



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

**Name of Product:** Recombinant Human H2AFY Protein  
**Catalog Number:** hRP-0471  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Histones are basic nuclear proteins that are responsible for the nucleosome structure of the chromosomal fiber in eukaryotes. Nucleosomes consist of approximately 146 bp of DNA wrapped around a histone octamer composed of pairs of each of the four core histones (H2A, H2B, H3, and H4). The chromatin fiber is further compacted through the interaction of a linker histone, H1, with the DNA between the nucleosomes to form higher order chromatin structures. The protein products of the H2AFY gene, known as macroH2As, are histone variants that contain nonhistone regions. H2AFY is associated with, but not required for, X-chromosome inactivation. Recent data indicated that H2AFY levels climb in both human and mutant huntingtin (htt) transgenic mouse blood and striatum before the onset of histological damage and, at least early in the disease, H2AFY levels are reported to change in proportion to disease severity.

Full length human H2AFY gene (derived from BC095406) was constructed with N-terminal T7/His/TEV cleavage site 29aa Tag. This protein was expressed in *E. coli* as inclusion bodies, refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** H2AFY (MacroH2A1)  
**Accession Number:** NP\_004884.1  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 1.0 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 -20°C for long term storage. Product is stable at 4 °C for at least 7 days.



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## Key References

Hu Y, et al. *Transcriptional modulator H2A histone family, member Y (H2AFY) marks Huntington disease activity in man and mouse.* PNAS, (2011) 108:17141–17146. (2011)

Novikov,L., et al. *QKI-mediated alternative splicing of the histone variant MacroH2A1 regulates cancer cell proliferation.* Mol. Cell. Biol. 31 (20), 4244-4255 (2011)

Kapoor,A., et al. *The histone variant macroH2A suppresses melanoma progression through regulation of CDK8.* Nature 468 (7327), 1105-1109 (2010)

## Applications

1. May be used as specific substrate protein for kinase enzymatic assay.
2. May be used for in vitro histone/DNA reconstitution assay.
3. May be used as native immunogen for specific antibody production.
4. May be used as protein biomarker for Huntington disease monitoring.

## Quality Control

1. Purity: > 90% by SDS-PAGE.
2. Functional Test: Not tested yet.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHGNLYFQGGFSSRGGKKKSTKTSRSAKAGVIFPVGRMLRYIKKGH  
PKYRIGVGAPVYMAAVLEYLTAEILELAGNAARDNKKGRVTPRHILLAVANDEELNQLKGVTI  
ASGGVLPNIHPELLAKKRGSKGKLEAIITPPPAKKAKSPSQKKPVSKKAGGKKGARKSKKKQGE  
VSKAASADSTTEGTPADGFTVLSTKSLFLGQKLNLIHSEISNLAGFEVEAIINPTNADIDLKDD  
LGNTLEKKGGKEFVEAVLELRKKNNGPLEVAGAAVSAGHGLPAKFVIHCNSPVWGADKCEELLEK  
TVKNCLALADDKKLSIAFPSIGSRNGFPKQTAQLILKAISSYFVSTMSSSIKTVYFVLFDS  
ESIGIYVQEMAKLDAN