

Product Data Sheet

Product Name: Glycogen

Cat. No.: GC33804

Chemical Properties

Cas. No. 9005-79-2

SMILES [Glycogen]

Formula $C_{24}H_{42}O_{21}$ M.Wt 666.57

Solubility Water : 50 mg/mL (75.01 mM) Storage Store at 2-8°C, protect from light

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

Glycogen

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

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Protocol

Experimental Protocol for Glycogen in Nucleic Acid Precipitation Assay

1. Dissolve glycogen in nuclease-free sterile water. After complete dissolution, filter through a 0.22µm sterile, enzyme-free filter. Prepare a stock solution with a concentration of 20µg/µL. Aliquot and store at -20°C or -80°C.
 2. Estimate the volume of the nucleic acid solution. If the solution contains a high concentration of salts, dilute with TE (pH 7.0) and mix well. If the solution has a low salt concentration, add 0.1 volume of 3M sodium acetate.
 3. Add Glycogen to a final concentration of 0.05-1µg/µL to facilitate precipitation and maximize recovery.
 4. Add 2.5–3.0 volumes of ice-cold ethanol (or 1 volume of isopropanol) and mix the solution well. Store the ethanolic solution for 1h to overnight at -20°C to allow nucleic acid to precipitate. Centrifuge the mixture at 12,000-15,000g for 10 minutes at 4°C. Carefully remove the supernatant without disturbing the nucleic acid pellet.
 5. Wash the pellet with 0.5-1mL of cold 70% ethanol. Vortex briefly and centrifuge again at 12,000-15,000g for 5 minutes at 4°C. Remove the supernatant and air-dry the pellet for 5-10 minutes to remove any residual ethanol.
 6. Resuspend the nucleic acid pellet in an appropriate volume of nuclease-free water or TE buffer. Mix gently to ensure complete dissolution of the nucleic acid.
- This protocol only provides a guideline and should be modified according to your specific needs.

References:

[1]. Green MR, Sambrook J. Precipitation of RNA with Ethanol. Cold Spring Harb Protoc. 2020 Mar 2;2020(3):101717. doi: 10.1101/pdb.prot101717. PMID: 32123016.

Background

Glycogen is a polysaccharide which serves as a form of energy storage in animals and fungi [1]. It is mainly found in the liver and muscle tissues as a secondary long-term energy storage molecule[2]. Glycogen is well-studied in research on cellular metabolism[3], diabetes[4], and athletic performance[5]. In addition, Glycogen is also used as a carrier to help the precipitation and recovery of small amounts of DNA and RNA during nucleic acid extraction, improving the yield and purity of the extracted nucleic acids[6][7].

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- [1]. Roach PJ, Depaoli-Roach AA, Hurley TD, et al. Glycogen and its metabolism: some new developments and old themes. *Biochem J.* 2012 Feb 1;441(3):763-87. doi: 10.1042/BJ20111416. PMID: 22248338; PMCID: PMC4945249.
- [2]. Kanungo S, Wells K, Tribett T, et al. Glycogen metabolism and glycogen storage disorders. *Ann Transl Med.* 2018 Dec;6(24):474. doi: 10.21037/atm.2018.10.59. PMID: 30740405; PMCID: PMC6331362.
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- [7]. Razak MR, Aris AZ, Md Yusoff F, et al. Assessment of RNA extraction protocols from cladocerans. *PLoS One.* 2022 Apr 26;17(4):e0264989. doi: 10.1371/journal.pone.0264989. PMID: 35472091; PMCID: PMC9041806.

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