Product Data Sheet

D-+-Galactosamine hydrochloride

Cat. No.: B7881

CAS No.: 1772-03-8

Formula: $C_6H_{13}NO_5 \cdot HCl$

M.Wt: 215.63

Synonyms: D-+-Galactosamine

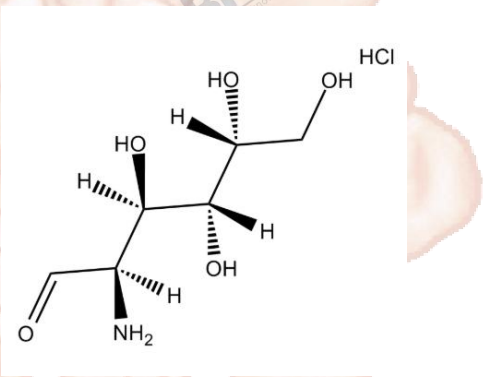
Target: /

Pathway: Disease modeling

Storage: -20℃ (Powder)

In solvent: -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

We do not recommend storing the aqueous solution for more than one day.



Solvent & Solubility

In Vitro

≥21.6 mg/mL in H2O; insoluble in EtOH; insoluble in DMSO

Preparing Stock Solutions

Concentration \ Mass	1mg	5mg	10mg
1 mM	4.6376 mL	23.1879 mL	46.3757 mL
5 mM	0.9275 mL	4.6376 mL	9.2751 mL
10 mM	0.4638 mL	2.3188 mL	4.6376 mL

Please refer to the solubility information to select the appropriate solvent.

If you choose water as the stock solution, please dilute it to the working solution first, and then filter it through a 0.22 μm membrane to sterilize it before use.

Biological Activity

Short summary

D(+)-Galactosamine is an amino sugar derivative of D-galactose that is widely used as an experimental hepatotoxin. It induces liver injury primarily by generating free radicals and depleting UTP nucleotides in hepatocytes. This compound is commonly used, alone or in combination with lipopolysaccharide (LPS), to create animal models of acute liver failure, particularly in rodents. In addition to liver toxicity, D (+)-Galactosamine can also cause renal dysfunction, making it useful for studying multi-organ failure associated with severe liver damage. Overall, it serves as a valuable tool for investigating the mechanisms and potential treatments of fulminant hepatic failure.

In Vitro

Cell Viability Assay [1]

Cell Line:	Primary hepatocytes isolated from male Wistar rats weighing approximately 225–275 g
Preparation method:	Culture conditions: Seed hepatocytes (150,000 cells/cm²) onto type I collagen-coated culture dishes. After culturing for 2 hours in the above medium containing 5% fetal bovine serum, replace with fresh serum-free medium and continue to culture for 24 hours.
Reacting conditions:	**1. Drug Treatment** PGE_1 (1μM) is added 2 hours before D-galactosamine (D-GalN, 5mM) treatment. Caspase inhibitor (200μM) is added together with D-GalN. 2. **Sampling Time Points** According to experimental indicators (such as DNA fragmentation, caspase activity, LDH release, etc.), cells and culture supernatants are collected at 0, 2, 4, 8, 12, 18, and 24 hours after treatment. 3. **Environmental Conditions** All culture procedures are carried out under appropriate temperature (37°C), humidity, and CO_2 concentration (standard cell culture conditions). 4. **Detection Conditions** 4.1 Caspase Activity Assay: Incubate at 37°C for 1 hour. Measure absorbance (405 nm, for caspase-3/-6/-8) or fluorescence (excitation 400 nm, emission 505 nm, for caspase-9) using a GENios Reader. 4.2 LDH Activity Assay: Use a colorimetric method to detect the decrease in absorbance at 334 nm caused by β-NADH consumption. 4.3 Mitochondrial Cytochrome c Detection: Separate cytosolic and mitochondrial-enriched fractions by differential centrifugation, then analyze by Western blot after 14% SDS-PAGE electrophoresis.
Applications:	1. To investigate the molecular mechanisms underlying D-galactosamine (D-GalN)-induced primary rat hepatocyte death, and to determine whether it occurs via the mitochondria-dependent pathway (e.g., cytochrome c release, caspase-9 activation) or the death receptor-dependent pathway (e.g., caspase-8 activation). 2. To evaluate the protective effect and target sites of prostaglandin E_1 (PGE_1) against D-GalN-induced hepatocyte apoptosis (such as regulation of caspase-3 activity and inhibition of DNA fragmentation). 3. To verify the roles of the caspase family (caspase-3/-6/-8/-9) and sphingomyelinases (nSMase, aSMase) in D-GalN-induced hepatocyte apoptosis.

		4. To provide a reference for experimental models of human liver failure and to explore the potential mechanisms of action of hepatoprotective drugs.
In Vivo	**Animal experiment [2]**	
	Animal models:	Wistar • 110-180 g • female
	Dosage form:	250 mg/kg, intraperitoneal injection, 6 injections in 24 hours or 1.5 g/kg, Intraperitoneal injection, with 6 injections scheduled as follows: the first 3 injections are given at 4-hour intervals, followed by a 14-hour pause, then the last 3 injections are given at 1-hour intervals.
	Applications:	To establish lipopolysaccharide/D-Galactosamine-induced hepatitis or acute liver injury models.
	Other notes:	We do not recommend storing the aqueous solution for more than one day.

Note:

Please do not determine experimental conditions based solely on a single article. It is recommended to conduct a pilot experiment before the formal experiment to determine the optimal experimental conditions (such as animal strain, age, dosage, frequency, duration, detection time points, indicators, etc.).

Product Citations

See more customer validations on www.apexbt.com.

References

1. Siendones E, Jiménez-Gómez Y, Montero JL, Gómez-Díaz C, Villalba JM, Muntané J. PGE1 abolishes the mitochondrial-independent cell death pathway induced by D-galactosamine in primary culture of rat hepatocytes. J Gastroenterol Hepatol. 2005 Jan;20(1):108-16. doi: 10.1111/j.1440-1746.2004.03488.x. PMID: 15610455.
2. Keppler D, Lesch R, Reutter W, Decker K. Experimental hepatitis induced by D-galactosamine. Exp Mol Pathol. 1968 Oct;9(2):279-90. doi: 10.1016/0014-4800(68)90042-7. PMID: 4952077.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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