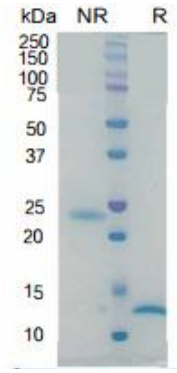
Recombinant Human TGF-β1, Tag Free

Cat number: KGH2021

Store at - 80℃ for 12 months **For Research Use Only（科研专用）**

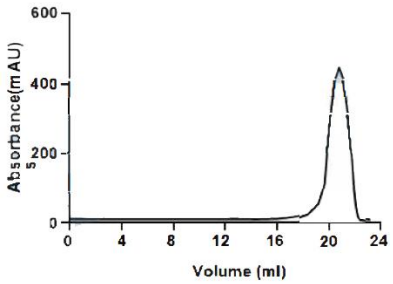
General Information	
Synonyms	Human TGF－β1; Human TGF-beta 1, Human transforming growth factor beta 1
Accession#	P01137
Source	Human embryonic kidney cell, HEK293-derived human TNF-β1 protein
	Ala279-Ser390
Predicted Moleucular weigh	12.8 kDa (Monomer)
Form/Structure	Dimer in solution
Components and Storge	
Formulation	Solution prote1n
	Dissolved in sterile PBS buffer, see tube wall for specific concentration.
	This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening
Storaged Stability	Avoid repeated freeze-thaw cycles
	It is recommended that the protein be aliquoted for optimal
	storage. 12 months from date of receipt, -80℃ as supplied
Shipping	Shipping with dry ice.
Quality	
Purity	> 95%, determined by SDS PAGE.
Endotoxin Level	<0.010 EU per 1ug of the protein by the LAL method.
Activity	Measured by the $(CAGA)_{12}$-luciferase reporter assay The EC_{50} for this effect is 1.092ng/mL

SDS-PAGE



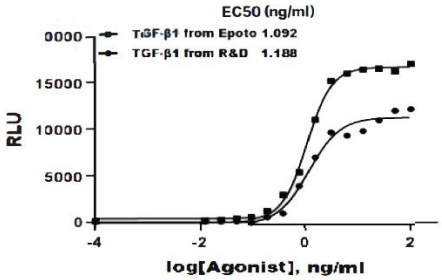
2 ug/lane protein was resolved with SDS-PAGE under non-reducing (NR) and reducing (R) conditions and visualized by Coomassie Blue staining

Gel filtration



Size-exclusion chromatography of recombinant TGF-β1 protein (280 nm absorbance)

Bioactivity



Measured by $(CAGA)_{12}$-luciferase reporter assay

Background

TGF－β1 (transforming growth factor beta 1) is one of three closely related mammalian members of the large TGF-β supefamily that share a characteristi cystineknot structure（1－7). TGF-β1, -2 and -3 are highly pleiotropic cytokines that are proposed to act as cellular switches that regulate processes such as immune function,proliferation and epithelial-mesenchymal transition（1－4). Each TGF-β isoform has some nonredundant functions; for TGF-β1，mice with targeted deletion show defectsin hematopoiesis and endothelial differentiation, and die of overwhelming inflammation (2). Human TGF-β1 cDNA encodes a 390 amino acid (aa) precursor that contains a 29 aa signal peptide and a 361 aa proprotein (8). A furin-like convertase Processes the proprotein to generate an N-terminal 249 aa atency-associatedpeptide (LAP) and a C-terminal 112 aa mature TGF-11 (8, 9). Disulfidelinked homodimers of LAP and TGF-β1 remain non-covalently associated after secretion, forming the small latent TGF-β1 complex (8－10). Covalent linkage of LAP to one of three latent TGF-β binding proteins (LTBPs) creates a large latent complex that may interact with the extracellular matrix (9，10). TGF-β is

activated from latency by pathways that include actions of the protease plasmin, matrix metalloproteases, thrombospondin1 and a subset of integrins（10). Mature human TGF-β1 shares 100% aa identity with pig, dog and cow TGF－β1，and 99% aa id-entity with mouse, rat and horse TGF－β1，It demonstrates cross-species activity（1）. TGF-β1 signaling begins with high-affinity binding to a type II ser/thr kinasereceptor termed TGF-βRII.This receptor then phosphorylates and activates a second ser/thr kinase receptor, TGF-β RI (also called activing receptor－like kinase (ALK) -5), or alternatively, ALK－1.This complex phosphorylates and activates Smad proteins that regulate "ransc「iption (3，11，12).

Reference

1. Derynck, R. and K. Miyazono (2008) Cold Spring Harbor Laboratory Press
2. Dunker, N. and K. Krieglstein (2000) Eur. J. Biochem. 267:6982.
3. Wahl, S.M. (2006) lmmunol. Rev. 213:213.
4. Chang, H. et al. (2002) Endocr. Rev. 23:787.
5. Lin, J.S. et al. (2006) Reproduction 132：179.
6. Hinck, A.P. et al. （1 996) Biochemistry 35:8517.
7. Mittl, P.R.E. et al. (1996) Protein Sci. 5:1261.
8. Derynck, R. et al.（1985) Nature 316:701，
9. Miyazono, K. et al. (1988) J. Biol. Chem. 263:6407.
10. Oklu, R. and R. Hesketh (2000) Biochem. J. 352:601.
11. de Caestecker, M. et al. (2004) Cytokine Growth Factor Rev.15:1.
12. Zuniga,J.E. et al. (2005) J. Mol. Biol. 354:1052.