



LD Biopharma, Inc.  
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## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human Pax6 Protein  
**Catalog Number:** hTF-2450  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human Pax6 (Isoform a) encodes paired box gene 6, one of many human homologs of the *Drosophila melanogaster* gene *prd*. In addition to the hallmark feature of this gene family, a conserved paired box domain, the encoded protein also contains a homeo box domain. Both domains are known to bind DNA, and function as regulators of gene transcription. This gene is expressed in the developing nervous system, and in developing eyes. Mutations in this gene are known to cause ocular disorders such as aniridia and Peter's anomaly. Alternatively spliced transcript variants encoding either the same or different isoform have been found for this gene.

Full-length human Pax6 cDNA (421aa, Isoform-A) was constructed with codon optimization using gene synthesis technology and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. It was expressed in *E. coli* as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** Pax6 (AN; AN2; ASGD5; D11S812E; FVH1; MGDA; WAGR)  
**Accession Number:** NP\_000271  
**Species:** Human  
**Size:** 10 µg / Vial  
**Composition:** 0.1 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Glycerol.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 7 days.

### Key References

Meng Q, et al., *MicroRNA-19 contributes to the malignant phenotypes of osteosarcoma in vitro by targeting Pax6*. *Tumour Biol.* 40 (1), 1010428317744704 (2018)



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Osumi N, et al., *Concise review: Pax6 transcription factor contributes to both embryonic and adult neurogenesis as a multifunctional regulator*. *Stem Cells* 26 (7), 1663-1672 (2008)

Tang HK, et al. Functional analysis of paired box missense mutations in the PAX6 gene. *Hum Mol Genet*. Mar; 6 (3): 381-386. (1997)

Hongyan Zhou, et al. *Generation of Induced Pluripotent Stem Cells Using Recombinant Proteins*. *Cell Stem Cell*. 4: 381-384. (2009)

## Applications

1. May be used for in vitro Pax6 mediated gene transcription regulation study for human neural cell differentiation or eye cells development by intracellular delivery of this protein using ProFectin reagents.
2. May be used for mapping Pax6 protein-protein interaction.
3. Active recombinant protein, may be used for ELISA based DNA/Protein binding assay.
4. As Immunogen for specific antibody production.

## Quality Control

1. Purity: > 90% by SDS-PAGE.
2. DNA binding assay: Not tested yet.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFQNSHSGVNLGGVFNVRPLPDSTRQKIVELAHSG  
ARPCDISRILQVSNQCVSKILGRYYETGSIRPRAIGGSKPRVATPEVVSKIAQYKRECPSIFAW  
EIRDRLLESEGVCTNDNIPSVSSINRVLRLNLASEKQQMGADGMVDKLRMLNGQTGSWGTRPGWYP  
GTSVPGQPTQDGCQQQEGGGENTNSISSNGEDSDEAQMRLQLKRKLQRNRTSFTQEQIEALEKE  
FERTHYPDVFARERLAAKIDLPEARIQVWFSNRRAKWRREEKLRNQRQASNTPSHIPISSSFS  
TSVYQPIQPPTTPVSSFTSGSMLGRDTDALTNTYSALPPMPSFTMANNLPMQPPVPSQTSSYSC  
MLPTSPSVNGRSYDITYTPPHMQTHMNSQPMGTSGTTSTGLISPGVSVVPVQVPGSEPDMSQYWPR  
LQ