



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

**Name of Product:** Recombinant Human MCM5 Protein  
**Catalog Number:** hTF-1962  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

The protein encoded by human MCM5 gene is structurally very similar to the CDC46 protein from *S. cerevisiae*, a protein involved in the initiation of DNA replication. The MCM5 protein is a member of the MCM family of chromatin-binding proteins and can interact with at least two other members of this family. MCM5 acts as component of the MCM2-7 complex (MCM complex), which is the putative replicative helicase essential for 'once per cell cycle' DNA replication initiation and elongation in eukaryotic cells. The active ATPase sites in the MCM2-7 ring are formed through the interaction surfaces of two neighboring subunits such that a critical structure of a conserved arginine finger motif is provided in trans relative to the ATP-binding site of the Walker A box of the adjacent subunit. The six ATPase active sites, however, are likely to contribute differentially to the complex helicase activity (By similarity). This protein also interacts with MCMB. MCM5 is up-regulated in the transition from the G0 to G1/S phase of the cell cycle and may actively participate in cell cycle regulation.

Full-length human MCM5 cDNA (733aa) 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:** MCM5 (CDC46; P1-CDC46)  
**Accession Number:** NP\_006730  
**Species:** Human  
**Size:** 20 µg / Vial  
**Composition:** 0.2 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

### Key References

Eissa S, et al., *MicroRNA-10b and minichromosome maintenance complex component 5*



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*gene as prognostic biomarkers in breast cancer. Tumour Biol. 36 (6), 4487-4494 (2015)*

Yu SY, et al., *Increased expression of MCM5 is significantly associated with aggressive progression and poor prognosis of oral squamous cell carcinoma. J. Oral Pathol. Med. 43 (5), 344-349 (2014)*

Kusunoki S et al., *Interaction of human minichromosome maintenance protein-binding protein with minichromosome maintenance 2-7. FEBS J. 281 (4), 1057-1067 (2014)*

## Applications

1. May be used for in vitro MCM5 mediated DNA replication initiation regulation study for cancer cells by intracellular delivery of this protein with protein delivery reagent such as ProFectin reagent kit.
2. May be used for mapping protein-protein interaction.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for cancer prognosis, such as for breast cancer.
5. As immunogen for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFSGFDDPGIFYSDFSFGGDAQADEGQARKSQLQRRFK  
EFLRQYRVGTDRTGFTFKYRDELKRHYNLGEYWIEVEMEDLASFDEDLADYLYKQPAEHLQLE  
EAAKEVADEVTRPRPSGEEVLQDIQVMLKSDASPSSIRSLKSDMMSHLVKIPGIIAASAVRAK  
ATRISIQCRSCRNTLTNIAMRPGLEGYALPRKCNTDQAGRPKCPLDPYFIMPDKCKCVDFQTLK  
LQELPDAVPHGEMPRHMQLYCDRYLCKDVVPGNRVTIMGIYSIKKFGLTTSRGRDRVGVGIRSS  
YIRVLGIQVDTDGSGRSFAGAVSPQEEEEFRRLAALPNVYEVIKSIAPSIFFGGTDMKKAIACL  
LFGGSRKRLPDGLTRRGDINLLMLGDPGTAKSQLLKVFVEKCSPIGVYTSKGKSSAAGLTASVMR  
DPSSRNFIIEGGAMVLADGGVVCIDEFDKMREDDRVAIHEAMEQQTISIAKAGITTTLNSRCSV  
LAAANSVFGRWDETKGEDNIDFMPITILSRFDMI FIVKDEHNEERDVMLAKHVITLHVSALTQTQ  
AVEGEIDLAKLKKFIAYCRVKCGPRLSAEAAEKLNRYIIMRSGARQHERSDRRSSIPITVRQ  
LEAIVRIAALS KMKLQPFATEADV EEARLRFQVSTLDAALSGLTSGVEGFTSQEDQEMLSRIE  
KQLKRRFAIGSQVSEHSIIKDFTKQKYPEHAIHKVLQLMLRRGEIQHRMQRKVLRYRLK