

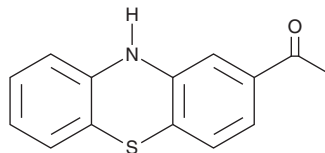
# PRODUCT INFORMATION



## 2-Acetylphenothiazine

Item No. 19056

**CAS Registry No.:** 6631-94-3  
**Formal Name:** 1-(10H-phenothiazin-2-yl)-ethanone  
**Synonyms:** 2-APT, ML-171, NSC 57951, NSC 169669  
**MF:** C<sub>14</sub>H<sub>11</sub>NOS  
**FW:** 241.3  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 245, 282 nm  
**Supplied as:** A crystalline solid  
**Storage:** 4°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

2-Acetylphenothiazine (2-APT) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-APT in the solvent of choice, which should be purged with an inert gas. 2-APT is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 2-APT in these solvents is approximately 1, 20, and 25 mg/ml, respectively.

2-APT is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 2-APT should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 2-APT has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

2-APT is a selective, cell-active inhibitor of NADPH oxidase 1 (NOX1) that blocks the generation of reactive oxygen species (ROS) in HT-29 cells with an IC<sub>50</sub> value of 0.129 μM.<sup>1</sup> It does not affect xanthine oxidase-dependent or mitochondrial ROS generation.<sup>1</sup> 2-APT prevents ROS-dependent formation of ECM-degrading invadopodia in colon cancer cells.<sup>1</sup> It also abolishes collagen-induced superoxide production by platelets (IC<sub>50</sub> = 306 nM), preventing platelet aggregation and thrombus formation.<sup>2</sup> 2-APT protects beta cells from cytokine-induced apoptosis by inhibiting NOX1.<sup>3</sup> 2-APT can also activate the human transient receptor potential ankyrin 1 (TRPA1) nociceptor at 1-30 μM.<sup>4</sup>

### References

1. Gianni, D., Taulet, N., Zhang, H., *et al.* A novel and specific NADPH oxidase-1 (Nox1) small-molecule inhibitor blocks the formation of functional invadopodia in human colon cancer cells. *ACS Chem. Biol.* **5(10)**, 981-993 (2010).
2. Vara, S., Campanella, M., and Pula, G. The novel NOX inhibitor 2-acetylphenothiazine impairs collagen-dependent thrombus formation in a GPVI-dependent manner. *Br. J. Pharmacol.* **168(1)**, 212-224 (2013).
3. Weaver, J.R., Grzesik, W., and Taylor-Fishwick, D.A. Inhibition of NADPH oxidase-1 preserves β cell function. *Diabetologia* **58(1)**, 113-121 (2015).
4. Suzuki, H., Hatano, N., Muraki, Y., *et al.* The NADPH oxidase inhibitor diphenyleneiodonium activates the human TRPA1 nociceptor. *Am. J. Physiol. Cell Physiol.* **307(4)**, C384-C394 (2014).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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