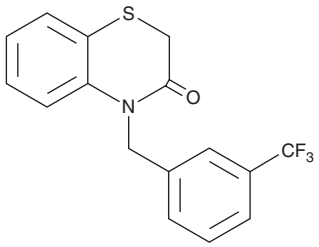
PRODUCT INFORMATION

NS 6180

Item No. 14664

CAS Registry No.:	353262-04-1
Formal Name:	4-[[3-(trifluoromethyl)phenyl]methyl]-2H-1,4-benzothiazin-3(4H)-one
MF:	$C_{16}H_{12}F_3NOS$
FW:	323.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 214, 239 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

NS 6180 is supplied as a crystalline solid. A stock solution may be made by dissolving the NS 6180 in the solvent of choice. NS 6180 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of NS 6180 in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

NS 6180 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, NS 6180 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. NS 6180 has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

NS 6180 is an inhibitor of the intermediate-conductance calcium-activated potassium channel 3.1 (IKCa1/K_{Ca}3.1; IC_{50} = 9.4 nM in HEK293 cells expressing the human channel).[1] It inhibits hyperpolarization of human, mouse, and rat erythrocytes induced by the calcium ionophore A23187 (Item No. 11016) (IC_{50}s = 14, 15, and 9 nM, respectively). NS 6180 is selective for IKCa1/K_{Ca}3.1 over voltage-gated sodium (Na_v) and most voltage-gated potassium channels (K_v) but does inhibit K_{Ca}1.1, K_v1.3, and K_v11.1 channels by greater than 50% at 10 µM. It is selective for potassium channels over G protein-coupled receptors and ion channels, inhibiting only the norepinephrine and dopamine transporters, L-type calcium channel, and melatonin receptor MT_1 by greater than 50% in a panel of 69 receptors and channels. NS 6180 inhibits T-lymphocyte activation and the release of the Th1 cytokines IL-2 and IFN-γ *in vitro* (IC_{50} = ~50 nM). It also increases proliferation of natural killer (NK) cells and selectively increases cytotoxicity of adherent, but not non-adherent, NK cells.[2] In a rat model of inflammatory bowel disease (IBD) induced by DNBS, NS 6180 (3 and 10 mg/kg per day) decreases colon inflammation and improves weight gain.[1]

References

1. Strøbæk, D., Brown, D.T., Jenkins, D.P., *et al.* NS6180, a new KCa 3.1 channel inhibitor prevents T-cell activation and inflammation in a rat model of inflammatory bowel disease. *Br. J. Pharmacol.* **168(2)**, 432-444 (2013).
2. Koshy, S., Wu, D., Hu, X., *et al.* Blocking K_{Ca}3.1 channels increases tumor cell killing by a subpopulation of human natural killer lymphocytes. *PLoS One* **8(10)**, e76740 (2013).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM