Certificate of Analysis

Product Name: **TAK 375** **Catalog No.: 6777** **Batch No.: 1**

CAS Number: 196597-26-9

IUPAC Name: *N*-[2-[(8*S*)-1,6,7,8-Tetrahydro-2*H*-indeno[5,4-*b*]furan-8-yl]ethyl]propanamide

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{16}H_{21}NO_2$

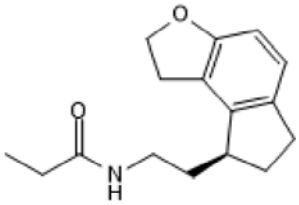
Batch Molecular Weight: 259.34

Physical Appearance: White solid

Solubility: DMSO to 100 mM
ethanol to 100 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.8% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Optical Rotation: $[\alpha]_D$ = -56.6 (Concentration = 1, Solvent = Chloroform)

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	74.1	8.16	5.4
Found	73.87	8.23	5.58

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Product Information

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Description:

Very high affinity and selective melatonin agonist (K_i values are 14 and 112 pM for human MT_1 and MT_2, respectively). Selective for human MT_1 and MT_2 over hamster MT_3 and a range of other targets including benzodiazepine, opiate and dopamine receptors, ion channels and transporters. Accelerates return to normal circadian rhythm in rats after phase shift, without affecting learning and memory. Also reduces infarct size in rat heart in vitro post ischemia-reperfusion.

Physical and Chemical Properties:

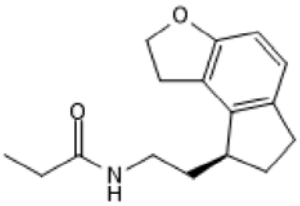
Batch Molecular Formula: $C_{16}H_{21}NO_2$

Batch Molecular Weight: 259.34

Physical Appearance: White solid

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Store at -20°C

Solubility & Usage Info:

DMSO to 100 mM
ethanol to 100 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:

Stroethoff *et al* (2018) Melatonin receptor agonist ramelteon reduces ischemia-reperfusion injury through activation of mitochondrial potassium channels. J.Cardiovasc.Pharmacol. ***72*** 106. PMID: 29787401.

Hirai *et al* (2005) Ramelteon (TAK-375) accelerates reentrainment of circadian rhythm after a phase advance of the light-dark cycle in rats J.Biol.Rhythms. ***20*** 27. PMID: 15654068.

Kato *et al* (2005) Neurochemical properties of ramelteon (TAK-375), a selective MT1/MT2 receptor agonist. Neuropharmacology. ***48*** 301. PMID: 15695169.