SIGMA-ALDRICH

3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Pyronin Y
Molecular Biology Reagent

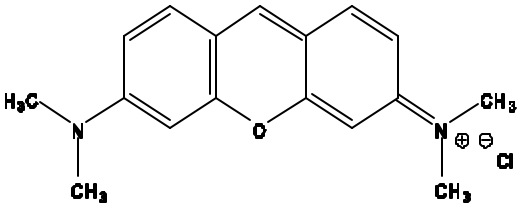
Product Number **P9172**

CAS Number: 92-32-0
Synonyms: Pyronine Y, Pyronin J, Pyronin G, and cationic xanthene dye

Product Description

Molecular Formula: $C_{17}H_{19}ClN_2O$
Molecular Weight: 302.80
Melting Point: 250-260 °C
λ_{max}: 546-551 nm (50% ethanol)
Dye content: ≥45%
Suitable for staining RNA.

Pyronin Y solutions are red in transmitted light displaying a yellow fluorescence in reflected light. Pyronin Y is used widely in combination with methyl green to selectively and differentially stain nucleic acids following polyacrylamide gel electrophoresis.[1] In this dichromatic dye solution, the Pyronin Y stains RNA red, while methyl green stains DNA green.[1] Pyronin Y has also be used to quantitate RNA content by flow cytometry,[2,3] and to stain liver cells fixed in Carnoy's fluid.[4,5]



Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water at 1 mg/ml, yielding a clear dark red solution.

Procedure

Suitability for RNA Staining: Transfer RNA (tRNA) is complexed with Pyronin Y at a 0.1 molar ratio and polyacrylamide gel electrophoresis performed according to Hassur.[6] tRNA (4–8 µg) complexed with Pyronin Y is visible as a red band during electrophoresis. The stained tRNA can also be detected using UV fluorescence at 302 nm.

1. Prepare a tRNA (Product No. R4251) solution at 1 µg/µl.
2. Prepare Pyronin Y solution: Dissolve 25 mg in 2.5 ml of 15% acetic acid in water. Once fully dissolved dilute the solution 5-fold with water.
3. Mix 220 µl of tRNA solution (step 1) with 2.5 µl of Pyronin Y solution (step 2). Equilibrate at 22 °C for 1.5 hours. To a 50 µl aliquot, add 12.5 µl of gel loading solution (Product No. G2526).
4. Load 10 µl of the tRNA/gel loading solution into the wells of a 20% TBE polyacrylamide gel. Run until the blue dye front is about 1 cm from the bottom of the gel.

Storage/Stability

Store at room temperature.

References

1. Green, F.J. (Ed.) The Sigma-Aldrich Handbook of Stains, Dyes & Indicators, Aldrich Chemical Co. (Milwaukee, WI: 1990), pp. 601-602.
2. Crissman, H. A., et al., Normal and perturbed Chinese hamster ovary cells: correlation of DNA, RNA, and protein content by flow cytometry. J. Cell. Biol., **101(1)**, 141-147 (1985).
3. Bauer, K.D., et al. Clinical Flow Cytometry: Principles and Application, Williams and Wilkins, Philadelphia, 1993, p. 377.
4. Lillie, R.D. (Ed.) H.J. Conn's Biological Stains, 9th edition, Williams and Wilkins, Baltimore, MD, 1977, Reprinted by Sigma Chemical Company, 1990, p. 590.

5. Clark, G. (Ed.) Staining Procedures, 4th edition, Williams and Wilkins, Baltimore, MD, 1981, p. 199.

6. Hassur, S. M., and Whitlock, H. W. Jr., A gel electrophoresis method for determining the relative binding constants of biologically active, intercalating fluorescent stains. Anal. Biochem., **95(2)**, 329-339 (1979).

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