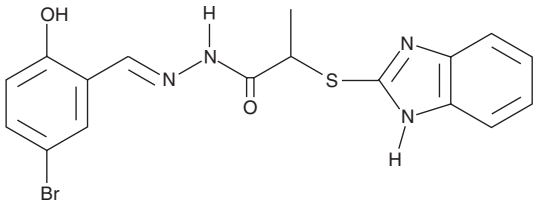
PRODUCT INFORMATION

KH7

Item No. 13243

CAS Registry No.:	330676-02-3
Formal Name:	2-(1H-benzimidazol-2-ylthio)-2-[(5-bromo-2-hydroxyphenyl)methylene] hydrazide, propanoic acid
MF:	$C_{17}H_{15}BrN_4O_2S$
FW:	419.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 284, 337 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

KH7 is supplied as a crystalline solid. A stock solution may be made by dissolving the KH7 in the solvent of choice, which should be purged with an inert gas. KH7 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of KH7 in these solvents is approximately 0.5, 25, and 30 mg/ml, respectively.

Description

Soluble adenylyl cyclase mediates bicarbonate-stimulated production of the ubiquitous second messenger adenosine 3',5'-cyclic mononucleotide (cAMP).[1] It is abundantly expressed in sperm, in fluid transporting tissues such as kidney cortex and medulla, and in other bicarbonate-responsive tissues and cells. KH7 is a selective inhibitor of soluble adenylyl cyclase (sAC) that has little effect on transmembrane adenylyl cyclases.[2] It displays an IC_{50} value between 3-10 µM toward sAC.[2] At 50 µM, KH7 decreases basal cAMP accumulation in sperm.[2] KH7 has been used in diverse research applications including cAMP-mediated signaling events required for mammalian egg fertilization, sAC regulation of Na^+ transport in the kidney, and mitochondrial-dependent apoptosis in response to various stress stimuli.[2-4] KH7 is not active against sAC in the presence of detergents. At concentrations above 50 µM, KH7 exhibits non-specific membrane disruption effects when used on cells.

References

1. Wuttke, M.S., Buck, J., and Levin, L.R. Bicarbonate-regulated soluble adenylyl cyclase. *JOP* **2(4 Suppl)**, 154-158 (2001).
2. Hess, K.C., Jones, B.H., Marquez, B., *et al.* The "soluble" adenylyl cyclase in sperm mediates multiple signaling events required for fertilization. *Dev. Cell* **9(2)**, 249-259 (2005).
3. Hallows, K.R., Wang, H., Edinger, R.S., *et al.* Regulation of epithelial Na^+ transport by soluble adenylyl cyclase in kidney collecting duct cells. *J. Biol. Chem.* **284(9)**, 5774-5783 (2009).
4. Kumar, S., Kostin, S., Flacke, J.P., *et al.* Soluble adenylyl cyclase controls mitochondria-dependent apoptosis in coronary endothelial cells. *J. Biol. Chem.* **284(22)**, 14760-14768 (2009).

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