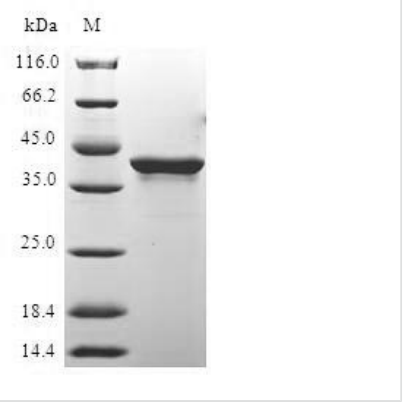
Recombinant Human Histone H2A.x (H2AFX)

Product Code	CSB-EP010097HUe0
Relevance	Variant histone H2A which replaces conventional H2A in a subset of nucleosomes. Nucleosomes wrap and compact DNA into chromatin, limiting DNA accessibility to the cellular machineries which require DNA as a template. Histones thereby play a central role in transcription regulation, DNA repair, DNA replication and chromosomal stability. DNA accessibility is regulated via a complex set of post-translational modifications of histones, also called histone code, and nucleosome remodeling. Required for checkpoint-mediated arrest of cell cycle progression in response to low doses of ionizing radiation and for efficient repair of DNA double strand breaks (DSBs) specifically when modified by C-terminal phosphorylation.
Abbreviation	Recombinant Human H2AFX protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P16104
Alias	Histone H2A.X
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MSGRGKTGGKARAKAKSRSSRAGLQFPVGRVHRLLRKGHYAERVGAGAPVY LAAVLEYLTAEILELAGNAARDNKKTRIIPRHLQLAIRNDEELNKLLGGVTIAQGG VLPNIQAVLLPKKTSATVGPKAPSGGKKATQASQEY
Source	E.coli
Target Names	H2AFX
Expression Region	1-143aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	42.0kDa
Protein Length	Full Length
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Human Histone H2A.x (H2AFX) is produced in E. coli and includes the complete protein sequence spanning amino acids 1 to 143. The protein carries an N-terminal GST tag that helps with purification and detection processes. SDS-PAGE analysis confirms the product maintains purity levels above 90%, which appears to support reliable research outcomes. This protein is designed strictly for research purposes and should not be used in diagnostic or therapeutic applications.

Histone H2A.x represents a variant within the histone H2A family and seems to play an essential role in how cells respond to and repair DNA damage. When DNA sustains damage, H2A.x undergoes phosphorylation and likely helps recruit repair proteins to the damaged sites. This involvement in protecting genomic integrity makes it particularly valuable for research into cell cycle control and cancer studies.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Chromatin Remodeling and Nucleosome Assembly Studies

Researchers can use this full-length recombinant H2AFX protein in laboratory settings to examine chromatin dynamics and nucleosome formation processes. The protein may be incorporated into nucleosome reconstitution experiments along with other core histones (H2A, H2B, H3, H4) and DNA to study how chromatin structures develop. Scientists might investigate whether H2AFX behaves differently from standard H2A regarding nucleosome stability and chromatin packaging. The GST tag simplifies purification and handling during these intricate biochemical procedures.

2. GST Pull-Down Assays for Protein-Protein Interaction Studies

The N-terminal GST tag makes this protein immediately useful for GST pull-down experiments aimed at identifying and characterizing proteins that interact

with H2AFX. Cell lysates or purified candidate proteins can be mixed with GST-H2AFX attached to glutathione beads to capture specific binding partners. This method proves especially valuable when studying histone chaperones, chromatin remodeling complexes, or DNA repair proteins that might bind to H2AFX. The greater than 90% purity should minimize background binding from contaminating proteins.

3. Antibody Development and Validation

This recombinant protein works well as an immunogen for creating H2AFX-specific antibodies or for testing existing antibodies. Since it contains the full-length sequence (1-143aa), it provides all potential epitopes found in the natural protein, making it suitable for producing antibodies that recognize different regions of H2AFX. Researchers can also use the protein in ELISA-based tests to assess antibody specificity, binding strength, and potential cross-reactivity with other histone variants.

4. In Vitro Histone Modification Assays

The recombinant H2AFX protein may serve as a substrate for investigating post-translational modifications, especially phosphorylation events connected to DNA damage response pathways. Kinase experiments can be conducted using this protein to study enzyme specificity and modification rates. Scientists might also use the protein to test the activity of histone-modifying enzymes like acetyltransferases, methyltransferases, or deacetylases that target H2AFX, potentially revealing new insights into epigenetic regulation mechanisms.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.