TOCRIS
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Print Date: Feb 18th 2019

Certificate of Analysis

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Product Name: **NS 8593 hydrochloride** **Catalog No.: 4597** **Batch No.: 1**

CAS Number: 875755-24-1

IUPAC Name: *N*-[(1*R*)-1,2,3,4-Tetrahydro-1-naphthalenyl]-1*H*-benzimidazol-2-amine hydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{17}H_{17}N_3.HCl$

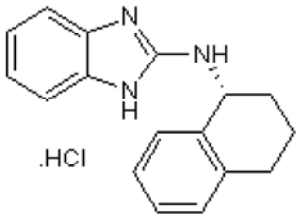
Batch Molecular Weight: 299.8

Physical Appearance: White solid

Solubility: DMSO to 100 mM
ethanol to 20 mM

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.7% purity

Chiral HPLC: Shows 99.8% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Optical Rotation: $[\alpha]_D$ = +55.3 (Concentration = 1, Solvent = Methanol)

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	68.11	6.05	14.02
Found	68.1	6.03	14.08

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Description:

Selective $K_{Ca}2$ (SK) channel negative modulator; inhibits SK channel currents (K_d values are 0.42, 0.6 and 0.73 µM for SK1, SK2 and SK3 respectively at 0.5 µM Ca^{2+}). Exhibits selectivity for SK channels over $K_{Ca}1.1$ (BK), $K_{Ca}3.1$ (IK), K_v, Na_v and Ca_v channels. Inhibits afterhyperpolarization in hippocampal slices.

Physical and Chemical Properties:

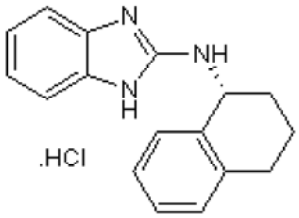
Batch Molecular Formula: $C_{17}H_{17}N_3.HCl$

Batch Molecular Weight: 299.8

Physical Appearance: White solid

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Store at +4°C

Solubility & Usage Info:

DMSO to 100 mM
ethanol to 20 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Jenkins *et al* (2011) Negative gating modulation by (*R*)-*N*-(benzimidazol-2-yl)-1,2,3,4-tetrahydro-1-naphthylamine (NS8593) depends on residues in the inner pore vestibule: pharmacological evidence of deep-pore gating of $K_{Ca}2$ channels. Mol.Pharmacol. ***79*** 899. PMID: 21363929.

Sørensen (2008) Synthesis and structure-activity relationship studies of 2-(*N*-substituted)-aminobenzimidazoles as potent negative gating modulators of small conductance Ca^{2+}-activated K^+ channels. J.Med.Chem. ***51*** 7625. PMID: 18998663.

Strøbaek *et al* (2006) Inhibitory gating modulation of small conductance Ca^{2+}-activated K^+ channels by the synthetic compound (*R*)-*N*-(benzimidazol-2-yl)-1,2,3,4-tetrahydro-1-naphtylamine (NS8593) reduces afterhyperpolarizing current in hippocampal CA1 neurons. Mol.Pharmacol. ***70*** 1771. PMID: 16926279.