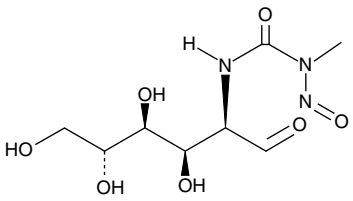
Product Information

Streptozotocin

Item No. 13104

CAS Registry No.: 18883-66-4
Formal Name: 2-deoxy-2-[[(methylnitrosoamino) carbonyl]amino]-D-glucose
Synonyms: Estreptozocin, NSC 37917, NSC 85998, STZ, U 9889, Zanosar
MF: $C_8H_{15}N_3O_7$
FW: 265.2
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 229 nm



Laboratory Procedures

For long term storage, we suggest that streptozotocin (STZ) be stored as supplied at -20°C. It should be stable for at least two years.

STZ is supplied as a crystalline solid. A stock solution may be made by dissolving the STZ in the solvent of choice. STZ is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of STZ in these solvents is approximately 5 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of STZ can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of STZ in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

STZ is a glucosamine-nitrosourea which is commonly used to induce experimental diabetes in animals.[1,2] It specifically targets beta cells, entering *via* the glucose transporter GLUT2 and causing alkylation of DNA.[3,4] DNA damage induces activation of poly ADP-ribosylation, depletion of cellular NAD^+ and ATP, and formation of superoxide radicals, leading to the destruction of beta cells.[1] The effectiveness of STZ depends on the level of GLUT2 expression, which in turn may be influenced by age, sex, strain, or species.[2,5]

References

1. Szkudelski, T. The mechanism of alloxan and streptozotocin action in B cells of the rat pancreas. *Physiol. Res.* **50**, 536-546 (2001).
2. Leiter, E.H. Multiple low-dose streptozotocin-induced hyperglycemia and insulitis in C57BL mice: Influence of inbred background, sex, and thymus. *Proc. Natl. Acad. Sci. USA* **79**, 630-634 (1982).
3. Melmed, R.N., Benitez, C.J., and Holt, S.J. Intermediate cells of the pancreas. III. Selective autophagy and destruction of β-granules in intermediate cells of the rat pancreas induced by alloxan and streptozotocin. *J. Cell Sci.* **13**, 297-315 (1973).
4. Bennett, R.A. and Pegg, A.E. Alkylation of DNA in rat tissues following administration of streptozotocin. *Cancer Res.* **41**, 2786-2790 (1981).
5. Kramer, J., Moeller, E.L., Hachey, A., *et al.* Differential expression of GLUT2 in pancreatic islets and kidneys of New and Old World nonhuman primates. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* **296**, R786-R793 (2009).

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