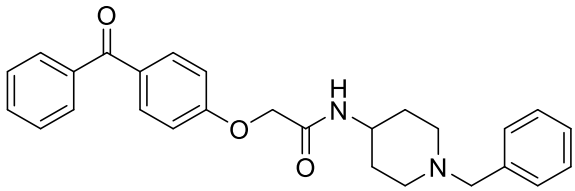
Product data sheet

MedKoo Cat#: 317130 Name: AdipoRon CAS#: 924416-43-3 Chemical Formula: $C_{27}H_{28}N_2O_3$ Exact Mass: 428.20999 Molecular Weight: 428.52	
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:
AdipoRon is a potent and selective adiponectin receptor agonist. AdipoRon attenuates postischemic myocardial apoptosis through both AMPK-mediated and AMPK-independent signalings. AdipoRon showed very similar effects to adiponectin in muscle and liver, such as activation of AMPK and PPAR-α pathways, and ameliorated insulin resistance and glucose intolerance in mice fed a high-fat diet. AdipoRon ameliorated diabetes of genetically obese rodent model db/db mice, and prolonged the shortened lifespan of db/db mice on a high-fat diet. AdipoRon may be a promising therapeutic approach for the treatment of obesity-related disease.

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	50.0	116.68
Ethanol	40.0	93.34

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.33 mL	11.67 mL	23.34 mL
5 mM	0.47 mL	2.33 mL	4.67 mL
10 mM	0.23 mL	1.17 mL	2.33 mL
50 mM	0.05 mL	0.23 mL	0.47 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

1. Zhang YZ, Zhang YL, Huang Q, Huang C, Jiang ZL, Cai F, Shen JF. AdipoRon Alleviates Free Fatty Acid-Induced Myocardial Cell Injury Via Suppressing Nlrp3 Inflammasome Activation. Diabetes Metab Syndr Obes. 2019 Oct 23;12:2165-2179. doi: 10.2147/DMSO.S221841. PMID: 31749627; PMCID: PMC6817839.
2. Xiong S, Han Y, Gao P, Zhao H, Jiang N, Sun L. AdipoRon Protects against Tubular Injury in Diabetic Nephropathy by Inhibiting Endoplasmic Reticulum Stress. Oxid Med Cell Longev. 2020 Aug 6;2020:6104375. doi: 10.1155/2020/6104375. PMID: 32832003; PMCID: PMC7428946.

In vivo study

1. Choi SK, Kwon Y, Byeon S, Haam CE, Lee YH. AdipoRon, adiponectin receptor agonist, improves vascular function in the mesenteric arteries of type 2 diabetic mice. PLoS One. 2020 Mar 17;15(3):e0230227. doi: 10.1371/journal.pone.0230227. PMID: 32182257; PMCID: PMC7077821.

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2. Xiong S, Han Y, Gao P, Zhao H, Jiang N, Sun L. AdipoRon Protects against Tubular Injury in Diabetic Nephropathy by Inhibiting Endoplasmic Reticulum Stress. Oxid Med Cell Longev. 2020 Aug 6;2020:6104375. doi: 10.1155/2020/6104375. PMID: 32832003; PMCID: PMC7428946.

7. Bioactivity

Biological target:

AdipoRon is an adiponectin receptor (AdipoR) agonist, binding to AdipoR1 and AdipoR2 with Kds of 1.8 and 3.1 μM, respectively.

In vitro activity

The effect of AdipoRon on PA-induced cell viability was analyzed with the MTT assay and measured lactic acid dehydrogenase activity (LDH) by LDH assay. The results demonstrated that AdipoRon increased the cell viability and decreased the release of LDH from PA-induced cell death (Figure 1C and D). Finally, cell morphology was examined using a phase-contrast microscope with treatment of PA in the absence or presence of AdipoRon (Figure 1E). To test the effect of AdipoRon on the PA-induced cell apoptosis in H9c2 cells, the detection by flow cytometry was used. As shown in Figure 2A and B, PA treatment increased cell apoptosis (shown by third quadrant, Q4), while AdipoRon treatment decreased PA-induced cell apoptosis. It was also detected the that p-akt/akt protein expression, and similar results were found in Supplementary Figure 1. The data indicated AdipoRon alleviated PA-induced cell injury.

Reference: Diabetes Metab Syndr Obes. 2019; 12: 2165–2179. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6817839/

In vivo activity

AdipoRon is a newly developed adiponectin receptor agonist that provides beneficial effects for diabetic mice; however, its underlying mechanism remains to be delineated. Here, increased expression levels of ER stress markers is demonstrated, accompanied by upregulated levels of proinflammatory cytokines and increased expression of collagen I, fibronectin, Bax, and cleaved caspase 3 in the kidneys of db/db mice compared with control mice. Immunofluorescence staining revealed markedly lower adiponectin receptor 1 (AdipoR1) expression in the kidneys of db/db mice compared with those of db/m controls, while the change was reversed by AdipoRon treatment (Figures 3(a) and 3(b)). Moreover, consistent with the decrease of AdipoR1, phosphor-Thr172 AMPK, a principle downstream signal in the AdipoR1 pathway, was notably decreased in db/db mice but partially restored following AdipoRon treatment (Figures 3(d) and 3(e)). To evaluate the effect of AdipoRon on ER stress, the expression of ER stress markers, including GRP78 and CHOP, was examined. As shown in Figures 3(a)–3(c), the expression levels of GRP78 and CHOP were increased in the kidneys of db/db mice but decreased after AdipoRon treatment. These findings were further confirmed by immunoblot analyses (Figures 3(f) and 3(g)). As detected by western blot analysis, the level of phosphorylated PERK was elevated in the kidneys of db/db mice compared with those of db/m mice, whereas this change was reversed by AdipoRon treatment (Figures 3(f) and 3(g)). Taken together, these results suggested that ER stress was induced in the kidneys of db/db mice and could be inhibited by treatment with AdipoRon.

Reference: Oxid Med Cell Longev. 2020; 2020: 6104375. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7428946/

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.