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Product Information

Deoxyribonucleic Acid (DNA), Sodium Salt from Salmon Testes
(This product was formerly listed as Type III)

Catalog Number **D1626**
Storage Temperature 2–8 °C

CAS RN 438545-06-3
Synonyms: DNA, Salmon Testes DNA, Salmon Sperm DNA

Product Description

Deoxyribonucleic acid (DNA) is a long double-helical molecule containing genetic information. DNA is a double-stranded (ds) molecule. Each strand is composed of an ordered combination of four nucleotides, each nucleotide consisting of a purine or pyrimidine base (adenine, guanine, thymine, or cytosine) associated with a deoxyribose sugar molecule and a phosphate group.[1]

Sperm cells from salmon testes are a good source for non-mammalian DNA. The species of salmon used is *Oncerhynchus keta*. The isolation process for Sigma's salmon testes DNA is a proprietary modification of a published procedure.[2] The tissue is homogenized in water, followed by extraction in saturated sodium chloride, filtration, and precipitation.

%G-C content (DNA from salmon testes): 41.2%

T_m (melting temperature):[3] 87.5°C (in 0.15 M sodium chloride plus 0.015 M sodium citrate)

The molecular mass is not determined by Sigma. However, there is a report of a salmon testes DNA, sodium salt purchased from Sigma (product number not specified) having a molecular mass of 1.3×10^6 Da (~2,000 bp).[4]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

DNA solutions may be prepared by dissolving the thread-like lyophilized material in water or buffer. TE buffer (10 mM Tris, pH 8.0, with 1 mM EDTA, may be prepared using Catalog Number T9285, 100× TE Buffer) is commonly used to prepare DNA solutions.[5] This product is tested in water at 2 mg/ml, yielding a clear to hazy solution.

Storage/Stability

Store the lyophilized product at 2–8 °C.

After reconstitution, store at –20 °C.

Procedure

DNA for use in hybridization:

DNA from a non-relevant source, such as salmon testes DNA, is often included in hybridization solutions at a concentration of 100 µg/ml to help reduce background. DNA is dissolved and then reduced in size either by sonication or shearing by passage through a needle.

The DNA may be dissolved in ultrapure water (Molecular Biology Grade Water, nuclease free, Catalog Number W4502) at a concentration of 10 mg/ml. The solution will need to be stirred for at least 2–4 hours at room temperature to dissolve the DNA. Physically cutting the DNA into smaller pieces may help decrease the time needed for dissolution. Solutions of concentrated DNA will be very viscous. Shearing the DNA will help to reduce the viscosity by passing the DNA solution rapidly 12 times through a 17-gauge needle or once through a 23-gauge needle.[5,6] If sonication is used, the DNA is sonicated until it has the consistency of milk. Samples of the DNA may be monitored by agarose gel electrophoresis to achieve the desired size.[7] Prior to use in hybridization, the DNA is denatured by boiling for 10 minutes and then stored at –20 °C until use.[5]

Catalog Number D9156, Deoxyribonucleic Acid for Hybridization, from salmon testes and Catalog Number D7656, Deoxyribonucleic Acid for Hybridization, from salmon testes, phenol-chloroform extracted, ethanol precipitated are prepared hybridization solutions. Both products are 10 mg/ml aqueous solutions, sonicated, and denatured.

Estimation of DNA concentration in solution:

The concentration of a DNA solution may be estimated spectrophotometrically by measuring the A_{260} using a quartz microcuvette. It may be necessary to dilute a portion of the sample to obtain an accurate absorbance measurement. One A_{260} absorbance unit corresponds to 50 μg of dsDNA.[5]

Each lot of D1626 will yield at least 15 A_{260} absorbance units/mg solid. DNA concentrations may also be estimated colorimetrically using diphenylamine[8] (Catalog Number 242586) or fluorimetrically using bisbenzimide, Hoechst 33258 (Catalog Number B2883).[9]

References

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