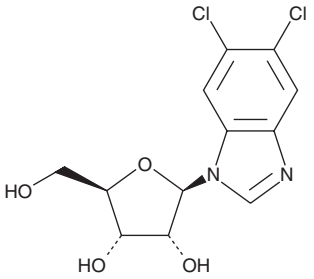
PRODUCT INFORMATION

DRB

Item No. 10010302

CAS Registry No.:	53-85-0
Formal Name:	5,6-dichloro-1-β-D-ribofuranosyl-1H-benzimidazole
Synonyms:	Benzimidazole, NSC 401575
MF:	$C_{12}H_{12}Cl_2N_2O_4$
FW:	319.1
Purity:	≥98%
UV/Vis.:	λ_{max}: 214 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

DRB is supplied as a crystalline solid. A stock solution may be made by dissolving the DRB in the solvent of choice, which should be purged with an inert gas. DRB is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of DRB in ethanol is approximately 0.5 mg/ml and approximately 10 mg/ml in DMSO and DMF.

DRB is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, DRB should first be dissolved in DMF and then diluted with the aqueous buffer of choice. DRB has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

DRB is a nucleoside analog that inhibits several carboxyl-terminal domain (CTD) kinases including casein kinase II (IC_{50} = 4-10 µM)[1], cyclin-dependent kinase 7 (Cdk7) (IC_{50} = ~20 µM)[2,3], Cdk8 (IC_{50} = ~20 µM)[3], and Cdk9 (IC_{50} = 3 µM).[4] Through inhibition of certain CTD kinases, DRB inhibits an elongation step during RNA polymerase II transcription[5,6], which can trigger p53-dependent apoptosis of human colon adenocarcinoma cells without inducing genotoxic stress to healthy cells.[7] DRB can also inhibit HIV transcription (IC_{50} = ~4 µM) by targeting elongation enhanced by the HIV-encoded transactivator Tat.[8]

References

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