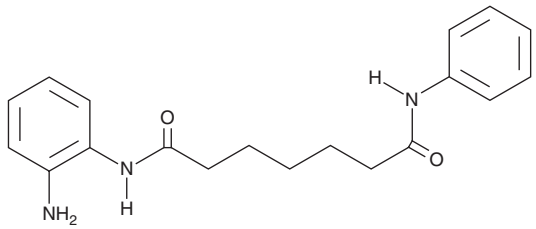
PRODUCT INFORMATION

PAOA

Item No. 22942

CAS Registry No.: 537034-15-4
Formal Name: N^1-(2-aminophenyl)-N^7-phenyl-heptanediamide
Synonym: Histone Deacetylase Inhibitor IV
MF: $C_{19}H_{23}N_3O_2$
FW: 325.4
Purity: ≥95%
UV/Vis.: λ_{max}: 242, 288 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

PAOA is supplied as a crystalline solid. A stock solution may be made by dissolving the PAOA in the solvent of choice, which should be purged with an inert gas. PAOA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of PAOA in ethanol is approximately 30 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Description

PAOA is a selective histone deacetylase (HDAC) inhibitor with IC_{50} values of 199 and 69 nM for HDAC1 and HDAC3, respectively.[1] It is selective for HDAC1 and HDAC3, having IC_{50} values greater than 1.59 µM for HDAC2, 4, 5, 7, and 8 in a cell-free enzyme assay. *In vitro*, PAOA induces histone H3 and H4 hyperacetylation.[2] PAOA improves the metabolic deficit exhibited by murine striatal cells isolated from Hdh^{Q111} knock-in mice in a dose-dependent manner and reduces eye neurodegeneration in a *D. melanogaster* model of Huntington's disease.[1] *In vivo*, PAOA prevents formation of Huntingtin (Htt) protein aggregates in the brain and reduces the cognitive deficits in the N171-82Q mouse model of Huntington's disease.[3]

References

1. Jia, H., Pallos, J., Jacques, V., *et al.* Histone deacetylase (HDAC) inhibitors targeting HDAC3 and HDAC1 ameliorate polyglutamine-elicited phenotypes in model systems of Huntington's disease. *Neurobiol. Dis.* **46(2)**, 351-361 (2012).
2. Mai, A., Perrone, A., Nebbioso, A., *et al.* Novel uracil-based 2-aminoanilide and 2-aminoanilide-like derivatives: Histone deacetylase inhibition and in-cell activities. *Bioorg. Med. Chem. Lett.* **18(8)**, 2530-2535 (2008).
3. Jia, H., Kast, R.J., Steffan, J.S., *et al.* Selective histone deacetylase (HDAC) inhibition imparts beneficial effects in Huntington's disease mice: Implications for the ubiquitin-proteasomal and autophagy systems. *Hum. Mol. Genet.* **21(24)**, 5280-5293 (2012).

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