# **Product data sheet**



MedKoo Cat#: 562723				
Name: MS438				
CAS: 512840-45-8				
Chemical Formula: $C_{20}H_{17}F_3N_2O_3$				
Exact Mass: 390.1191				
Molecular Weight: 390.3622				
Product supplied as:	Powder			
Purity (by HPLC):	$\geq 98\%$			
Shipping conditions	Ambient temperature			
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.			
-	In solvent: -80°C 3 months; -20°C 2 weeks.			



#### 1. Product description:

MS438 is a potent agonist of the TSH receptor (TSHR).

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

#### 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
TBD	TBD	TBD

#### 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.56 mL	12.81 mL	25.62 mL
5 mM	0.51 mL	2.56 mL	5.12 mL
10 mM	0.26 mL	1.28 mL	2.56 mL
50 mM	0.05 mL	0.26 mL	0.51 mL

#### 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

# 6. Recommended literature which reported protocols for in vitro and in vivo study

## In vitro study

Latif R, Ali MR, Ma R, David M, Morshed SA, Ohlmeyer M, Felsenfeld DP, Lau Z, Mezei M, Davies TF. New small molecule agonists to the thyrotropin receptor. Thyroid. 2015 Jan;25(1):51-62. doi: 10.1089/thy.2014.0119. PMID: 25333622; PMCID: PMC4291085.

In vivo study

TBD

#### 7. Bioactivity

**Biological target:** 

MS438 is a potent agonist of the TSH receptor (TSHR).

In vitro activity

Molecule MS437 had a TSHR-stimulating potency with an EC50 of  $13 \times 10(-8)$  M, and molecule MS438 had an EC50 of  $5.3 \times 10(-8)$  M. The ability of these small molecule agonists to bind to the transmembrane domain of the receptor and initiate signal transduction was suggested by their activation of a chimeric receptor consisting of an LHR ectodomain and a TSHR transmembrane. Molecular modeling demonstrated that these molecules bound to residues S505 and E506 for MS438 and T501 for MS437 in the intrahelical region of transmembrane helix 3.

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Reference: Thyroid. 2015 Jan;25(1):51-62. https://pubmed.ncbi.nlm.nih.gov/25333622/

In vivo activity

TBD

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.