

**Product Name:** Mirabegron

**Catalog No.:** 7070

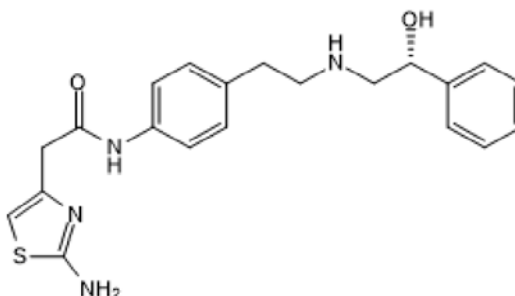
**Batch No.:** 1

CAS Number: 223673-61-8

IUPAC Name: 2-Amino-N-[4-[2-[[*(2R)*-2-hydroxy-2-phenylethyl]amino]ethyl]phenyl]-4-thiazoleacetamide

**1. PHYSICAL AND CHEMICAL PROPERTIES**

**Batch Molecular Formula:** C<sub>21</sub>H<sub>24</sub>N<sub>4</sub>O<sub>2</sub>S  
**Batch Molecular Weight:** 396.51  
**Physical Appearance:** Off-white solid  
**Solubility:** DMSO to 100 mM  
ethanol to 20 mM  
**Storage:** Store at -20°C  
**Batch Molecular Structure:**



**2. ANALYTICAL DATA**

**HPLC:** Shows 99.6% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure  
**Optical Rotation:** [α]<sub>D</sub> = -22 (Concentration = 0.5, Solvent = Methanol)

**Microanalysis:**

	Carbon	Hydrogen	Nitrogen
Theoretical	63.61	6.1	14.13
Found	63.44	6.11	14.17

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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**Description:**

Potent and selective  $\beta_3$ -adrenoceptor agonist ( $EC_{50}$  = 22.4 nM). Displays >440-fold selectivity for  $\beta_3$  over  $\beta_1$  and  $\beta_2$  adrenoceptors. Increases cAMP concentration in CHO cells expressing human  $\beta_3$ -adrenoceptor. Displays relaxant effect in ex vivo rat bladder muscle preparation precontracted with carbachol (Cat. No. 2810). Decreases frequency of bladder contraction in rats. Also promotes browning of white adipose tissue, reduces body weight, and improves glucose tolerance and insulin sensitivity in mice fed a high fat diet. Please see product datasheet on www.tocris.com for full description.

**Physical and Chemical Properties:**

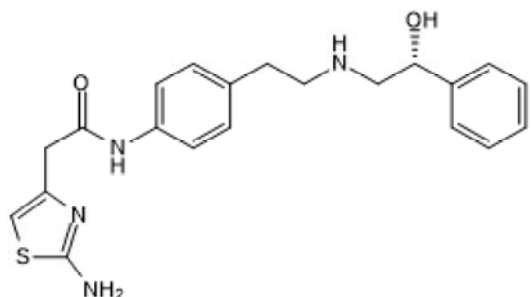
Batch Molecular Formula: C<sub>21</sub>H<sub>24</sub>N<sub>4</sub>O<sub>2</sub>S

Batch Molecular Weight: 396.51

Physical Appearance: Off-white solid

**Minimum Purity:** >98%

**Batch Molecular Structure:**



**Storage:** Store at -20°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:**

**Hao et al** (2019) Beneficial metabolic effects of mirabegron *in vitro* and in high-fat diet-induced obese mice. *J.Pharmacol.Exp.Ther.* **369** 419. PMID: 30940691.

**Sui et al** (2019) Bladder drug mirabegron exacerbates atherosclerosis through activation of brown fat-mediated lipolysis. *Proc.Natl.Acad.Sci.U.S.A.* **116** 10937. PMID: 31085638.

**Takasu et al** (2007) Effect of (R)-2-(2-aminothiazol-4-yl)-4'-[2-[(2-hydroxy-2-phenylethyl)amino]ethyl] acetanilide (YM178), a novel selective  $\beta_3$ -adrenoceptor agonist, on bladder function. *J.Pharmacol.Exp.Ther.* **321** 642. PMID: 17293563.

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