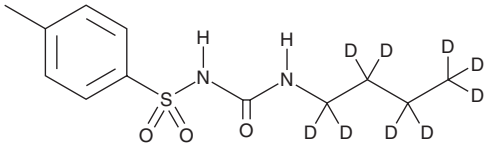
# PRODUCT INFORMATION

## Tolbutamide-$d_9$

*Item No. 30738*

**CAS Registry No.:** 1219794-57-6
**Formal Name:** N-[(butyl-1,1,2,2,3,3,4,4,4-$d_9$-amino)carbonyl]-4-methyl-benzenesulfonamide
**Synonyms:** D 860-$d_9$, U-2043-$d_9$
**MF:** $C_{12}H_9D_9N_2O_3S$
**FW:** 279.4
**Chemical Purity:** ≥98% (Tolbutamide)
**Deuterium Incorporation:** ≥99% deuterated forms ($d_1$-$d_9$); ≤1% $d_0$
**Supplied as:** A 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

Tolbutamide-$d_9$ is intended for use as an internal standard for the quantification of tolbutamide (Item No. 19888) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Tolbutamide-$d_9$ is supplied as a solid. A stock solution may be made by dissolving the tolbutamide-$d_9$ in the solvent of choice, which should be purged with an inert gas. Tolbutamide-$d_9$ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of tolbutamide-$d_9$ in these solvents is approximately 30 mg/ml.

## Description

Tolbutamide is an inhibitor of sulfonylurea receptor 1 (SUR1) linked to ATP-sensitive potassium channel $K_{ir}6.2$ ($IC_{50}$ = 4.9 µM).[1] It is selective for SUR1/$K_{ir}6.2$ over SUR2A/$K_{ir}6.2$ and SUR2B/$K_{ir}6.2$ channels ($IC_{50}$s = 85 and 88 µM, respectively). Tolbutamide increases glucose-induced insulin secretion and calcium influx in isolated mouse pancreatic islets.[2] *In vivo*, tolbutamide (80 mg/kg) reduces blood glucose levels in a mouse model of diabetes induced by streptozotocin (STZ; Item No. 13104).[3] Formulations containing tolbutamide have been used in the treatment of type 2 diabetes.

## References


1. Proks, P., Reimann, F., Green, N., *et al.* Sulfonylurea stimulation of insulin secretion. *Diabetes* **51(3)**, S368-S376 (2002).
2. Ishiyama, N., Ravier, M.A., and Henquin, J.-C. Dual mechanism of the potentiation by glucose of insulin secretion induced by arginine and tolbutamide in mouse islets. *Am. J. Physiol. Endocrinol. Metab.* **290(3)**, E540-E549 (2006).
3. Rerup, C. and Tarding, F. Streptozotocin- and alloxan-diabetes in mice. *Eur. J. Pharmacol.* **7(1)**, 89-96 (1969).





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