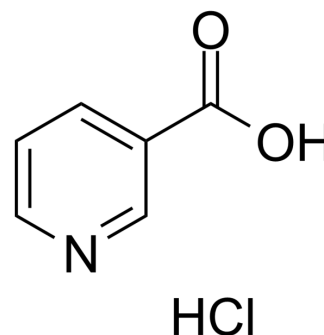


Niacin hydrochloride

Cat. No.:	HY-B0143A
CAS No.:	636-79-3
Molecular Formula:	C ₆ H ₆ ClNO ₂
Molecular Weight:	159.57
Target:	Endogenous Metabolite; Apoptosis
Pathway:	Metabolic Enzyme/Protease; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Niacin (Vitamin B3; Nicotinic acid) hydrochloride is an orally active B3 vitamin that is an essential nutrient for humans. Niacin hydrochloride plays a key role in energy metabolism, cell signaling cascades regulating gene expression and apoptosis. Niacin hydrochloride is also used in the study of cardiovascular diseases ^{[1][2]} .																	
IC₅₀ & Target	Microbial Metabolite	Human Endogenous Metabolite																
In Vitro	<p>Niacin hydrochloride (0-900 μM, 42 hours) significantly increases GSH levels and decreases ROS levels, and affects the expression of genes related to apoptosis and lipid metabolism^[1].</p> <p>Niacin hydrochloride (0-40 μM, 24 hours) can inhibit cancer invasive activity at low dose but with no influence on proliferation^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>RT-PCR^[1]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>Cumulus cells and oocytes of prepubertal gilts</td> </tr> <tr> <td>Concentration:</td> <td>600 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>42 hours</td> </tr> <tr> <td>Result:</td> <td>Up-regulated the relative expression of the anti-apoptotic gene BCL2 and lipid metabolism gene ACACA while down-regulated the pro-apoptotic gene BAX.</td> </tr> </table> <p>Cell Proliferation Assay^[2]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>Rat ascites hepatoma cell line of AH109A</td> </tr> <tr> <td>Concentration:</td> <td>0-40 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Had no effect on the proliferation of AH109A cells but suppressed cell invasion from 2.5 μM to 40 μM.</td> </tr> </table>		Cell Line:	Cumulus cells and oocytes of prepubertal gilts	Concentration:	600 μM	Incubation Time:	42 hours	Result:	Up-regulated the relative expression of the anti-apoptotic gene BCL2 and lipid metabolism gene ACACA while down-regulated the pro-apoptotic gene BAX.	Cell Line:	Rat ascites hepatoma cell line of AH109A	Concentration:	0-40 μM	Incubation Time:	24 hours	Result:	Had no effect on the proliferation of AH109A cells but suppressed cell invasion from 2.5 μM to 40 μM.
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In Vivo	Niacin hydrochloride (subcutaneous injection, 3-300 mg/kg, once) can induce vasodilation in a dose-dependent manner within minutes in male C57BL/6 mice ^[3] .																	

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

Animal Model:	Male C57BL/6 mice ^[3]
Dosage:	3-300 mg/kg
Administration:	Subcutaneous injection; once
Result:	Induced vasodilation in a dose-dependent manner.

CUSTOMER VALIDATION

- Mil Med Res. 2022 Aug 23;9(1):46.
- Mol Cell. 2023 Aug 11;S1097-2765(23)00605-6.
- Gut Microbes. 2023 Jan-Dec;15(1):2186114.
- J Nanobiotechnology. 2022 Mar 9;20(1):120.
- Glia. 2018 Feb;66(2):256-278.

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REFERENCES

- [1]. Areeg M Almubarak, et al. Supplementation with Niacin during in vitro maturation improves the quality of porcine embryos. Theriogenology. 2021 Jul 15;169:36-46. doi: 10.1016/j.theriogenology.2021.04.005. Epub 2021 Apr 18.
- [2]. Nobuhiro Hirakawa, et al. Anti-invasive activity of niacin and trigonelline against cancer cells. Biosci Biotechnol Biochem. 2005 Mar;69(3):653-8.
- [3]. Kang Cheng, et al. Antagonism of the prostaglandin D2 receptor 1 suppresses nicotinic acid-induced vasodilation in mice and humans. Proc Natl Acad Sci U S A. 2006 Apr 25;103(17):6682-7.

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

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