

Caerulein

Product Information

Product Name	Cat#	Size
Caerulein	60321ES03	1 mg

Product Description

Caerulein is a gastric regulatory molecule similar in function and composition to cholecystokinin (CCK), which stimulates gastric, bile duct and pancreatic secretion. Cerulein can be used to study signal transduction pathways mediated by NF-κB up-regulated proteins such as intercellular adhesion molecule (ICAM-1), inflammation-related factors such as NADPH oxidase, and Janus kinase. It has been successfully used in the establishment of acute pancreatitis (AP) models in animals such as rats, mice, dogs, and Syrian hamsters [1-5]. The modeling mechanism is:

- 1) Up-regulation of pancreatic acinar by stimulating intracellular NF-KB Intracellular Intercellular Adhesion Molecule (ICAM-1) expression. Surface ICAM-1 in turn promotes neutrophil adhesion to acinar cells to enhance pancreatic inflammatory effects [6];
- 2) leads to acinar cell death and pancreatic edema by inducing dysregulated digestive enzyme secretion and cytoplasmic vacuolation, thereby inducing pancreatitis;
- 3) activating inflammation-promoting factors [7].

Cerulein can be used to prevent gallbladder pain, renal colic, and intermittent claudication pain. It is generally considered to be an antagonist of endorphins.

This product is in the form of a decapeptide molecule, the polypeptide sequence is pGlu-Gln-Asp-Tyr(SO₃H)-Thr-Gly-Trp-Met-Asp-Phe-NH₂ (or Glp-Gln-Asp-Tyr(SO₃H)-Thr -Gly-Trp-Met-Asp-Phe-NH₂), purity ≥97% (HPLC).

Product Properties

English Synonym	Caerulein Sulfated, Cerulein, Ceruletide, [Tyr(SO ₃ H) 4]Caerulein
Sequence	pGlu-Gln-Asp-Tyr(SO ₃ H)-Thr-Gly-Trp-Met-Asp-Phe-NH ₂
CAS NO.	17650-98-5
Purity	≥97%
Molecular Formular	C ₅₈ H ₇₃ N ₁₃ O ₂₁ S ₂
Molecular Weight	1352.4 g/mol
Appearance	White powder
Solubility	Soluble in DMSO at 2 mg/mL, insoluble in water

Shipping and Storage

The product is shipped with dry ice and the powder can be stored at -80°C for 2 years. Store at -20°C, valid for 1 year. The solution is stored at -80°C and has a validity period of 6 months. Store at -20°C, valid for 1 month.

Cautions

- 1)The cerulein powder has the best storage stability. The solution will reduce the shelf life, and the storage solution is recommended to be used within two months.
- 2)LPS can synergize with cerulein to establish an animal model of pancreatitis [4].
- 3)For your safety and health, please wear a lab coat and disposable gloves for operation. For research use only!

Preparation method

First make up a stock solution with a concentration of 2 mg/mL in DMSO. Store the solution in aliquots at -80°C or -20°C to avoid repeated freezing and thawing. For in vivo experiments, it needs to be diluted with a buffer solution (such as PBS) to the required working solution concentration before injection into mice.

References

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- [2] Gül M, et al. The Beneficial Effects of Pentoxifylline on Caerulein-Induced Acute Pancreatitis in Rats. *Dig Dis Sci.* 54(3):555-63 (2009).
- [3] Sharif R, et al. Impact of toll-like receptor 4 on the severity of acute pancreatitis and pancreatitis-associated lung injury in mice. *Gut.* 58(6):813-9 (2009).
- [4] Elder AS, et al. Evaluation Of Lung Injury In A Caerulein Rat Model Of Acute Pancreatitis Complicated With Lipopolysaccharide. *Pancreatology.* 12(3):240-7 (2012).
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- [7] Kim H. Cerulein Pancreatitis: Oxidative Stress, Inflammation, and Apoptosis. *Gut Liver.* 2(2):74-80 (2008).