

Product Information

Tolbutamide

Product Number **T 0891**

Store at Room Temperature

Product Description

Molecular Formula: C₁₂H₁₈N₂O₃S

Molecular Weight: 270.4

CAS Number: 64-77-7

Melting Point: 128.5-129.5 °C¹

pK_a: 5.3²

Synonyms: 1-butyl-3-(4-methylbenzenesulfonyl)urea,
3-(*p*-tolyl-4-sulfonyl)-1-butylurea,
N-[(butylamino)carbonyl]-4-
methylbenzenesulfonamide¹

Tolbutamide is a sulfonylurea compound that is a hypoglycemic agent. It was historically developed as part of the sulfanilamide family of compounds and has been utilized in diabetes research.^{1,3,4} A review of insulin desensitization in β -cells and a discussion of the role of tolbutamide in this process has been published.⁵

Various agents, including tolbutamide, have been used in a cDNA microarray assay to probe changes in gene expression in HepG2 cells upon their administration.⁶ It has been utilized to counteract insulin activity in a patch-clamp investigation of ATP-sensitive K⁺ channels in mouse pancreatic β -cells.⁷ The activity of various biotransformation enzymes in cultured primary rat proximal tubular cells in the presence of tolbutamide and other compounds has been studied.⁸

A protocol for capture of low levels of tolbutamide from an analytical HPLC column for subsequent MS analysis has been described.⁹ A method for LC/MS analysis of tolbutamide in serum has been reported.¹⁰

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in ethanol (50 mg/ml), with heat as needed. It has been reported to be soluble in acetone, chloroform, and dilute alkali hydroxide solutions.³

References

1. The Merck Index, 12th ed., Entry# 9646.
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3. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, England: 1996), pp. 360-361.
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5. Rustenbeck, I., Desensitization of insulin secretion. *Biochem. Pharmacol.*, **63(11)**, 1921-1935 (2002).
6. Morgan, K. T., et al., Application of cDNA microarray technology to *in vitro* toxicology and the selection of genes for a real-time RT-PCR-based screen for oxidative stress in Hep-G2 cells. *Toxicol. Pathol.*, **30(4)**, 435-451 (2002).
7. Khan, F. A., et al., Insulin activates ATP-sensitive K⁺ channels in pancreatic β -cells through a phosphatidylinositol 3-kinase-dependent pathway. *Diabetes*, **50(10)**, 2192-2198 (2001)
8. Schaaf, G. J., et al., Characterization of biotransformation enzyme activities in primary rat proximal tubular cells. *Chem. Biol. Interact.*, **134(2)**, 167-190 (2001).
9. Allen, J. R., et al., Isolation of the components of a complex mixture by means of column switching for their enhanced detection by mass spectrometry. *J. Chromatogr. A*, **913(1-2)**, 209-219 (2001).
10. Magni, F., et al., Identification of sulfonylureas in serum by electrospray mass spectrometry. *Anal. Biochem.*, **282(1)**, 136-141 (2000).

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