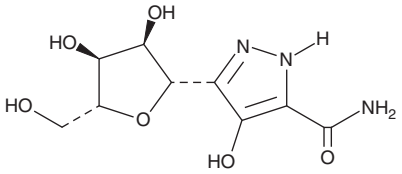
PRODUCT INFORMATION

Pyrazofurin

Item No. 43569

CAS Registry No.:	30868-30-5
Formal Name:	4-hydroxy-3-β-D-ribofuranosyl-1H-pyrazole-5-carboxamide
MF:	$C_9H_{13}N_3O_6$
FW:	259.2
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

Pyrazofurin is supplied as a solid. A stock solution may be made by dissolving the pyrazofurin in the solvent of choice, which should be purged with an inert gas. Pyrazofurin is sparingly soluble (1-10 mg/ml) in DMSO.

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 pyrazofurin can be prepared by directly dissolving the solid in aqueous buffers. Pyrazofurin is sparingly soluble (1-10 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

Pyrazofurin is a nucleoside derivative that has been found in *S. candidus* and has antiviral and anticancer activities.[1-3] It is an inhibitor of orotidine-5'-monophosphate decarboxylase (OMP decarboxylase) that inhibits DNA synthesis.[2] Pyrazofurin inhibits the cytopathic effect of parainfluenza-3 virus, measles virus, vaccinia virus, and herpes simplex virus 2 (HSV-2) in Vero cells (EC_{50}s = 3, 9.6, 2.8, and 20 µM, respectively).[1] It also reduces infection of Calu-3 cells by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with a synergistic effect when used in combination with molnupiravir (Item No. 29586) or remdesivir (Item No. 30354).[3] Pyrazofurin reduces tumor growth in L1210 and P388 leukemia, Lewis lung, and B16 murine melanoma models (ID_{50}s = 3.2, 3.3, 1.8, and 63 nM, respectively).[1]

References

1. Petrie, C.R., 3rd., Revankar, G.R., Dalley, N.K., *et al.* Synthesis and biological activity of certain nucleoside and nucleotide derivatives of pyrazofurin. *J. Med. Chem.* **29(2)**, 268-278 (1986).
2. Ringer, D.P., Howell, B.A., and Etheredge, J.L. Alteration in de novo pyrimidine biosynthesis during uridine reversal of pyrazofurin-inhibited DNA synthesis. *J. Biochem. Toxicol.* **69(1)**, 19-27 (1991).
3. Schultz, D.C., Johnson, R.M., Ayyanathan, K., *et al.* Pyrimidine inhibitors synergize with nucleoside analogues to block SARS-CoV-2. *Nature* **604(7904)**, 134-140 (2022).

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