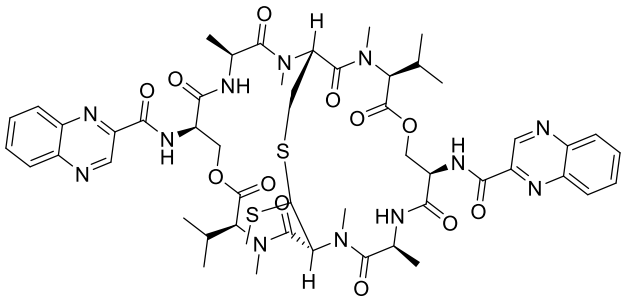
Product data sheet

MedKoo Cat#: 329824 Name: Echinomycin CAS#: 512-64-1 Chemical Formula: $C_{51}H_{64}N_{12}O_{12}S_2$ Exact Mass: 1100.4208 Molecular Weight: 1101.265	
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:
Echinomycin is a peptide antibiotic. It intercalates into DNA at two specific sites, thereby blocking the binding of hypoxia inducible factor 1 alpha (HIF1alpha).

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	18.1	16.44

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	0.91 mL	4.54 mL	9.08 mL
5 mM	0.18 mL	0.91 mL	1.82 mL
10 mM	0.09 mL	0.45 mL	0.91 mL
50 mM	0.02 mL	0.09 mL	0.18 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. Plastino F, Santana-Garrido Á, Pesce NA, Aronsson M, Lardner E, Mate A, Kvanta A, Vázquez CM, André H. Echinomycin mitigates ocular angiogenesis by transcriptional inhibition of the hypoxia-inducible factor-1. Exp Eye Res. 2021 May;206:108518. doi: 10.1016/j.exer.2021.108518. Epub 2021 Feb 25. PMID: 33639134.
2. Yao Y, Wang L, Zhou J, Zhang X. HIF-1α inhibitor echinomycin reduces acute graft-versus-host disease and preserves graft-versus-leukemia effect. J Transl Med. 2017 Feb 10;15(1):28. doi: 10.1186/s12967-017-1132-9. PMID: 28183349; PMCID: PMC5301444.

In vivo study

1. Wang Y, Liu Y, Bailey C, Zhang H, He M, Sun D, Zhang P, Parkin B, Baer MR, Zheng P, Malek SN, Liu Y. Therapeutic targeting of TP53-mutated acute myeloid leukemia by inhibiting HIF-1α with echinomycin. Oncogene. 2020 Apr;39(14):3015-3027. doi: 10.1038/s41388-020-1201-z. Epub 2020 Feb 15. PMID: 32060420; PMCID: PMC7291851.
2. Yamaguchi J, Tanaka T, Saito H, Nomura S, Aburatani H, Waki H, Kadowaki T, Nangaku M. Echinomycin inhibits adipogenesis in 3T3-L1 cells in a HIF-independent manner. Sci Rep. 2017 Jul 26;7(1):6516. doi: 10.1038/s41598-017-06761-4. PMID: 28747725; PMCID: PMC5529514.

7. Bioactivity
Biological target:

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Echinomycin (Quinomycin A) is cell-permeable inhibitor of hypoxia-inducible factor-1 (HIF-1) DNA-binding activity.

In vitro activity

Concentrations of 50 pM of EKN (echinomycin) caused a significant reduction of HIF-1α protein expression ($P < 0.001$), as compared to hypoxia levels (Fig. 1B). These results were confirmed by an in vitro wound healing assay, which further characterized the effects of EKN on HIF-1α–dependent mechanisms of aRPE cells migration and/or proliferation, as characteristic of this method. aRPE cells treated with 50 pM of EKN showed an inhibition of wounded area recovery, in both normoxia and hypoxia (Fig. 2A).

Reference: Exp Eye Res. 2021 May;206:108518. https://pubmed.ncbi.nlm.nih.gov/33639134/

In vivo activity

In contrast, echinomycin-treated mice exhibited a prolonged period of growth inhibition, with peripheral blood AML blasts remaining below 20% when vehicle-treated mice had blast levels exceeding 70% and started dying (Fig. 2B). Similarly, mice treated with either drug regimen experienced significantly prolonged survival times vs vehicle-treated mice, but survival was more prolonged for echinomycin-treated mice (Fig. 2C). These data demonstrated that HIFs may serve as an effective therapeutic target for TP53-mutated AML.

Reference: Oncogene. 2020 Apr; 39(14): 3015–3027. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7291851/

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.