#12819 Store at Room Temperature

# Tunicamycin

☑ 5 mg

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**For Research Use Only. Not For Use In Diagnostic Procedures.**

**Background:** Isolated from *Streptomyces lysosuperificus*, tunicamycin is a nucleoside antibiotic that inhibits N-linked glycosylation in glycoprotein synthesis. Composed of tunicamycins A, B, C and D, the compound competitively blocks the transfer of N-acetylglucosamine-1-phosphate (GlcNAc-1-P) from UDP-GlcNAc to dolichol-P (1,2). By preventing glycoprotein synthesis, tunicamycin inhibits the formation of the "viral coat" known as the tunica or capsid in both RNA and DNA viruses, and thus exhibits antiviral properties (3). Research studies have shown that tunicamycin will arrest cells in G1 phase, preventing them from entering S-phase and increasing the expression of PERK (4,5). Following N-linked glycosylation inhibition, tunicaymcin induces autophagy in response to ER stress, ultimately upregulating CHOP and BIP (6,7).

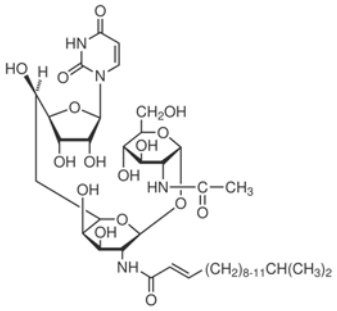
**Molecular Formula:**

Homolog A: $C_{37}H_{60}N_4O_{16}$

Homolog B: $C_{38}H_{62}N_4O_{16}$

Homolog C: $C_{39}H_{64}N_4O_{16}$

Homolog D: $C_{40}H_{66}N_4O_{16}$

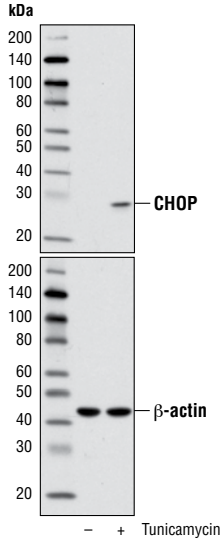


**Molecular Weight:** 840.9 g/mol
(Average based on homolog content)

**Solubility:** Soluble in DMSO, DMF or Pyridine.

**Purity:** >99%

**Directions for Use:** Tunicamycin is supplied as a lyophilized powder. For a 5 mg/ml stock, reconstitute the 5 mg in 1 ml DMSO. Working concentrations and length of treatments vary depending on the desired effect, but it is typically used at 0.1-10 µg/ml for 0.5-20 hours.




*Western blot analysis of C2C12 cell extracts, untreated (-) or treated with Tunicamycin (2 µg/ml, 8 hr; +), using CHOP (D46F1) Rabbit mAb #5554 (upper) or β-Actin Antibody #4967 (lower).*

**Storage:** Store lyophilized at room temperature or in solution at -20°C, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

**Background References:**

(1) Takatsuki, A. et al. (1971) *J Antibiot (Tokyo)* 24, 215-23.

(2) Kaushal, G.P. and Elbein, A.D. (1986) *Plant Physiol* 82, 748-52.

(3) Hirano, T. et al. (1982) *J Biochem* 92, 765-73.

(4) Brewer, J.W. and Diehl, J.A. (2000) *Proc Natl Acad Sci USA* 97, 12625-30.

(5) Harding, H.P. et al. (1999) *Nature* 397, 271-4.

(6) Ding, W.X. et al. (2007) *J Biol Chem* 282, 4702-10.

(7) Zinszner, H. et al. (1998) *Genes Dev* 12, 982-95.



**Applications Key:** **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
**Species Cross-Reactivity Key:** **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.