# Tacedinaline

**Cat. No.:** HY-50934

**CAS No.:** 112522-64-2

**Molecular Formula:** $C_{15}H_{15}N_3O_2$

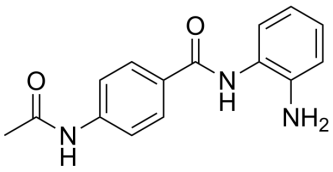
**Molecular Weight:** 269.3

**Target:** HDAC; Apoptosis

**Pathway:** Cell Cycle/DNA Damage; Epigenetics; Apoptosis

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 2 years |
| | -20°C | 1 year |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 50 mg/mL (185.67 mM)

* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 3.7133 mL | 18.5667 mL | 37.1333 mL |
| 5 mM | 0.7427 mL | 3.7133 mL | 7.4267 mL |
| 10 mM | 0.3713 mL | 1.8567 mL | 3.7133 mL |

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (9.28 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Tacedinaline (N-acetyldinaline) is an inhibitor of the histone deacetylase (HDAC) with $IC_{50}$s of 0.9, 0.9, 1.2 μM for recombinant HDAC 1, 2 and 3 respectively.

**$IC_{50}$ & Target**

| HD1 | HD2 | HD3 |
|---|---|---|
| 0.9 μM ($IC_{50}$) | 0.9 μM ($IC_{50}$) | 1.2 μM ($IC_{50}$) |

**In Vitro**

Tacedinaline (N-acetyldinaline) is a novel oral compound with a wide spectrum of antitumor activity in preclinical models. The mechanism of action may involve inhibition of histone deacetylation and cell cycle arrest. Tacedinaline (N-acetyldinaline) is combined with antineoplastic agents commonly used in non-small cell lung cancer cell line management, a marked synergism of action (R=1.8, R=1.5) is observed between Tacedinaline (N-acetyldinaline) (40 μM) and gemcitabine (0.01 μM) at 48 and 72 h of treatment[2].

| | |
|---|---|
| | Tacedinaline (N-acetyldinaline) inhibits mitogen-stimulated blood lymphocyte proliferation with an $IC_{50}$ value of 3 μM[4].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | Tacedinaline (CI-994) can effect lymphoid tissue in rats within 1 day of a single oral dose, that effects are generally reversible within 7 days[4].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

## PROTOCOL

| | |
|---|---|
| **Animal Administration [4]** | Rats: To characterize the effects of Tacedinaline (CI-994) on lymphoid tissue, male rats are administered single oral doses at 0 (vehicle control), 10, 23, and 45 mg/kg and killed up to 7 days after dosing for evaluation of white blood cell differentials, bone marrow differentials, lymphoid tissue weights, and selected histopathology of lymphoid tissue[4].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

## CUSTOMER VALIDATION

- Nat Commun. 2023 Sep 22;14(1):5916.
- Nutrients. 2023 Jun 15, 15(12), 2760.
- Int J Mol Sci. 2022 Apr 2;23(7):3980.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.
- Front Neurosci. 2021 Oct 6;15:674745.

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## REFERENCES


[1]. Moradei OM, et al. Novel aminophenyl benzamide-type histone deacetylase inhibitors with enhanced potency and selectivity. J Med Chem. 2007 Nov 15;50(23):5543-6.

[2]. Loprevite M, etal. In vitro study of CI-994, a histone deacetylase inhibitor, in non-small cell lung cancer cell lines. Oncol Res. 2005;15(1):39-48.

[3]. LoRusso PM, et al. Preclinical antitumor activity of CI-994. Invest New Drugs. 1996;14(4):349-56.

[4]. Graziano MJ, et al. Immunotoxicity of the anticancer drug CI-994 in rats: effects on lymphoid tissue. Arch Toxicol. 1999 Apr-May;73(3):168-74.





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