

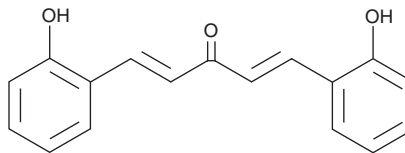
# PRODUCT INFORMATION



## 2-HBA

Item No. 11879

**CAS Registry No.:** 131359-24-5  
**Formal Name:** (1E,4E)-1,5-bis(2-hydroxyphenyl)-1,4-pentadien-3-one  
**Synonym:** Bis(2-hydroxybenzylidene)acetone  
**MF:** C<sub>17</sub>H<sub>14</sub>O<sub>3</sub>  
**FW:** 266.3  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 212, 259, 311, 373 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

2-HBA is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-HBA in the solvent of choice, which should be purged with an inert gas. 2-HBA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 2-HBA in these solvents is approximately 14, 11, and 12 mg/ml, respectively.

2-HBA is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 2-HBA should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. 2-HBA has a solubility of approximately 0.5 mg/ml in a 1:1 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Nrf2 activation of the antioxidant response element (ARE) is central to cytoprotective gene expression against oxidative and/or electrophilic stress.<sup>1</sup> Unless activated by inflammatory, environmental, or oxidative stressors, Nrf2 is sequestered in the cytoplasm by its repressor, Keap1.<sup>2</sup> Because of its protective capabilities, small molecules that activate Nrf2 signaling are being examined as potential anti-cancer or anti-inflammatory agents.<sup>3</sup> 2-HBA, a synthetic analog of curcumin, is an indirect inducer of enzymes that catalyze detoxification reactions through the Keap1-Nrf2-ARE pathway. As a double Michael reaction acceptor, 2-HBA can directly modify cysteine sulfhydryl groups in Keap1 and consequently suppress Nrf2 ubiquitination, which leads to enhanced expression of antioxidative and cytoprotective enzymes.<sup>4</sup> 2-HBA doubles the specific activity of NAD(P)H:quinone acceptor oxidoreductase 1 (NQO1) in Hepa1c1c7 cells at 0.15 μM.<sup>5</sup> In rapidly dividing mouse leukemia L1210 cells, 0.6 μM 2-HBA increases the activities of NQO1, glutathione reductase, and the levels of total glutathione.<sup>5,6</sup> At 5-15 μM, 2-HBA causes G<sub>2</sub>/M cell cycle arrest and p53-independent, caspase 3-mediated apoptosis.<sup>5</sup>

### References

1. Wang, R., Kern, J.T., Goodfriend, T.L., et al. *Prostaglandins Leukot. Essent. Fatty Acids* **81(1)**, 53-59 (2009).
2. Gao, L., Wang, J., Sekhar, K.R., et al. *J. Biol. Chem.* **282(4)**, 2529-2537 (2007).
3. Taguchi, K., Motohashi, H., and Yamamoto, M. *Genes Cells* **16(2)**, 123-140 (2011).
4. Magesh, S., Chen, Y., and Hu, L. *Med. Res. Rev.* **32(4)**, 687-726 (2012).
5. Dinkova-Kostova, A.T., Cory, A.H., Bozak, R.E., et al. *Cancer Lett.* **245(1-2)**, 341-349 (2007).
6. Dinkova-Kostova, A.T., Holtzclaw, W.D., Cole, R.N., et al. *Proc. Natl. Acad. Sci. USA* **99(18)**, 11908-11913 (2012).

#### 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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