thermo scientific

PRODUCT INFORMATION

Glycogen,

molecular biology grade

Inert co-precipitant of nucleic acids. Derived from oysters.

Pub. No. MAN0013150
Rev. Date 09 May 2017 (Rev. C.00)

#R0561

Lot: ____ Expiry date: ___

Store at -20 °C

Ordering Information

Component	#R0561
Glycogen, molecular biology grade Concentration: 20 mg/mL aqueous solution.	2 x 0.25 mL

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For Research Use Only. Not for use in diagnostic procedures.

Description

Glycogen is a highly purified polysaccharide derived from oysters. It is an inert carrier, free of host DNA/RNA. Glycogen is insoluble in ethanol solution; in the presence of salts it forms a precipitate that traps the target nucleic acids. During centrifugation, a visible pellet is formed, which greatly facilitates handling of target nucleic acids. Glycogen quantitatively precipitates nucleic acids from diluted solutions with a higher efficiency than that of tRNA, linear polyacrylamide or sonicated DNA (1-4).
Glycogen molecules are highly branched structures composed of thousands of glucose molecules bonded to each other. The molecular weight of the largest individual glycogen molecule containing about 50,000 glucose molecules appears to be 8 million.

Protocol for DNA Precipitation from Diluted Solutions

1. Add 1/10 volume of 3 M sodium acetate (or 2 M sodium chloride, or 5 M ammonium acetate) to DNA solution.
2. Add glycogen to a final 0.05-1 µg/µL concentration.
   Use up to 1 µL of glycogen per 20 µL of the solution. For precipitation of oligonucleotides, do not use higher than 1 µg/µL final glycogen concentration.
3. Add 1 volume of isopropanol (or 2.5 volumes of ethanol) to the solution. Mix gently but thoroughly.
   Use ethanol for < 200 bp fragments.
4. Incubate the mixture at -20 °C for up to 60 min, or at -70 °C for 30 min.
   Longer incubation and lower temperature provide better recovery of nucleic acids.
5. Centrifuge the mixture for 10-15 min at 10,000 rpm.
6. Discard the supernatant.
7. Rinse the pellet with cold 70% ethanol.
8. Air-dry the pellet. Avoid over-drying the pellet, as it then takes more time to dissolve.
9. Dissolve DNA in Water, nuclease-free (#R0581) or TE buffer.

Note

- 5 µg of Glycogen (0.25 µL) forms a visible pellet.
- Optimal for recovery of oligonucleotides (>8 bases) and low amounts (>20 pg) of nucleic acids from diluted solutions.
- Up to a final concentration of 8 µg/µL, glycogen does not interfere with most downstream applications: PCR, DNA sequencing, DNA digestion, ligation, DNA labeling, random priming, DNA amplification using phi29 DNA Polymerase (#EP0091).
- Up to a final concentration of 0.4 µg/µL, glycogen does not affect *in vitro* transfection of eukaryotic cells.
- Does not interfere with gel electrophoresis of nucleic acids.
- Does not interfere with spectrophotometrical determination of nucleic acids concentration ($A_{260-280}$ measurements).

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CERTIFICATE OF ANALYSIS

Nucleic Acids Precipitation Assay

DNA was precipitated with glycogen and ethanol. ≥90% of DNA was recovered.

Nicking Activity Assay

No detectable degradation was observed after incubation of supercoiled plasmid DNA with Glycogen.

Labeled Oligonucleotide (LO) Assay

No detectable degradation after incubation of single-stranded or double-stranded radiolabeled oligonucleotides with Glycogen.

Ribonuclease Assay

No detectable degradation was observed after incubation of [^{3}H]-RNA with Glycogen.

Protease Assay

No detectable degradation of protease substrate after incubation of FTC-casein with Glycogen.

Quality authorized by:  Jurgita Zilinskiene

References

1. Tracy, S., Improved rapid methodology for the isolation of nucleic acids from agarose gels, Prep. Biochem., 11, 251-268, 1981.
2. Helms, C., A new method for purifying lambda DNA from phage lysates, DNA, 4, 39-49, 1985.
3. Hengen, P. N., Methods and reagents – Carriers for precipitating nucleic acids, TIBS, 21, 224-225, 1996.
4. Sambrook, J., Russell, D.W., Molecular Cloning: A Laboratory Manual, the Third edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, A8. 12-8.13, 2001.

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