Recombinant SIX4 protein (His tag)

Catalog Number	548482
Synonyms	Sine oculis homeobox homolog 4
Species	Human
Expression System	E. coli
Accession	Q9UIU6
Molecular Weight	Predictes a molecular mass of 21.81 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 22 kDa band.

Product Information

Sequence Region	109-280
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>85%, by SDS-PAGE with Coomassie Brilliant Blue staining.
Endotoxin	Not tested.
Activity	Not tested.
Stability	Samples are stable for up to twelve months from date of receipt at -70℃
Protein Construction	DNA encoding 109-280 aa (Q9UIU6) were fused with 6His tag.

Storage & Handling

Reconstitution	Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution.
Storage	Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Shipping	In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise.

Description

Description	Recombinant Human Homeobox Protein SIX4 (SIX4) Fragment (aa 109-280) is a high-quality, soluble protein designed for structural and biochemical studies. This 172-amino acid fragment, derived from the human SIX4 protein, retains key functional characteristics and is ideal for investigating transcriptional regulation, cell differentiation, and developmental processes. Homeobox protein SIX4 (Sine oculis homeobox homolog 4), encoded by the SIX4 gene in Homo sapiens (UniProt ID: Q9UIU6), is a crucial transcriptional regulator that functions as both an activator and repressor. It binds specific DNA motifs, such as the Trex and MEF3 sites, to control gene expression involved in cell differentiation, migration, and survival. SIX4 plays essential roles in organ development, including muscle, kidney, gonad, ganglia, olfactory epithelium, and cranial skeleton formation. It cooperates with EYA proteins for nuclear translocation and synergizes with SIX1 to regulate target genes. In muscle development, SIX4 governs myogenic progenitor genesis, myoblast determination, and myofiber specialization by activating fast muscle genes and inhibiting slow muscle programs. During kidney development, it regulates metanephros formation and ureteric bud development through genes like GDNF, SALL1, PAX8, and PAX2. Additionally, SIX4 is involved in gonad development by transactivating ZFPM2 and NR5A1, olfactory patterning via fibroblast growth factor and BMP4 signaling, sensory neuron survival, and early thymus/parathyroid organogenesis. The protein localizes to both the nucleus and cytoplasm, reflecting its dynamic regulatory functions. The provided fragment (aa 109-280) was selected computationally for stability and solubility, enabling focused studies on SIX4's mechanistic roles.