

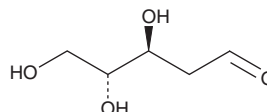
# PRODUCT INFORMATION



## 2-deoxy-D-Ribose

Item No. 29072

**CAS Registry No.:** 533-67-5  
**Formal Name:** 2-deoxy-D-erythro-pentose  
**Synonyms:** 2-Deoxy-D-arabinose, Thymine, (3S,4R)-3,4,5-Trihydroxypentanal  
**MF:** C<sub>5</sub>H<sub>10</sub>O<sub>4</sub>  
**FW:** 134.1  
**Purity:** ≥95%  
**Supplied as:** A 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-deoxy-D-Ribose is supplied as a solid. A stock solution may be made by dissolving the 2-deoxy-D-ribose in the solvent of choice, which should be purged with an inert gas. 2-deoxy-D-Ribose is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 2-deoxy-D-ribose in these solvents is approximately 5, 3, 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 2-deoxy-D-ribose can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2-deoxy-D-ribose in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

2-deoxy-D-Ribose is a reducing sugar formed as a degradation product during metabolism of thymidine (Item No. 20519) by thymidine phosphorylase.<sup>1</sup> It increases levels of reactive oxygen species (ROS) in HL-60 human leukemia cells when used at a concentration of 15 mM.<sup>2</sup> 2-deoxy-D-Ribose (10 μM) induces tubulogenesis and migration of bovine aortic endothelial (BAE) cells.<sup>3</sup> Topical administration of 2-deoxy-D-ribose increases blood vessel formation and accelerates wound healing in a rat full-thickness cutaneous wound model.<sup>4</sup>

### References

1. Nakajima, Y., Gotanda, T., Uchimiya, H., *et al.* Inhibition of metastasis of tumor cells overexpressing thymidine phosphorylase by 2-deoxy-L-ribose. *Cancer Res.* **64(5)**, 1794-1801 (2004).
2. Monti, M.G., Ghiaroni, S., Marverti, G., *et al.* Polyamine depletion switches the form of 2-deoxy-D-ribose-induced cell death from apoptosis to necrosis in HL-60 cells. *Int. J. Biochem. Cell Biol.* **36(7)**, 1238-1248 (2004).
3. Uchimiya, H., Furukawa, T., Okamoto, M., *et al.* Suppression of thymidine phosphorylase-mediated angiogenesis and tumor growth by 2-deoxy-L-ribose. *Cancer Res.* **62(10)**, 2834-2839 (2002).
4. Yar, M., Shahzadi, L., Mehmood, A., *et al.* Deoxy-sugar releasing biodegradable hydrogels promote angiogenesis and stimulate wound healing. *Mater. Today Commun.* **13**, 295-305 (2017).

#### 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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