list labs
www.ListLabs.com

Cholera Toxin, an Interesting and Useful Tool

1. List Labs' products in the Cholera toxin group

LIS100 - Cholera toxin
LIS104 - Cholera toxin B subunit (CTB)
LIS106 - Cholera toxin B subunit attached to FITC
LIS112 - Cholera toxin B subunit attached to Biotin

2. Key Attributes

Toxins are produced in native organisms and provided at >95% purity. Cholera toxin B subunit is derived from the native whole toxin and purified. Endotoxin within the preparations is low, and the measurement value is provided. Activity of both the toxin and the B subunit is assessed by binding to the natural target, GM1 gangliosides.

3. Additional products supporting research using Cholera toxin

LIS703 - Anti-CTB antibody raised in goat

4. Specific Requirements

Cholera toxin and the B subunit can both be handled in a laboratory setting using good laboratory techniques. They are not for use in humans and are not approved for diagnostic purposes.

5. Technical Information

Briefly, Cholera toxin is an interesting research tool because, it is playing a part in stem cell research; cholera toxin can promote the growth of stem cells. It may be used to stimulate the growth of cells in culture, potentially creating material to be transplanted first in animals and eventually in humans. There are reports in the literature of cholera toxin used to produce corneal transplants and nerve tissue. In a similar application, Cholera toxin is used to stimulate cells which produce blood, and when transferred *in vivo,* move and settle into bone marrow.

Adams GB, Alley IR, Chung UI, Chabner KT, Jeanson NT, Lo Celso C, Marsters ES, Chen M, Weinstein LS, Lin CP, Kronenberg HM and Scadden DT (2009) Haematopoietic stem cells depend on Gαs-mediated signaling to engraft bone marrow, Nature 459:103-107. **PMID: 19322176 PMCID: PMC2761017**

Cholera toxin B subunit is a tool in research focused on regenerating damaged nerves. Labeling of neurons with cholera toxin B subunit has been used to demonstrate the generation and repair of peripheral nerves by a transcription factor KLF7.

Wang Y, Li WY, Sun P, Jin ZS, Liu GB, Deng LX & Guan LX (2016) Sciatic nerve regeneration in KLF7-transfected acellular nerve allografts, Neurological Research 38(3):242-254. **PMID: 27093235**

Cholera toxin, a tool for cell biology, has been used to understand the role of the endoplasmic-reticulum-associated protein degradation (ERAD) pathway. Cholera toxin hijacks this basic cellular path, using ERAD chaperone proteins to retro-translocate from the ER to the cytosol. Williams JM, Inoue T, Chen G, Tsai B (2015) The nucleotide exchange factors Grp170 and Sil1 induce cholera toxin release from BiP to enable retro-translocation, Mol Biol Cell 26:2181–2189. **PMID: 25877869 PMCID: PMC4462937**

Williams J M, Tsai B (2016) Intracellular trafficking of bacterial toxins, Curr Opin Cell Biol 41: 51–56. **PMID: 27084982 PMCID: PMC4983527**

Lit Code/ lis05
Rev: Sept 2024