4,4'-Diisothiocyanatostilbene-2,2'-disulfonic acid disodium salt

Product Number  D 3514
Storage Temperature  2-8 °C

Product Description
Molecular Formula: C₁₆H₈N₂Na₂O₆S₄
Molecular Weight: 498.5
CAS Number: 67483-13-0
λ<sub>max</sub>: 220 nm, 265 nm<sup>1</sup>
Extinction coefficient: E<sub>1% 1 cm</sub> = 3 (280 nm)<sup>1</sup>
E<sub>1%M</sub> = 54 (342 nm, water)
Fluorescent properties
Excitation wavelength: 342 nm
Emission wavelength: 418 nm
Synonym:  DIDS

This product binds covalently (irreversibly) to the outer surface of human erythrocyte membrane protein, functioning as an anion transport inhibitor. It also can be used to cross-link membrane anion transport sites.<sup>1</sup>
DIDS does not block an adenosine 3',5'-cyclic monophosphate (cAMP)-regulated chloride conductance in pancreatic duct cells.<sup>2</sup>

Extracellular ATP activates a P2-type purinergic receptor (purinoceptor) in rat parotid acinar cells which increases the intracellular free calcium ion concentration via transport through an ATP-sensitive cation channel.<sup>3</sup> This ATP-stimulated <sup>45</sup>Ca ion intake was blocked by DIDS, but not by a stilbene disulfonate compound lacking isothiocyanate groups. The IC₅₀ value (using DIDS) is approximately 35 μM.<sup>4</sup>

Reactive Blue 2, a noncovalent purinergic antagonist, blocks the covalent binding of DIDS to the plasma membrane in these rat cells, thus suggesting that the isothiocyanate compounds interact with the ATP binding site of the P2 purinoceptor and that the isothiocyanate groups are important in blocking the nucleotides to this purinoceptor.<sup>4</sup>

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

Preparation Instructions
This product is soluble in 0.1 M KHCO₃ (50 mg/ml) yielding a hazy, yellow-green solution. This may require heat for complete solubilization. DIDS is also soluble in DMSO.

Storage/Stability
Isothiocyanates are unstable in water and should not be stored in aqueous solutions.

References