Revision 1

Store at -20C

#25497

JARID1/KDM5 Histone Demethylase Antibody Sampler Kit

1 Kit (4 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
JARID1A (D28B10) Rabbit mAb	3876	20 µl	200 kDa	Rabbit IgG
JARID1B (E2X6N) Rabbit mAb	15327	20 µl	180 kDa	Rabbit IgG
JARID1C (D29B9) Rabbit mAb	5361	20 µl	180 kDa	Rabbit IgG
JARID1D (E4D4B) Rabbit mAb	78995	20 µl	190 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The JARID1/KDM5 Histone Demethylase Antibody Sampler Kit provides an economical means for detecting the JARID1/KDM5 family of proteins. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibodies.*

Background

The methylation state of lysine residues in histone proteins is a major determinant for formation of active and inactive regions of the genome and is crucial for proper programming of the genome during development (1,2). Jumonji C (JmjC) domain-containing proteins represent the largest class of potential histone demethylase proteins (3). The JmjC domain can catalyze the demethylation of mono-, di-, and tri-methyl lysine residues via an oxidative reaction that requires iron and α-ketoglutarate (3). Based on homology, both humans and mice contain at least 30 such proteins, which can be divided into 7 separate families (3). The JARID (Jumonji/AT-rich interactive domain-containing protein) family contains four members: JARID1A (also RBP2 and RBBP2), JARID1B (also PLU-1), JARID1C (also SMCX), and JARID1D (also SMCY) (4). In addition to the JmJC domain, these proteins contain JmJN, BRIGHT, C5HC2 zinc-finger, and PHD domains, the latter of which binds to methylated histone H3 (Lys9) (4). All four JARID proteins demethylate di- and tri-methyl histone H3 Lys4; JARID1B also demethylates mono-methyl histone H3 Lys4 (5-7). JARID1A is a critical RB-interacting protein and is required for Polycomb-Repressive Complex 2 (PRC2)-mediated transcriptional repression during ES cell differentiation (8). A JARID1A-NUP98 gene fusion is associated with myeloid leukemia (9). JARID1B, which interacts with many proteins including c-Myc and HDAC4, may play a role in cell fate decisions by blocking terminal differentiation (10-12). JARID1B is overexpressed in many breast cancers and may act by repressing multiple tumor suppressor genes, including *BRCA1* and *HOXA5* (13,14). JARID1C has been found in a complex with HDAC1, HDAC2, G9a, and REST, which binds to and represses REST target genes in non-neuronal cells (7). JARID1C mutations are associated with X-linked mental retardation and epilepsy (15,16). JARID1D is uniquely localized to the Y chromosome, and functions as a tumor suppressor by repressing genes associated with cell invasiveness (17). JARID1D is frequently mutated in metastatic prostate tumors, and low JARID1D levels are associated with poor prognosis in prostate cancer patients (17).

Background References

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