



<b>Catalog Number:</b>	MC11099	<b>Product Type:</b>	Small Molecule
<b>Bio-Activity:</b>	Transcription inhibitor; CK2 inhibitor	<b>CAS #:</b>	53-85-0
<b>Research Categories:</b>	Cancer	<b>Chemical Name:</b>	5,6-Dichloro-1-β-D-ribofuranosylbenzimidazole
<b>Solubility:</b>	Soluble in DMSO (up to 20 mg/ml)	<b>Molecular Formula:</b>	C <sub>12</sub> H <sub>12</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>4</sub>
<b>Purity:</b>	> 98%	<b>Molecular Weight:</b>	319.14
<b>Format:</b>	Powder	<b>Ship Temp:</b>	Ambient
<b>Storage:</b>	Room Temperature		

### Application Notes

#### Description/Data:

A classic inhibitor of transcription by RNA polymerase II. A relatively selective inhibitor of Cdk9 (IC<sub>50</sub>=3 μM), the kinase of the positive transcription elongation factor b (P-TEF-b) required for processive transcription elongation by RNA polymerase II [1,2]. Also inhibits casein kinase II, IC<sub>50</sub>=4-10 μM [3]. Suppresses the SIRT1/CK2α pathway and enhances the radiosensitivity of human cancer cells [4]. Kinase-independent activities of Cdk9 such as glucocorticoid receptor modulation are not inhibited by DRB [5].

#### References:

- 1) Baumli et al. (2010), Halogen bonds form the basis for selective P-TEFb inhibition by DRB; Chem.Biol., 17 931
- 2) Yamaguchi et al. (1998), Interplay between positive and negative elongation factors: drawing a new view of DRB; Genes Cells, 3 9
- 3) Zandomeni (1989), Kinetics of inhibition by 5,6-dichloro-1-beta-D-ribofuranosylbenzimidazole; Biochem.J., 262 469
- 4) Wang et al. (2014), Inhibition of P-TEFb by DRB suppresses SIRT1/CK2α pathway and enhances radiosensitivity of human cancer cells; Anticancer Res., 34 6981
- 5) Zhu et al. (2014), A kinase-independent activity of Cdk9 modulates glucocorticoid receptor-mediated gene induction; Biochemistry, 53 1753

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