Menin CUTANA™ CUT&RUN Antibody

Catalog No	13-2021	**Type**	Polyclonal
Lot No	22070001-87	**Host**	Rabbit
Pack Size	100 µL	**Concentration**	1,000 µg/mL
Applications	CUT&RUN, IHC, IP, WB	**Reactivity**	Human, Mouse

DESCRIPTION

This antibody meets EpiCypher's "CUTANA Compatible" criteria for performance in Cleavage Under Targets and Release Using Nuclease (CUT&RUN) and/or Cleavage Under Targets and Tagmentation (CUT&Tag) approaches to genomic mapping. Every lot of a CUTANA Compatible antibody is tested in the indicated approach using EpiCypher optimized protocols (epicypher.com/protocols) and determined to yield peaks that show a genomic distribution pattern consistent with reported function(s) of the target protein. Menin antibody produces CUT&RUN peaks above background primarily in promoter and intronic regions (**Figure 1**) that overlap with H3K4me3 (**Figure 2**), consistent with its known role as a component of MLL/SET1 histone methyltransferase complex, where it specifically methylates H3K4. As a part of the MLL/SET1 complex, Menin mediates its tumor suppressor activity by regulating histone methylation of HOX and CDK inhibitor genes [1].

TECHNICAL INFORMATION

Immunogen	Between amino acids 575 and 615
Storage	Stable for 1 year at 4°C from date of receipt
Formulation	Antigen affinity-purified antibody in Tris-citrate/phosphate buffer pH 7-8, 0.09% sodium azide

RECOMMENDED DILUTION

CUT&RUN	0.5 µg per reaction	**Immunoprecipitation**	2 - 10 µg/mg lysate
Immunohistochemistry	1:500 - 1:2,000	**Western Blot**	1:10,000 - 1:25,000

Epitope retrieval with citrate buffer pH 6.0 is recommended for FFPE tissue sections

GENE & PROTEIN INFORMATION

UniProt ID	O00255
Gene Name	menin1, MEN1
Protein Name	Menin
Target Size	68 kDa
Alternate Names	MEA1, multiple endocrine adenomatosis 1, SCG2, suppressor candidate gene 2

REFERENCES

[1] Balogh et al. *Trends Endocrinol Metab* (2006). PMID: 16997566

VALIDATION DATA

CUT&RUN Methods

CUT&RUN was performed on 500k K562 cells with 0.5 µg of either Menin or IgG negative control (EpiCypher 13-0042) antibodies using the CUTANA™ ChIC/CUT&RUN Kit v2.0 (EpiCypher 14-1048). Library preparation was performed with 5 ng of DNA (or the total amount recovered if less than 5 ng) using the CUTANA™ CUT&RUN Library Prep Kit (EpiCypher 14-1001/14-1002). Both kit protocols were adapted for high throughput Tecan liquid handling. Libraries were run on an Illumina NextSeq2000 with paired-end sequencing (2x50 bp). Sample sequencing depth was 5.0 million reads (IgG), 8.7 million reads (Menin), and 7.0 million reads (H3K4me3). Data were aligned to the hg19 genome using Bowtie2. Data were filtered to remove duplicates, multi-aligned reads, and ENCODE DAC Exclusion List regions.

