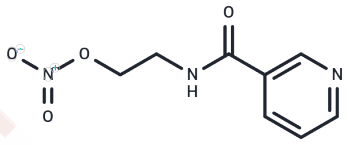
# Data Sheet (Cat.No.T0075)

TargetMol

## Nicorandil

### Chemical Properties



CAS No. : 65141-46-0

Formula: C8H9N3O4

Molecular Weight: 211.17

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

### Biological Description

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| Description | Nicorandil (SG-75)(Ikorel) acts by relaxing the smooth muscle of the blood vessels, especially those of the venous system. It undertakes this through two methods. Firstly, by activating potassium channels, and secondly by donating nitric oxide to activate the enzyme guanylate cyclase. Guanylate cyclase causes activation of cGMP leading to both arterial and venous vasodilatation by de-phosphorylation of the myosin light chain. |
| Targets(IC50) | Potassium Channel |
| In vitro | Nicorandil (100 mM) increases Flavoprotein oxidation but not membrane current; a 10-fold higher concentration recruits both mitoK(ATP) and surfaceK(ATP) channels. Nicorandil bluntes the rate of cell death in a pelleting model of ischemia; this cardioprotective effect is prevented by the mitoK(ATP) channel blocker 5-hydroxydecanoate but is unaffected by the surfaceK(ATP) channel blocker HMR1098. [1] Nicorandil (100 mM) suppresses TUNEL positivity, cytochrome c translocation, caspase-3 activation and dissipation of mitochondrialinner membrane potential (Delta(Psi)(m)). Nicorandil prevents Delta(Psi)(m) depolarization in a concentration-dependent manner (EC(50) approximately 40 mM, with saturation by 100 mM), as shown by fluorescence-activated cell sorter analysis of cells stained with a fluorescent Delta(Psi)(m)-indicator, tetramethylrhodamine ethyl ester (TMRE). [2] Nicorandil activates a weakly inwardly-rectifying, glibenclamide-sensitive 80 pS K+ channel in both the transfected cells. Nicorandil preferentially activates the K(ATP) channels containing SUR2B in HEK293T cells. [3] Nicorandil (100 mM) significantly suppresses the number of cells with TUNEL-positive nuclei and the increase in caspase-3 activity induced by 20 mM Water2. Nicorandil prevents the loss of DeltaPsim induced by Water2 in a concentration-dependent manner. [4] |

### Solubility Information

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| Solubility | H2O: 80.5 mM,Sonication is recommended.<br>DMSO: 83.33 mg/mL (394.61 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |
| In vivo Formulation | 10% DMSO+90% Saline: 8.33 mg/mL (39.45 mM),Solution.<br>10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (9.47 mM),Sonication is recommended.<br>*Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one.* |

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| In vivo Formulation | *Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.* |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 4.7355 mL | 23.6776 mL | 47.3552 mL |
| 5 mM | 0.9471 mL | 4.7355 mL | 9.471 mL |
| 10 mM | 0.4736 mL | 2.3678 mL | 4.7355 mL |
| 50 mM | 0.0947 mL | 0.4736 mL | 0.9471 mL |

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Sato T, et al. J Am Coll Cardiol, 2000, 35(2), 514-518.
Akao M, et al. J Am Coll Cardiol, 2002, 40(4), 803-810.
Szczepanik AM, et al. J Pharmacol Exp Ther, 1996, 278(2), 913-920.
Teshima Y, et al. Brain Res, 2003, 1990(1-2), 45-50.
Sathish V, et al. Mol Cell Biochem, 2003, 243(1-2), 133-138.