

Histone H4 (pan-methyl K20) Quantification Kit (Fluorometric) ab115100

Overview

Product name	Histone H4 (pan-methyl K20) Quantification Kit (Fluorometric)
Detection method	Fluorescent
Sample type	Tissue, Adherent cells, Suspension cells
Sensitivity	1 ng/well
Range	10 ng/well - 2000 ng/well
Assay time	2h 30m
Species reactivity	Reacts with: Mouse, Human

Predicted to work with: Mammals 

Product overview	<p>Methylation of histone H4 at lysine 20 is catalyzed by SET9 and SUV4.20h among other methyl transferases in mammalian cells. H4 (mono-methyl K20) is involved in the maintenance of proper higher order structure of DNA and is consequently essential for chromosome condensation, as well as functioning in gene silencing. H4 (di-methyl K20) has been described as another repressive chromatin domain and is involved in the DNA damage response. H4 (tri-methyl K20) acts as a passive feature or structure determinant for chromatin degradation and release, as well as being an epigenetic marker of early apoptosis. H4 (tri-methyl K20) is also considered as a common hallmark of human cancer.</p> <p>Abcam's Histone H4 (pan-methyl K20) Quantification Kit (Fluorometric) (ab115100) enables the user to measure global mono-, di- and tri-methylation of histone H4K20. The global H4K20 pan-methylation can also be changed by inhibition or activation of HMTs, making quantitative detection of global pan-methyl histone H4K20 a useful tool for better understanding epigenetic regulation of gene activation/repression. ab115100 is suitable for use with a variety of mammalian cells including fresh and frozen tissues, and cultured adherent and suspension cells.</p>
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Platform	Microplate reader
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Properties

Storage instructions	Please refer to protocols.
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Components	Identifier	96 tests
10X Wash Buffer		1 x 20ml

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8 Well Sample Strip (with Frame)		1 x 9 units
8 Well Standard Control Strips	Green Ringed	1 x 3 units
Antibody Buffer		1 x 12ml
Detecting Antibody, 1 mg/mL		1 x 10µl
Fluoro Developer		1 x 24µl
Fluoro Dilution		1 x 8ml
Fluoro Enhancer		1 x 24µl
Signal Enhancer		1 x 240µl
Signal Report Solution		1 x 10µl
Standard Control, 100 µg/mL		1 x 20µl

Function

Core component of nucleosome. 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.

Sequence similarities

Belongs to the histone H4 family.

Post-translational modifications

Acetylation at Lys-6 (H4K5ac), Lys-9 (H4K8ac), Lys-13 (H4K12ac) and Lys-17 (H4K16ac) occurs in coding regions of the genome but not in heterochromatin.

Citrullination at Arg-4 (H4R3ci) by PAD4 impairs methylation.

Monomethylation and asymmetric dimethylation at Arg-4 (H4R3me1 and H4R3me2a, respectively) by PRMT1 favors acetylation at Lys-9 (H4K8ac) and Lys-13 (H4K12ac).

Demethylation is performed by JMJD6. Symmetric dimethylation on Arg-4 (H4R3me2s) by the PRDM1/PRMT5 complex may play a crucial role in the germ-cell lineage.

Monomethylated, dimethylated or trimethylated at Lys-21 (H4K20me1, H4K20me2, H4K20me3).

Monomethylation is performed by SET8. Trimethylation is performed by SUV420H1 and SUV420H2 and induces gene silencing.

Ubiquitinated by the CUL4-DDB-RBX1 complex in response to ultraviolet irradiation. This may weaken the interaction between histones and DNA and facilitate DNA accessibility to repair proteins. Monoubiquitinated at Lys-92 of histone H4 (H4K91ub1) in response to DNA damage. The exact role of H4K91ub1 in DNA damage response is still unclear but it may function as a licensing signal for additional histone H4 post-translational modifications such as H4 Lys-21 methylation (H4K20me).

Sumoylated, which is associated with transcriptional repression.

Cellular localization

Nucleus. Chromosome.

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