# Product data sheet

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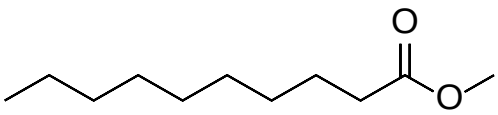
|---|---|
| MedKoo Cat#: 581924<br>Name: Methyl decanoate<br>CAS: 110-42-9<br>Chemical Formula: $C_{11}H_{22}O_2$<br>Exact Mass: 186.162<br>Molecular Weight: 186.295 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**
Methyl decanoate is an unsaturated biodiesel fuel surrogate. It can also be used as flavor and fragrance ingredients.

**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 |
|---|---|---|
| DMF | 25.0 | 134.20 |
| DMF:PBS (pH 7.2) (1:1) | 0.25 | 1.34 |
| DMSO | 10.0 | 53.68 |
| Ethanol | 25.0 | 134.20 |

**4. Stock solution preparation table:**

| **Concentration / Solvent Volume / Mass** | **1 mg** | **5 mg** | **10 mg** |
|---|---|---|---|
| 1 mM | 5.37 mL | 26.84 mL | 53.68 mL |
| 5 mM | 1.07 mL | 5.37 mL | 10.74 mL |
| 10 mM | 0.54 mL | 2.68 mL | 5.37 mL |
| 50 mM | 0.11 mL | 0.54 mL | 1.07 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. Warren EC, Kramár P, Lloyd-Jones K, Williams RSB. Decanoic Acid Stimulates Autophagy in D. discoideum. Cells. 2021 Oct 29;10(11):2946. doi: 10.3390/cells10112946. PMID: 34831171; PMCID: PMC8616062.
2. Andersen JV, Westi EW, Jakobsen E, Urruticoechea N, Borges K, Aldana BI. Astrocyte metabolism of the medium-chain fatty acids octanoic acid and decanoic acid promotes GABA synthesis in neurons via elevated glutamine supply. Mol Brain. 2021 Sep 3;14(1):132. doi: 10.1186/s13041-021-00842-2. PMID: 34479615; PMCID: PMC8414667.

In vivo study

1. Nakajima R, Uehara A, Takehana S, Akama Y, Shimazu Y, Takeda M. Decanoic acid attenuates the excitability of nociceptive trigeminal primary and secondary neurons associated with hypoalgesia. J Pain Res. 2018 Nov 14;11:2867-2876. doi: 10.2147/JPR.S181032. PMID: 30532581; PMCID: PMC6241697.
2. Noguchi Y, Matsuzawa N, Akama Y, Sekiguchi K, Takehana S, Shimazu Y, Takeda M. Dietary constituent, decanoic acid suppresses the excitability of nociceptive trigeminal neuronal activity associated with hypoalgesia via muscarinic M2 receptor signaling. Mol Pain. 2017 Jan-Dec;13:1744806917710779. doi: 10.1177/1744806917710779. PMID: 28474958; PMCID: PMC5448867.

# Product data sheet

**7. Bioactivity**

Biological target:

Methyl decanoate is an unsaturated biodiesel fuel surrogate.

In vitro activity

This study utilizes this model to analyze a role for MCFAs in regulating autophagy. This study shows that treatment with decanoic acid but not octanoic acid induces autophagosome formation and modulates autophagic flux in high glucose conditions. To investigate this effect, decanoic acid, but not octanoic acid, was found to induce the expression of autophagy-inducing proteins (Atg1 and Atg8), providing a mechanism for this effect.

Reference: Cells. 2021 Oct 29;10(11):2946. https://pubmed.ncbi.nlm.nih.gov/34831171/

In vivo activity

DA (decanoic acid) inhibited the mean firing frequency of both TG and SpVc NS neurons, reaching a maximum inhibition of discharge frequency within 1-5 minutes and reversing after approximately 10-minutes; however, this DA-induced suppression of SpVc NS neuronal firing frequency did not occur in rats administered with methoctramine intravenously prior to stimulation.

Reference: J Pain Res. 2018 Nov 14;11:2867-2876. https://pubmed.ncbi.nlm.nih.gov/30532581/

*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.*