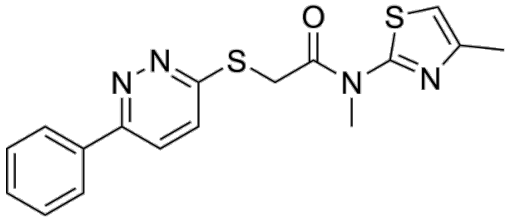
# Product Data Sheet

Product Name: ML077
Cat. No.: GC79492

## Chemical Properties

| | | | |
|---|---|---|---|
| Cas. No. | 1135304-61-8 | | |
| Formula | $C_{17}H_{16}N_4OS_2$ | M.Wt | 356.47 |
| Solubility | | Storage | Store at -20°C |
| General tips | For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months. | | |
| Shipping Condition | Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request. | | |
| Structure | | | |




## Background

ML007 is a selective antagonist targeting the neuron-specific potassium-chloride co-transporter 2 ( KCC2 ) with an $IC_{50}$ for KCC2 is 537 nM, while its inhibitory activity on KCC1 is extremely weak ( $IC_{50}$ > 50 μM). ML077 inhibits the chloride ion excretion function of KCC2, increasing the intracellular chloride ion concentration, thereby enhancing the depolarization mediated by chloride ion channels. ML007 can promote glucose-stimulated insulin secretion (GSIS) without relying on KATP channels. ML007 can be used to study the functions related to pain, epilepsy, and insulin secretion [1] [2].

References:

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[1]. Delpire E, et al. Further optimization of the K-Cl cotransporter KCC2 antagonist ML077: development of a highly selective and more potent in vitro probe. Bioorg Med Chem Lett. 2012 Jul 15;22(14):4532-5.
[2]. Kursan S, McMillen TS, Beesetty P, Dias-Junior E, Almutairi MM, Sajib AA, Kozak JA, Aguilar-Bryan L, Di Fulvio M. The neuronal K+Cl- co-transporter 2 (Slc12a5) modulates insulin secretion. Sci Rep. 2017 May 11;7(1):1732. doi: 10.1038/s41598-017-01814-0. PMID: 28496181; PMCID: PMC5431760.