## Product Datasheet

# 6PPD-Q

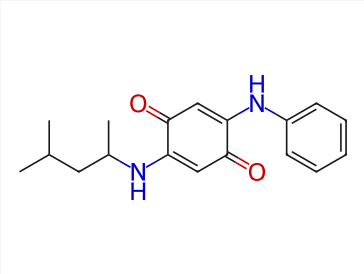
Catalog No. **BP-00286** · CAS **2754428-18-5** · Form **free base** · Physical state **solid** · Color **pink to red** · Version **1.0** · Revision **2026-11-13**

**FOR RESEARCH USE ONLY. NOT FOR HUMAN OR VETERINARY USE.**

| Target | Research area |
|---|---|
| **α-synuclein; Environmental Pollutants** | **Others** |

| | |
|---|---|
| Molecular formula | $C_{18}H_{22}N_2O_2$ |
| Molecular weight | **298.3795** |

**STRUCTURE**




## DESCRIPTION

6PPD-Q (6PPD-Quinone) is an environmental pollutant that can be detected in human urine and is widely present in the environment. 6PPD-Q targets and binds to CNR2, CNR1, AA2AR, LCAT, and TRPA1, with CNR2 exhibiting the highest binding affinity, potentially acting as a CNR2 receptor agonist to activate cannabinoid receptors. 6PPD-Q induces intestinal inflammation and barrier damage by disrupting mitochondrial function, reducing neuronal glycolysis metabolites and TCA cycle intermediates, and exacerbating α-synuclein (α-syn) aggregation. 6PPD-Q is applicable in research on environmental toxicology, neurodegenerative diseases, and inflammation-related disorders.

## BIOLOGICAL ACTIVITY

6PPD-Q (10 nM, 100 nM, 7 days) increases α-syn aggregation in primary dopaminergic neurons, enhances α-syn PFF-induced p-α-synSer129 expression, and promotes its accumulation in mitochondria[2].

6PPD-Q (10 nM, 100 nM, 7 days) reduces mitochondrial respiration in primary dopaminergic neurons, particularly under α-syn PFF (α-synuclein preformed fibrils) treatment conditions[2].

6PPD-Q (10 nM, 100 nM, 7 days) decreases glycolysis metabolites and alters TCA cycle intermediates in primary dopaminergic neurons, leading to a reduction in glycolysis metabolites (e.g., fructose-6-phosphate, pyruvate) and TCA cycle intermediates (e.g., citrate, α-ketoglutarate)[2].

6PPD-Q (10 nM, 100 nM, 48 hours) does not exhibit significant cytotoxicity in primary dopaminergic neurons

## SOLUBILITY

Soluble in DMSO

| | |
|---|---|
| **In vitro** | DMSO : 5 mg/mL |

## REFERENCES


[1]. Du B, et al. First report on the occurrence of N-(1, 3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD) and 6PPD-quinone as pervasive pollutants in human urine from south China. Environ Sci Technol Lett, 2022, 9(12): 1056-1062.

[2]. Fang J, et al. 6PPD-quinone exposure induces neuronal mitochondrial dysfunction to exacerbate Lewy neurites formation induced by α-synuclein preformed fibrils seeding. J Hazard Mater. 2024 Mar 5;465:133312.

[3]. Yang Y, et al. Environmentally realistic dose of tire-derived metabolite 6PPD-Q exposure causes intestinal jejunum and ileum damage in mice via cannabinoid receptor-activated inflammation[J]. Science of The Total Environment, 2024, 918: 170679.