

# PRODUCT INFORMATION

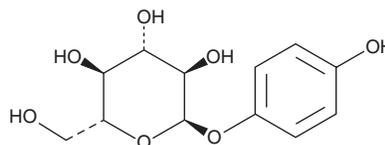


## $\alpha$ -Arbutin

Item No. 35386

**CAS Registry No.:** 84380-01-8  
**Formal Name:** 4-hydroxyphenyl  $\alpha$ -D-glucopyranoside  
**Synonyms:** Hydroquinone  $\alpha$ -Glucoside,  
Hydroquinone O- $\alpha$ -D-Glucopyranoside,  
4'-Hydroxyphenyl  $\alpha$ -Glucoside,  
4-Hydroxyphenyl  $\alpha$ -Glucopyranoside

**MF:** C<sub>12</sub>H<sub>16</sub>O<sub>7</sub>  
**FW:** 272.3  
**Purity:**  $\geq$ 98%  
**UV/Vis.:**  $\lambda_{\text{max}}$ : 224 nm  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years  
**Item Origin:** Fermentation (species not specified)



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

### Laboratory Procedures

$\alpha$ -Arbutin is supplied as a solid. A stock solution may be made by dissolving the  $\alpha$ -arbutin in the solvent of choice, which should be purged with an inert gas.  $\alpha$ -Arbutin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of  $\alpha$ -arbutin in these solvents is approximately 1, 15, and 10 mg/ml, respectively.

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  $\alpha$ -arbutin can be prepared by directly dissolving the solid in aqueous buffers. The solubility of  $\alpha$ -arbutin in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

$\alpha$ -Arbutin is a glycosylated hydroquinone that has been found in *Ericaceae* and has diverse biological activities.<sup>1-5</sup> It inhibits tyrosinase in a cell-free assay (IC<sub>50</sub> = 0.48 mM for the mouse enzyme) and the production of melanin in HMV-II melanoma cells when used at a concentration of 0.5 mM.<sup>1,2</sup>  $\alpha$ -Arbutin (100  $\mu$ M) prevents increases in reactive oxygen species (ROS) induced by rotenone (Item No. 13995) in SH-SY5Y neuroblastoma cells.<sup>3</sup> It decreases locomotor deficits in a parkin-null transgenic *Drosophila* model of Parkinson's disease.  $\alpha$ -Arbutin (30 mM) reduces postprandial plasma glucose levels in mice.<sup>4</sup> It has also been used in the synthesis of  $\alpha$ -glucosidase inhibitors.<sup>5</sup> Formulations containing  $\alpha$ -arbutin have been used in cosmetic products as skin lightening agents.

### References

1. Funayama, M., Arakawa, H., Yamamoto, R., *et al.* *Biosci. Biotechnol. Biochem.* **59(1)**, 143-144 (1995).
2. Sugimoto, K., Nishimura, T., Nomura, K., *et al.* *Biol. Pharm. Bull.* **27(4)**, 510-514 (2004).
3. Ding, Y., Kong, D., Zhou, T., *et al.* *Neuromolecular Med.* **22(1)**, 56-67 (2020).
4. Takii, H., Matsumoto, K., Kometani, T., *et al.* *Biosci. Biotechnol. Biochem.* **61(9)**, 1531-1535 (1997).
5. Hakamata, W., Yamamoto, E., Muroi, M., *et al.* *J. Appl. Glycosci.* **53(4)**, 255-260 (2006).

#### 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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