

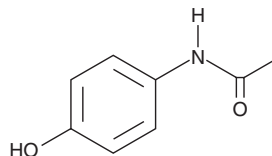
# PRODUCT INFORMATION



## Acetaminophen

Item No. 10024

<b>CAS Registry No.:</b>	103-90-2
<b>Formal Name:</b>	N-(4-hydroxyphenyl)-acetamide
<b>Synonyms:</b>	4-Acetamidophenol, APAP, 4'-Hydroxyacetanilide, NSC 3991, NSC 109028, Paracetamol
<b>MF:</b>	C <sub>8</sub> H <sub>9</sub> NO <sub>2</sub>
<b>FW:</b>	151.2
<b>Purity:</b>	≥98%
<b>UV/Vis.:</b>	λ <sub>max</sub> : 249 nm
<b>Supplied as:</b>	A crystalline solid
<b>Storage:</b>	-20°C
<b>Stability:</b>	≥2 years



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

### Laboratory Procedures

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

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of acetaminophen can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of acetaminophen in PBS, pH 7.2, is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Acetaminophen is an analgesic and antipyretic compound.<sup>1,2</sup> Unlike many NSAIDs, which inhibit both COX-1 and COX-2, early studies suggested that acetaminophen is a poor inhibitor of both isoforms.<sup>3,4</sup> However, it does inhibit COX-2 by 83% and COX-1 by 56% in human blood *ex vivo*, albeit at a high 1,000 mg dose, with IC<sub>50</sub> values of 25.8 and 113.7 μM, respectively.<sup>5</sup> Acetaminophen is enzymatically and non-enzymatically converted to several reactive metabolites that contribute to adverse or indirect effects, including liver injury.<sup>6-8</sup> At toxic doses, the acetaminophen metabolite N-acetyl-4-benzoquinone imine (NAPQI; Item No. 16115) depletes glutathione reserves in the liver, leading to an accumulation of NAPQI and subsequent hepatocyte necrosis.<sup>9</sup> Acetaminophen decreases glutathione levels and reduces glutathione peroxidase activity in mice when administered at a dose of 250 mg/kg and induces ferroptotic cell death in primary mouse hepatocytes, an effect that can be blocked by the ferroptosis inhibitor ferrostatin-1 (Item No. 17729).<sup>10,11</sup> Acetaminophen has analgesic and antipyretic properties in animal models.<sup>1,2</sup>

### References

1. Vinegar, R., Truax, J.F., and Selph, J.L. Quantitative comparison of the analgesic and anti-inflammatory activities of aspirin, phenacetin and acetaminophen in rodents. *Eur. J. Pharmacol.* **37(1)**, 23-30 (1976).
2. Kobayashi, S. and Takagi, H. Fever responses to bacterial pyrogens in guinea pigs and application for screening of antipyretic agents. *Jpn. J. Pharmacol.* **18(1)**, 80-85 (1968).

**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.

**WARRANTY AND LIMITATION OF REMEDY**  
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