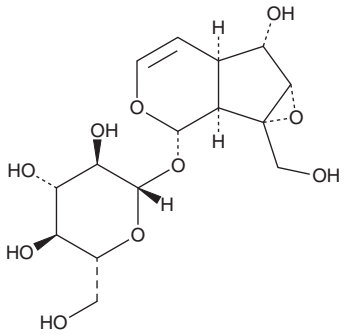
PRODUCT INFORMATION

Catalpol

Item No. 24925

CAS Registry No.:	2415-24-9
Formal Name:	1aS,1bS,2S,5aR,6S,6aS-hexahydro-6-hydroxy-1a-(hydroxymethyl)oxireno[4,5]cyclopenta[1,2-c]pyran-2-yl, β-D-glucopyranoside
Synonyms:	Catalpinoside, 7,8-epoxy Aucubin
MF:	$C_{15}H_{22}O_{10}$
FW:	362.3
Purity:	≥98%
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

Catalpol is supplied as a crystalline solid. A stock solution may be made by dissolving the catalpol in the solvent of choice, which should be purged with an inert gas. Catalpol is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of catalpol in these solvents is approximately 30 mg/ml.

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 catalpol can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of catalpol in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Catalpol is an iridoid glycoside that has been isolated from *R. glutinosa* and has diverse biological activities, including anti-apoptotic, pro-angiogenic, and radioprotective properties.[1] It protects against mitochondrial pathway-dependent apoptosis in PC12 rat adrenal pheochromocytoma cells and H9c2 rat embryonic ventricular myocardial cells when used at a concentration of 10 µM.[2,3] Catalpol pretreatment reduces apoptosis and improves viability in AHH-1 human lymphocyte cells exposed to ionizing radiation and reduces intestinal damage induced by radiation in mice when used at concentrations and doses ranging from of 25 to 100 µg/ml and 25 to 100 mg/kg, respectively.[4] In a rat model of stroke, catalpol (5 mg/kg, i.p.) increases the expression of erythropoietin and VEGF and improves angiogenesis in the brain.[5]

References

1. Wang, Y., Liao, D., Qin, M., *et al.* Simultaneous determination of catalpol, aucubin, and geniposidic acid in different developmental stages of *Rehmannia glutinosa* leaves by high performance liquid chromatography. *J. Anal. Methods Chem.* **2016:4956589**, (2016).
2. Chen, W., Li, X., Jia, L.-Q., *et al.* Neuroprotective activities of catalpol against CaMKII-dependent apoptosis induced by LPS in PC12 cells. *Br. J. Pharmacol.* **169(5)**, 1140-1152 (2013).
3. Hu, L.-a., Sun, Y.-k., Zhang, H.-s., *et al.* Catalpol inhibits apoptosis in hydrogen peroxide-induced cardiac myocytes through a mitochondrial-dependent caspase pathway. *Biosci. Rep.* **36(3)**, e00348 (2016).
4. Chen, C., Chen, Z., Xu, F., *et al.* Radio-protective effect of catalpol in cultured cells and mice. *J. Radiat. Res.* **54(1)**, 76-82 (2013).
5. Zhu, H.-F., Wan, D., Luo, Y., *et al.* Catalpol increases brain angiogenesis and up-regulates VEGF and EPO in the rat after permanent middle cerebral artery occlusion. *Int. J. Biol. Sci.* **6(5)**, 443-453 (2010).

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