years



BIOLOGICAL ACTIVITY

Description

ATP-$^{13}C_{10}$,$^{15}N_5$ (disodium) is a ^{13}C-labeled and ^{15}N-labeled ATP (HY-B2176). ATP is a central component of energy storage and metabolism in vivo. ATP provides the metabolic energy to drive metabolic pumps and serves as a coenzyme in cells. ATP is an important endogenous signaling molecule in immunity and inflammation[1][2][3][4].

In Vitro

ATP-13C10,15N5 (Adenosine 5'-triphosphate-13C10,15N5; 5 mM; 1 hour) disodium co-treatment with LPS (1 μg/mL) has a synergistic effect on the activation of the NLRP3 inflammasome in HGFs[3].

ATP-13C10,15N5 (2 mM; 0.5-24 hours) disodium induces secretion of IL-1β, KC and MIP-2 from BMDMs in a caspase-1 activation-dependent manner[4].

ATP-13C10,15N5 disodium promotes neutrophil chemotaxis in vitro[4].

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

In Vivo

ATP-13C10,15N5 (Adenosine 5'-triphosphate-13C10,15N5; 50 mg/kg; i.p.) disodium protects mice against bacterial infection in vivo[4].

ATP-13C10,15N5 disodium induces the secretion of IL-1β, KC and MIP-2 and neutrophils recruitment in vivo[4].

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

Animal Model:	Four-week-old Kunming mice (18-22 g)[4]
Dosage:	50 mg/kg
Administration:	Intraperitoneal injection, before bacterial (E. coli) challenge
Result:	Protected mice from bacterial infection.

REFERENCES

[1]. Swennen EL, et al. Immunoregulatory effects of adenosine 5'-triphosphate on cytokine release from stimulated whole blood. Eur J Immunol. 2005 Mar;35(3):852-8.

[2]. M J L Bours, et al. Adenosine 5'-triphosphate and adenosine as endogenous signaling molecules in immunity and inflammation. Pharmacol Ther. 2006 Nov;112(2):358-404.

[3]. Shuo Xu, et al. Doxycycline inhibits NAcht Leucine-rich repeat Protein 3 inflammasome activation and interleukin-1β production induced by Porphyromonas gingivalis-lipopolysaccharide and adenosine triphosphate in human gingival fibroblasts. Arch Oral Biol. 2019 Nov;107:104514.

[4]. Yang Xiang, et al. Adenosine-5'-Triphosphate (ATP) Protects Mice against Bacterial Infection by Activation of the NLRP3 Inflammasome. PLoS One. 2013; 8(5): e63759.

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