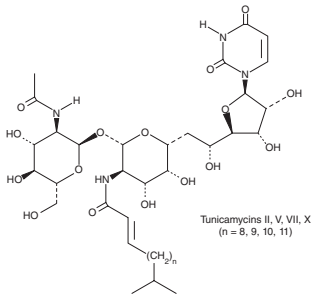
PRODUCT INFORMATION

Tunicamycin Mixture (solution)

Item No. 46793

CAS Registry No.:	11089-65-9
MF:	$C_{39}H_{64}N_4O_{16}$ (for Tunicamycin VII)
FW:	845.0
Purity:	≥95% (mixture of congeners)
UV/Vis.:	λ_{max}: 206, 261 nm
Supplied as:	A 5 mg/ml solution in DMSO
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Tunicamycin mixture (solution) is supplied as a solution in DMSO. To change the solvent, simply evaporate the DMSO under a gentle stream of nitrogen and immediately add the solvent of choice, which should be purged with an inert gas. Tunicamycin mixture (solution) is soluble (≥10 mg/ml) in dimethyl formamide.

Description

Tunicamycin mixture is a mixture of tunicamycins with variable *trans*-2,3-unsaturated branched-chain fatty acid (BCFA) chain lengths. Tunicamycins are anti-microbial agents that are active against Gram-positive bacteria, fungi, and viruses.[1] They inhibit the N-acetylhexosamine (HexNAc) phosphotransferase family of enzymes in bacteria and prevent peptidoglycan biosynthesis.[2] In eukaryotes, they inhibit N-acetylglucosamine (GlcNAc) phosphotransferase (GPT), preventing the first step in N-linked glycosylation and inducing the unfolded protein response and cell death.[2-4] The cellular toxicity of tunicamycins is linked to the *trans*-2,3-unsaturated BCFA, and saturated BCFA-containing tunicamycin derivatives, such as TunR1 (Item No. 31537) and TunR2 (Item No. 31538), have reduced toxicity.[1,2] Tunicamycins impair glycosylation of the receptor tyrosine kinases EGFR, HER2, HER3, and IGF-1R, which prevents their translocation out of the endoplasmic reticulum and Golgi apparatus and reduces their protein levels and activity.[5] Tunicamycin sensitizes EGFR inhibitor-resistant U251 glioma and Bx/PC-3 pancreatic adenocarcinoma cells to irradiation.[5]

References

1. Takatsuki, A., Arima, K., and Tamura, G. Tunicamycin, a new antibiotic. I. Isolation and characterization of tunicamycin. *J. Antibiot. (Tokyo)* **24(4),** 215-223 (1971).
2. Price, N.P., Hartman, T.M., Li, J., *et al.* Modified tunicamycins with reduced eukaryotic toxicity that enhance the antibacterial activity of β-lactams. *J. Antibiot. (Tokyo)* **70(11),** 1070-1077 (2017).
3. Tkacz, J.S. and Lampen, O. Tunicamycin inhibition of polyisoprenyl N-acetylglucosaminyl pyrophosphate formation in calf-liver microsomes. *Biochem. Biophys. Res. Commun.* **65(1),** 248-257 (1975).
4. Berger, E.G., Buddecke, E., Kamerling, J.P., *et al.* Structure, biosynthesis and functions of glycoprotein glycans. *Experientia* **38(10),** 1129-1162 (1982).
5. Contessa, J.N., Bhojani, M.S., Freeze, H.H., *et al.* Inhibition of N-linked glycosylation disrupts receptor tyrosine kinase signaling in tumor cells. *Cancer Res.* **68(10),** 3803-3809 (2008).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

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CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM