

Product Data Sheet

Product Name: Calf thymus DNA

Cat. No.: GC33841

Chemical Properties

Cas. No. 91080-16-9

SMILES [Calf thymus DNA]

Formula M.Wt

Solubility Water : 20 mg/mL Storage Store at -20°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

Calf thymus DNA

Protocol

Nuclease activity assay [1]:

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

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1. Solution preparation: Calf thymus DNA is dissolved in sterile ultrapure water (without DNase I) to prepare a 1mg/mL solution. During the dissolution process, it can be gently inverted at 4°C to aid dissolution, avoiding ultrasonic and vigorous vibration. After overnight incubation at 4°C, it can be fully dissolved;

Note: When the concentration is low (25µg/mL), DNA is prone to adsorb to the inner wall of the plastic tube. DNA is easily degraded in solutions with a pH greater than 8.0, so it cannot be dissolved in alkaline solutions.

2. Negative control group: 7.5 µg (7.5µL from the 1mg/mL solution) of Calf thymus DNA is mixed with 50µL of Tris; Positive control group: 7.5µg (7.5µL from the 1mg/mL solution) of Calf thymus DNA is mixed with 40µL of Tris and 10µL of DNase I (2U/mL);

3. All samples are incubated at 37°C for 6 hours;

4. After incubation, the complete DNA is precipitated with phenol-chloroform;

5. DNA is visualized on a 1% agarose gel containing Roti-Gel Stain;

6. The relative nuclease activity is determined by comparing with standard nuclease activities (0, 0.015, 0.03, 0.06, 0.125, 0.25, 0.5, and 1U/mL of DNase I).

This protocol only provides a guideline, and should be modified according to your specific needs.

References:

[1] Fingerhut L, Ohnesorge B, von Borstel M, et al. Neutrophil Extracellular Traps in the Pathogenesis of Equine Recurrent Uveitis (ERU). *Cells*. 2019;8(12):1528. Published 2019 Nov 27.

Background

Calf thymus DNA is high-quality double-stranded template DNA isolated from the thymus of male and female calves [1]. DNA is usually a major cellular target for the study of small molecules of biological importance, such as carcinogens, steroids, and various drugs [2]. Calf thymus DNA can be used as a standard for DNA quantification, as a substrate for DNA polymerase analysis, and as a carrier DNA for related precipitation analysis [3].

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- [1] Liu F, et al. Cytotoxicity of Aconitum alkaloid and its interaction with calf thymus DNA by multi-spectroscopic techniques. *Sci Rep.* 2017 Nov 6;7(1):14509.
- [2] Zhang G, Hu X, Pan J. Spectroscopic studies of the interaction between pirimicarb and calf thymus DNA. *Spectrochim Acta A Mol Biomol Spectrosc.* 2011;78(2):687-694.
- [3] Pan LL, Niu W, Fang X, et al. Clostridium butyricum Strains Suppress Experimental Acute Pancreatitis by Maintaining Intestinal Homeostasis [published online ahead of print, 2019 Apr 29]. *Mol Nutr Food Res.* 2019;e1801419.

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