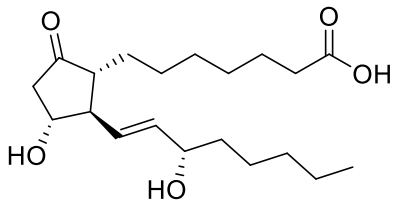
Product data sheet

MedKoo Cat#: 326671 Name: Alprostadil CAS#: 745-65-3 (free acid) Chemical Formula: $C_{20}H_{34}O_5$ Exact Mass: 354.2406 Molecular Weight: 354.487	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Alprostadil, also known as and PGE1, is a vasodilator that can treat impotence. Alprostadil inhibits platelet aggregation and is a vasodilator in vivo. Alprostadil is a drug used in the continuous treatment of erectile dysfunction and has vasodilatory properties. Alprostadil is also used in maintaining a patent ductus arteriosus in newborns. Alprostadil is also used for critical limb ischemia. It increases blood flow by peripheral vasodilation within five minutes and induces angiogenesis.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	73.67	207.82
DMF	100.0	282.10
Ethanol	59.68	168.36
Methanol	125.0	352.62
PBS (pH 7.2)	0.5	1.41

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.82 mL	14.10 mL	28.21 mL
5 mM	0.56 mL	2.82 mL	5.64 mL
10 mM	0.28 mL	1.41 mL	2.82 mL
50 mM	0.06 mL	0.28 mL	0.56 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Yu T, Dong D, Guan J, Sun J, Guo M, Wang Q. Alprostadil attenuates LPS-induced cardiomyocyte injury by inhibiting the Wnt5a/JNK/NF-κB pathway. Herz. 2020 Dec;45(Suppl 1):130-138. doi: 10.1007/s00059-019-4837-0. Epub 2019 Jul 16. PMID: 31312872; PMCID: PMC7721679.
2. Haider DG, Bucek RA, Giurgea AG, Maurer G, Glogar H, Minar E, Wolzt M, Mehrabi MR, Baghestanian M. PGE1 analog alprostadil induces VEGF and eNOS expression in endothelial cells. Am J Physiol Heart Circ Physiol. 2005 Nov;289(5):H2066-72. doi: 10.1152/ajpheart.00147.2005. Epub 2005 Jun 10. PMID: 15951350.

In vivo study

1. Wang M, Cai XF, Zhang SM, Xia SY, Du WH, Ma YL. Alprostadil alleviates liver injury in septic rats via TLR4/NF-κB pathway. Eur Rev Med Pharmacol Sci. 2021 Feb;25(3):1592-1599. doi: 10.26355/eurrev_202102_24869. PMID: 33629328.

Product data sheet

2. Qin Z, Kong B, Zheng J, Wang X, Li L. Alprostadil Injection Attenuates Coronary Microembolization-Induced Myocardial Injury Through GSK-3β/Nrf2/HO-1 Signaling-Mediated Apoptosis Inhibition. Drug Des Devel Ther. 2020 Oct 22;14:4407-4422. doi: 10.2147/DDDT.S272877. PMID: 33122886; PMCID: PMC7588838.

7. Bioactivity

Biological target:

Prostaglandin E1 (PGE1) is a potent vasodilator and activates the prostaglandin E1 (EP) receptor.

In vitro activity

Cells were pretreated with different doses of alprostadil and then treated with 100 μg/l LPS for 3 h, 6 h, 12 h, and 24 h. This study found that cell viability was significantly restored by the pretreatment with alprostadil (Fig. 1). The cell viability gradually recovered in cells pretreated with 45 μg/l alprostadil for 12 and 24 h ($p < 0.01$; Fig. 2b). These results indicate that alprostadil protected H9c2 cells against LPS-induced injury; 45 μg/l alprostadil was chosen and used in the following experiments.

Reference: Herz. 2020; 45(Suppl 1): 130–138. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7721679/

In vivo activity

Apoptosis assay was performed to explore the effect of Alp (Alprostadil) on liver cell apoptosis. It was found that the proportion of apoptotic liver cells in CLP group was considerably higher than that in Sham group and Alp group ($p<0.05$). Compared with CLP group, the proportion of apoptotic liver cells remarkably declined in Alp group ($p<0.05$) (Figure 2). These results suggest that Alp represses the apoptosis in rats with liver injury and promotes the recovery of liver function.

Reference: Eur Rev Med Pharmacol Sci. 2021 Feb;25(3):1592-1599. https://pubmed.ncbi.nlm.nih.gov/33629328/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.