

Product Data Sheet

Product Name: Solutol HS-15

Cat. No.: GC30012

Chemical Properties

Cas. No. 61909-81-7

SMILES CCCCCCC(O)CCCCCCCCCCCC(OCCO)=O.[n]

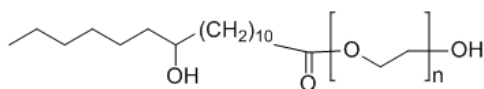
Formula $(C_2H_4O)_n C_{18}H_{36}O_3$ M.Wt

Solubility Water : 25 mg/mL Storage Store at 4°C, sealed storage, away from moisture

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

Preparation of Solutol HS-15 nanomicelles (SM), using paclitaxel (PSM) as an example [1]

This experimental protocol is compiled based on research content and is for reference only. Please adjust according to actual needs.

(1) Reagent preparation: Weigh Solutol HS-15 and paclitaxel at a ratio of 60:1 (w/w), dissolve in an

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appropriate amount of absolute ethanol, and sonicate (power 300W, frequency 40kHz) for 10min until completely dissolved to obtain a concentrate with a paclitaxel concentration of 6mg/mL. Store at 4°C protected from light.

(2) Micelle formation: Before use, dilute the concentrate with normal saline or double-distilled water to a paclitaxel concentration of 1mg/mL, and immediately filter through a 0.22µm microporous membrane to obtain PSM nanomicelles.

(3) Blank micelle preparation: Perform the same procedure without adding paclitaxel to obtain blank micelles (SM).

Notes:

(1) The concentrate should be stored at 4°C protected from light and used within 5 days to ensure stability.

(2) The diluted micelles must be filtered through a 0.22µm membrane to remove unencapsulated paclitaxel.

References:

[1] Chen B, Gong L, Feng J, et al. Improving the Treatment of Brain Gliomas Through Small-Particle-Size Paclitaxel-Loaded Micelles with a High Safety Profile. *Pharmaceutics*. 2025 Jul 25;17(8):965.

Background

Solutol HS-15 is a novel nonionic surfactant that can self-assemble into 10–15nm micelles for the solubilization and encapsulation of poorly soluble drugs. Solutol HS-15 can enhance drug transmembrane permeability and improve drug delivery efficiency through mild inhibition of P-gp efflux as well as modulation of cell membrane fluidity and F-actin cytoskeleton. Solutol HS-15 can be used in injectable/oral formulations, nanomicelles, self-emulsifying drug delivery systems, and mucosal delivery studies for poorly soluble drugs^[1–4].

In vitro, treatment of Calu-3 cells, A549 cells, Caco-2 cells, and K562 cells with Solutol HS-15 (0.01–20mM) for 24h promoted cellular metabolic activity and increased lactate dehydrogenase release^[5].

In vivo, intraperitoneal injection of Solutol HS-15 (2ml/kg) once daily for 14 consecutive days in

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Sprague-Dawley rats subjected to 6min asphyxial cardiac arrest-induced global cerebral ischemia increased the number of normal neurons in the CA1 region^[6].

References:

- [1] Coon JS, Knudson W, Clodfelter K, et al. Solutol HS 15, nontoxic polyoxyethylene esters of 12-hydroxystearic acid, reverses multidrug resistance. *Cancer Res.* 1991 Feb 1;51(3):897-902.
- [2] Bravo González RC, Boess F, Durr E, et al. In vitro investigation on the impact of Solutol HS 15 on the uptake of colchicine into rat hepatocytes. *Int J Pharm.* 2004 Jul 26;279(1-2):27-31.
- [3] Elkordy AA, Tan XN, Essa EA. Spironolactone release from liquisolid formulations prepared with Capryol™ 90, Solutol® HS-15 and Kollicoat® SR 30 D as non-volatile liquid vehicles. *Eur J Pharm Biopharm.* 2013 Feb;83(2):203-23.
- [4] Alani AWG, Rao DA, Seidel R, et al. The effect of novel surfactants and Solutol HS 15 on paclitaxel aqueous solubility and permeability across a Caco-2 monolayer. *J Pharm Sci.* 2010 Aug;99(8):3473-3485.
- [5] Shubber S, Villasaliu D, Rauch C, et al. Mechanism of Mucosal Permeability Enhancement of CriticalSorb®(Solutol® HS15) Investigated In Vitro in Cell Cultures. *Pharm Res.* 2015;32(2):516-527.
- [6] Lin HW, Saul I, Gresia VL, et al. Neuroprotection by palmitic acid methyl ester, stearic acid methyl ester, and Solutol HS 15 in rat models of global and focal cerebral ischemia. *Transl Stroke Res.* 2015 Feb;6(1):40-52.

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