Aurintricarboxylic acid

Product Number A 1895
Store at Room Temperature
Replacement for 12,326-9

Product Description
Molecular Formula: C_{22}H_{14}O_{9}
Molecular Weight: 422.4
CAS Number: 4431-00-9
\( \lambda_{\text{max}}: 552 \text{ nm (100 mM NaOH)} \)
Synonym: ATA

ATA is a potent inhibitor of protein-nucleic acid interactions. NMR studies suggest that its mechanism of action involves competition between the nucleic acid and the polymeric ATA for binding in the active site of the protein. Electron spin resonance indicates that ATA is polymeric, forming a stable free radical. A high-molecular-weight fraction (>3500 Da) was most active in inhibiting RNase activity. In low concentrations (50-100 \( \mu \)M), it is reported to be a relatively specific inhibitor of protein synthesis initiation. At higher concentrations, DNA elongation is affected.

ATA and related triphenylmethane dyes inhibit protein synthesis with a lag period of several minutes before inhibition is observed (comparable to the effect observed with sodium fluoride). By contrast, anisomycin, an inhibitor of chain elongation, inhibits protein synthesis immediately after it is added to a reaction mix.

ATA binds to ribosomes independent of temperature (when tested between 1 to 35 °C) and pH (when tested between pH 6 to 9). Divalent cations (Mg^{2+}, Ca^{2+}, and Mn^{2+}) stimulate maximal binding of ATA to ribosomes at a concentration of 6 mM. EDTA also increases binding of ATA, possibly due to a change in the charge or unfolding of the ribosomal structure to reveal new binding sites.

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions
ATA is soluble in 1 M NH_{4}OH (10 mg/ml), yielding a clear orange brown solution. ATA is also reported to be soluble in water (7 mg/ml) and ethanol (60 mg/ml).

References