

Product Data Sheet

TRAC Protein, Human (P.pastoris, His)

Cat. No.:	HY-P72271
Synonyms:	TRAC; TCRA; T cell receptor alpha constant
Species:	Human
Source:	P. pastoris
Accession:	P01848 (I1-S140)
Gene ID:	28755
Molecular Weight:	Approximately 17.0 kDa

CODEDTIES				
ROPERTIES				
AA Sequence				
	IQNPDPAVYQ	LRDSKSSDKS	VCLFTDFDSQ	ΤΝΥЅQSΚDS
	VYITDKTVLD	MRSMDFKSNS	A V A W S N K S D F	A C A N A F N N S
	IPEDTFFPSP	ESSCDVKLVE	KSFETDTNLN	FQNLSVIGF
	ILLLKVAGFN	LLMTLRLWSS		
	Land Product des			
ppearance	Lyophilized powder.			
Formulation	Lyanhilizad from a 0.2 um	starila filtarad 20 mM Tris L	ICL O E M NoCL 20/ Trobalact	
ormutation	Lyophilized from a 0.2 µm	sterne intered 20 mm Tris-F	1CI, 0.5 M NaCI, 3% Trenatos	е, рн 8.0.
adatavin Loval	<1.0 EU/ug datarminad h	VIAL mothod		
	<1.0 LO/μg, determined b	y LAL Method.		
Peconsititution	It is not recommanded to	roconstituto to a concontra:	tion loss than 100 ug/mL in c	
reconstitution	it is not recommended to	reconstitute to a concentral	tion less than 100 µg/me me	iun ₂ 0.
Storage & Stability	Starad at 20°C for 2 years	After reconstitution it is st	able at 4°C for 1 week or 20	°C for longer (with corr
Storage & Stability	recommended to freeze a	liquets at 20°C or 20°C for	able at 4 C 101 I week 01 -20	c for longer (with carr
	recommended to neeze a	1140013 at -20 C 01 -00 C 101	entended stolage.	
Shinning	Poom tomporaturo in con	tinontal US: mayyany alsow	horo	
mpping	Room temperature in con	tinental 05, may vary elsew	nere.	

DESCRIPTION

BackgroundThe constant region of the T cell receptor (TR) alpha chain, represented by the TRAC protein, is a fundamental component of
alpha-beta T cell receptors crucial for the immune response. These antigen-specific receptors are present on the surface of T
lymphocytes and play a pivotal role in recognizing peptide-major histocompatibility (pMH) complexes displayed by antigen-
presenting cells (APC), essential for effective T cell adaptive immunity against pathogens. Binding of the alpha-beta TR to
the pMH complex initiates TR-CD3 clustering on the cell surface, activating intracellular LCK that phosphorylates the ITAM
motifs of CD3G, CD3D, CD3E, and CD247, facilitating the recruitment of ZAP70. ZAP70, in turn, phosphorylates LAT,
assembling the LAT signalosome, which branches signals to the calcium, mitogen-activated protein kinase (MAPK), and
nuclear factor NF-kappa-B (NF-kB) pathways. This leads to the mobilization of transcription factors critical for gene
expression and essential for T cell growth and differentiation. The T cell repertoire, generated in the thymus through V-(D)-J

rearrangement, undergoes intrathymic selection to form a self-major histocompatibility (MH) restricted, nonautoaggressive peripheral T cell pool. Post-thymic interactions with pMH complexes shape the structural and functional avidity of the alpha-beta TR, a heterodimer composed of an alpha and beta chain linked by disulfide bonds. The assembly of alpha-beta TR heterodimers with CD3 coreceptor proteins occurs in the endoplasmic reticulum, forming the TR-CD3 (TcR or TCR). This assembly involves the association of TR alpha and TR beta chains with CD3D-CD3E and CD3G-CD3E heterodimers, respectively, and the final association with the CD247 homodimer, a critical step for transport to the cell surface.

Caution: Product has not been fully validated for medical applications. For research use only.

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