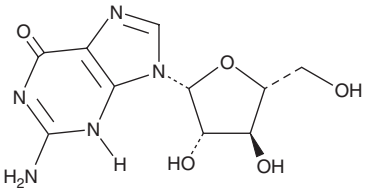
PRODUCT INFORMATION

Ara-G

Item No. 27984

CAS Registry No.:	38819-10-2
Formal Name:	2-amino-9-β-D-arabinofuranosyl-1,9-dihydro-6H-purin-6-one
Synonyms:	ara-Guanosine, Guanine Arabinoside, NSC 76352
MF:	$C_{10}H_{13}N_5O_5$
FW:	283.2
Purity:	≥95%
UV/Vis.:	λ_{max}: 253 nm
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

Ara-G is supplied as a solid. A stock solution may be made by dissolving the ara-G in the solvent of choice, which should be purged with an inert gas. Ara-G is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of ara-G in these solvents is approximately 5 and 3 mg/ml, respectively. Ara-G is also slightly soluble in ethanol.

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 ara-G can be prepared by directly dissolving the solid in aqueous buffers. The solubility of ara-G in PBS, pH 7.2, is approximately 0.3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Ara-G is an analog of the nucleoside guanosine and an active metabolite of nelarabine (Item No. 20248).[1,2] Ara-G accumulates in T lymphoblasts and malignant T-lymphoid cells, where it is phosphorylated to produce ara-GTP and incorporated into the DNA.[1,3] Ara-G inhibits DNA replication by 92% after 30 minutes when used at a concentration of 50 µM in CEM cells, which are used as a model for human T lymphoblasts.[1] It also halts the cell cycle at the sub-G_1 phase and induces apoptosis in CEM cells.[3] Syngeneic bone marrow containing 6C3HED tumor cells treated with ara-G (100 mM) *ex vivo* prior to transplantation increases survival of lethally irradiated mice and induces reconstitution of lymphoid, myeloid, and erythroid cell linages.[4]

References

1. Leanza, L., Miazzi, C., Ferraro, P., *et al.* Activation of guanine-β-D-arabinofuranoside and deoxyguanosine to triphosphates by a common pathway blocks T lymphoblasts at different checkpoints. *Exp. Cell Res.* **316(20),** 3443-3453 (2010).
2. Lambe, C.U., Averett, D.R., Paff, M.T., *et al.* 2-Amino-6-methoxypurine arabinoside: An agent for T-cell malignancies. *Cancer Res.* **55(15),** 3352-3356 (1995).
3. Rodriguez, C.O., Jr., Stellrecht, C.M., and Gandhi, V. Mechanisms for T-cell selective cytotoxicity of arabinosylguanine. *Blood* **102(5)**, 1842-1848 (2003).
4. Kurtzberg, J. Guanine arabinoside as a bone marrow-purging agent. *Ann. N.Y. Acad. Sci.* **685(1)**, 225-236 (1993).

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