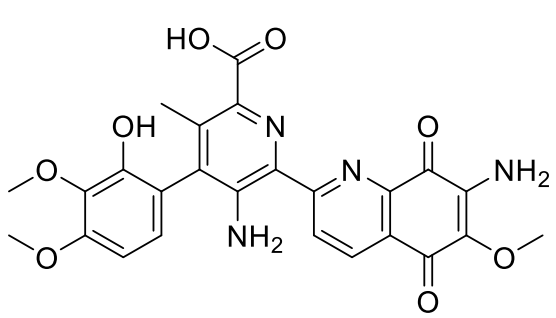


Product data sheet



MedKoo Cat#: 571001 Name: Streptonigrin CAS#: 3930-19-6 (R-isomer) Chemical Formula: C ₂₅ H ₂₂ N ₄ O ₈ Exact Mass: 506.1438 Molecular Weight: 506.47	
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:

Streptonigrin is an aminoquinone antitumor and antibacterial antibiotic produced by *Streptomyces flocculus*. Streptonigrin inhibits β -Catenin/Tcf signaling and shows cytotoxicity in β -catenin-activated cells. Streptonigrin induces delayed chromosomal instability involving interstitial telomeric sequences in Chinese hamster ovary cells. Note: Streptonigrin from natural resource is (-)-rotation, has CAS#3930-19-6 and is a R-isomer.

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
To be determined	To be determined	To be determined

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.97 mL	9.87 mL	19.74 mL
5 mM	0.39 mL	1.97 mL	3.95 mL
10 mM	0.20 mL	0.99 mL	1.97 mL
50 mM	0.04 mL	0.20 mL	0.39 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

- Loyola AC, Dao K, Shang R, Zhang L, Dutta P, Fowler C, Li J, Li WX. Streptonigrin at low concentration promotes heterochromatin formation. *Sci Rep.* 2020 Feb 26;10(1):3478. doi: 10.1038/s41598-020-60469-6. PMID: 32103104; PMCID: PMC7044429.
- Ambaye N, Chen CH, Khanna S, Li YJ, Chen Y. Streptonigrin Inhibits SENP1 and Reduces the Protein Level of Hypoxia-Inducible Factor 1 α (HIF1 α) in Cells. *Biochemistry.* 2018 Mar 20;57(11):1807-1813. doi: 10.1021/acs.biochem.7b00947. Epub 2018 Mar 1. PMID: 29481054; PMCID: PMC5963266.

In vivo study

- Fang XQ, Lee S, Kim YS, Han GE, Lim CH, Lim JH. Streptonigrin Mitigates Lung Cancer-induced Cachexia by Suppressing TCF4/TWIST1-induced PTHLH Expression. *Anticancer Res.* 2023 Mar;43(3):1149-1157. doi: 10.21873/anticancer.16260. PMID: 36854496.
- Suzuki H, Yamashita M, Lee JC, Kataoka T, Magae J, Nagai K. Immunosuppressive activity of streptonigrin in vitro and in vivo. *Biosci Biotechnol Biochem.* 1996 May;60(5):789-93. doi: 10.1271/bbb.60.789. PMID: 8704308.

Product data sheet



7. Bioactivity

Biological target:

Streptonigrin acts as a pan-PAD inhibitor with IC50s of $48.3 \pm 34.2 \mu\text{M}$, $26.1 \pm 0.3 \mu\text{M}$, $0.43 \pm 0.03 \mu\text{M}$, and $2.5 \pm 0.4 \mu\text{M}$ for PAD1, PAD2, PAD3, and PAD4, respectively.

In vitro activity

Streptonigrin might be a good candidate for epigenetic cancer therapy because of its ability to enhance heterochromatin formation with little toxic effects on cells. Streptonigrin treated HeLa cells exhibited compacted DNA foci in the nucleus that co-localized with HP1 α and exhibited an increase in total levels of H3K9me3. Streptonigrin promoted heterochromatin at a concentration as low as 1 nM with no detectable effects on cell proliferation or viability. Also, streptonigrin inhibited STAT3 phosphorylation.

Reference: Sci Rep. 2020 Feb 26;10(1):3478. <https://pubmed.ncbi.nlm.nih.gov/32103104/>

In vivo activity

Streptonigrin exerts potent therapeutic effects on lung cancer-induced cachexia by suppressing TCF4/TWIST1-mediated PTHLH expression. Streptonigrin significantly decreased the expression of proteolysis-related genes in skeletal muscle and browning-related genes in white adipose tissues of LLC1-induced tumour-bearing mice.

Reference: Anticancer Res. 2023 Mar;43(3):1149-1157. <https://pubmed.ncbi.nlm.nih.gov/36854496/>

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.