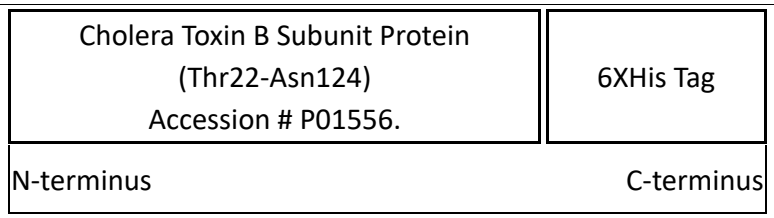
K2 ONCOLOGY

DataSheet

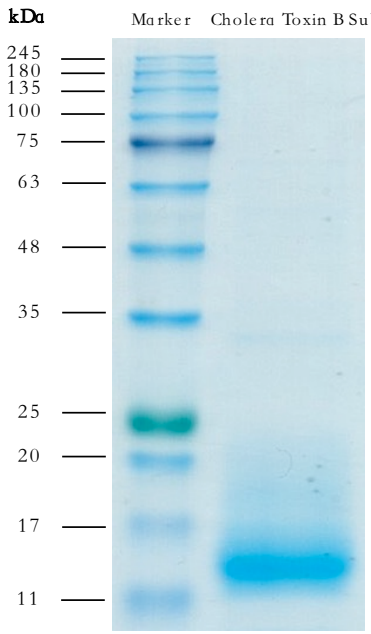
Recombinant Cholera Toxin B Subunit Protein

Cat. No.: CB01-100 Size: 100μg
Cat. No.: CB01-1000 Size: 1mg (500μg*2)

Product Specifications

Source:	 Human HEK293 cell line, HEK293-derived Cholera Toxin B Subunit protein with C-terminus 6XHis Tag.
Accession:	P01556
Purity:	>90%, by SDS-PAGE under reducing conditions.
Endotoxin Level:	<0.10 EU/μg of the protein by the LAL method.
Structure:	Pentameric
Predicted Molecular Weight	13.5 kDa
SDS-PAGE	13 kDa-16kDa, reducing conditions.
Sterile:	0.22μm sterile filtration.
Product Form:	Lyophilized powder.
Shipping & Storage:	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below: ➢ To the date of expiration, -20°C to -80°C as supplied. ➢ 3 months, -20°C to -80°C under sterile conditions after reconstitution. ➢ 1 month, 2 to 8 °C under sterile conditions after reconstitution. **Avoid repeated freeze-thaw cycles.**

Scientific Data



Reducing SDS-PAGE

The purity of the recombinant cholera toxin B subunit protein was analyzed using SDS-PAGE under reducing conditions and stained using coomassie blue.

Product Background:

Recombinant Cholera Toxin B Subunit Protein (CTB) is a modified form of the cholera toxin, a virulence factor produced by Vibrio cholerae. CTB is composed of a single polypeptide chain consisting of 103 amino acids. It forms a pentameric structure, with each monomer consisting of two distinct domains: the A (active) domain and the B (binding) domain. The B domain is responsible for CTB's binding affinity to GM1 ganglioside receptors on the surface of host cells, allowing its internalization and subsequent intracellular signaling.

The remarkable affinity of CTB for GM1 gangliosides enables its uptake into host cells through receptor-mediated endocytosis. Upon binding to GM1, CTB is internalized into endosomes, where it undergoes retrograde transport to the endoplasmic reticulum. This unique property has been harnessed for various biomedical applications, including targeted drug delivery and mucosal vaccination strategies.

CTB has been extensively utilized as a carrier or adjuvant in vaccine formulations. Its ability to deliver fused antigens into antigen-presenting cells enhances the immune response, leading to robust humoral and cellular immunity. CTB-based vaccines have shown promise against numerous infectious diseases, including cholera, influenza, and enterotoxigenic Escherichia coli (ETEC) infections. Furthermore, CTB's immunomodulatory properties make it an attractive candidate for mucosal vaccination, offering protection at mucosal surfaces.

References:

1. Sánchez, J., & Holmgren, J. (2011). Indian Journal of Medical Research, 133(2), 153-163.
2. Sánchez, J., & Holmgren, J. (2008). Cellular and molecular life sciences, 65, 1347-1360.
3. Holmgren, J., & Czerkinsky, C. (2005). Nature medicine, 11(Suppl 4), S45-S53.
4. Rappuoli, R., Pizza, M., Douce, G., & Dougan, G. (1999). Immunology today, 20(11), 493-500.
5. Hou, J., Liu, Y., Hsi, J., Wang, H. et al. (2014). Human vaccines & immunotherapeutics, 10(5), 1274-1283.

RUO Statement:

Recombinant Cholera Toxin B Subunit Protein for Research Use Only. It is not intended for diagnostic, therapeutic, or any other clinical applications.

K2 Oncology Co. Ltd.

Tel: 010-56538985 E-mail: info@k2oncology.com

Address: Room 4-101, Build 3, Zone 3, JiuCheng Tech Park, No88 5th Jinghai Rd. BDA, Beijing, China