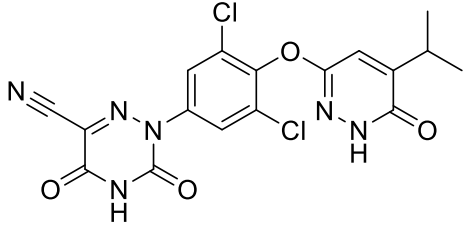


# Product data sheet



MedKoo Cat#: 522371 Name: Resmetirom CAS#: 920509-32-6 Chemical Formula: C <sub>17</sub> H <sub>12</sub> Cl <sub>2</sub> N <sub>6</sub> O <sub>4</sub> Exact Mass: 434.02971 Molecular Weight: 435.22	
Product supplied as:	Powder
Purity (by HPLC):	≥ 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:

Resmetirom, also known as MGL-3196, is a potent and highly selective thyroid hormone receptor  $\beta$  agonist in clinical trials for the treatment of dyslipidemia. The beneficial effects of thyroid hormone (TH) on lipid levels are primarily due to its action at the thyroid hormone receptor  $\beta$  (THR- $\beta$ ) in the liver, while adverse effects, including cardiac effects, are mediated by thyroid hormone receptor  $\alpha$  (THR- $\alpha$ ).

## 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
DMSO	125	287.21

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.30 mL	11.49 mL	22.98 mL
5 mM	0.46 mL	2.30 mL	4.60 mL
10 mM	0.23 mL	1.15 mL	2.30 mL
50 mM	0.05 mL	0.23 mL	0.46 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

- Hönes GS, Sivakumar RG, Hoppe C, König J, Führer D, Moeller LC. Cell-Specific Transport and Thyroid Hormone Receptor Isoform Selectivity Account for Hepatocyte-Targeted Thyromimetic Action of MGL-3196. *Int J Mol Sci.* 2022 Nov 8;23(22):13714. doi: 10.3390/ijms232213714. PMID: 36430194; PMCID: PMC9691000.

### In vivo study

- Kannt A, Wohlfart P, Madsen AN, Veidal SS, Feigh M, Schmoll D. Activation of thyroid hormone receptor- $\beta$  improved disease activity and metabolism independent of body weight in a mouse model of non-alcoholic steatohepatitis and fibrosis. *Br J Pharmacol.* 2021 Jun;178(12):2412-2423. doi: 10.1111/bph.15427. Epub 2021 Apr 6. PMID: 33655500.
- Wang X, Wang L, Geng L, Tanaka N, Ye B. Resmetirom Ameliorates NASH-Model Mice by Suppressing STAT3 and NF- $\kappa$ B Signaling Pathways in an RGS5-Dependent Manner. *Int J Mol Sci.* 2023 Mar 19;24(6):5843. doi: 10.3390/ijms24065843. PMID: 36982915; PMCID: PMC10058113.

## 7. Bioactivity

### Biological target:

Resmetirom is a highly selective thyroid hormone receptor  $\beta$  (THR- $\beta$ ) agonist with an EC<sub>50</sub> value of 0.21  $\mu$ M.

# Product data sheet



## In vitro activity

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MGL-3196 had a high efficacy (90% that of T3) in activating TR $\beta$ , while the activation of TR $\alpha$  was only 25%. The results from this study indicate that MGL-3196's hepatic thyromimetic action results from a combination of hepatocyte-specific transport by OATP1B1 and the selective activation of TR $\beta$  over TR $\alpha$ .

Reference: Int J Mol Sci. 2022 Nov 8;23(22):13714. <https://pubmed.ncbi.nlm.nih.gov/36430194/>

## In vivo activity

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Non-alcoholic steatohepatitis with fibrosis treatment with resmetirom did not influence mouse body weight. However, resmetirom treatment did lead to significant reduction in liver weight, hepatic steatosis, plasma alanine aminotransferase activity, liver and plasma cholesterol, and blood glucose. These metabolic effects translated into significant improvement in non-alcoholic fatty liver disease activity score.

Reference: Br J Pharmacol. 2021 Jun;178(12):2412-2423. <https://pubmed.ncbi.nlm.nih.gov/33655500/>

*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.*