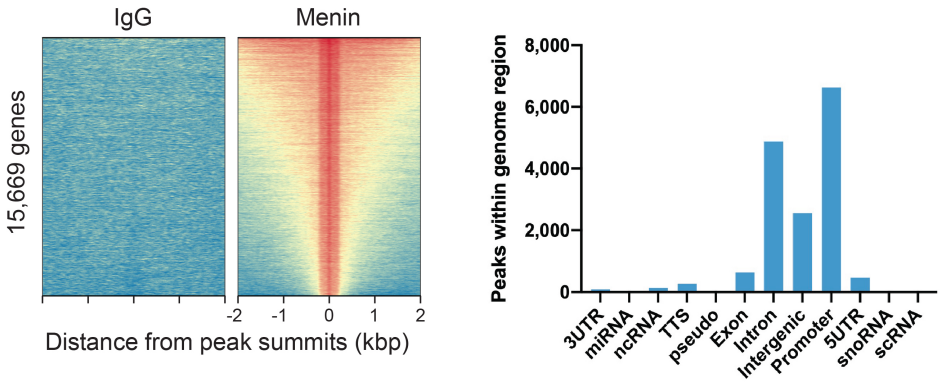

FIGURE 1 Menin peaks in CUT&RUN. CUT&RUN was performed as described above. Peaks were called with MACS2. Heatmaps show Menin peaks relative to IgG negative control antibody in aligned rows ranked by intensity (top to bottom) and color such that red indicates high localized enrichment and blue denotes background signal (**left**). The number of peaks that fall into distinct classes of functionally annotated genomic regions are shown (**right**).

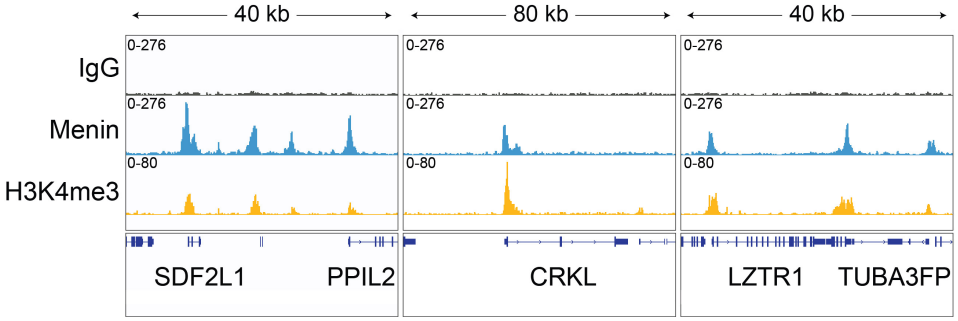

FIGURE 2 Menin CUT&RUN representative browser tracks. CUT&RUN was performed as described above. Gene browser shots were generated using the Integrative Genomics Viewer (IGV, Broad Institute). Three representative loci show overlap of Menin and H3K4me3 peaks.

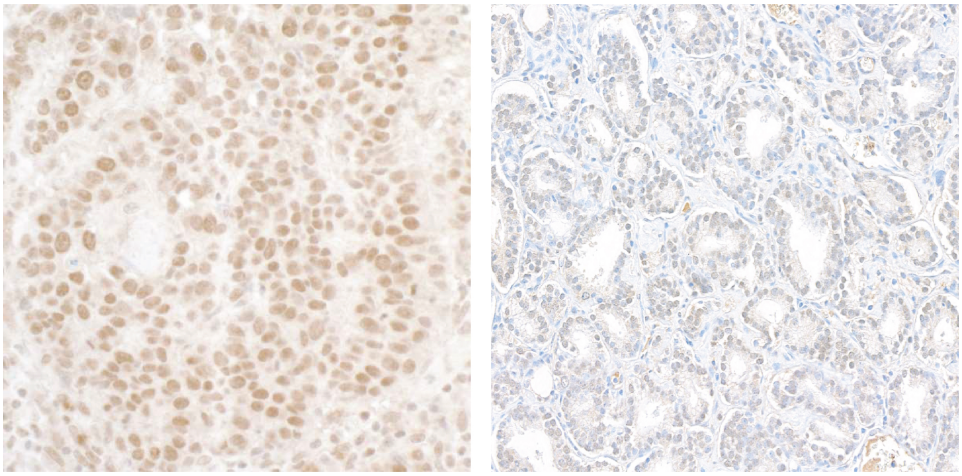

FIGURE 3 Immunohistochemistry data. FFPE sections of human lung carcinoma (**left**) and human prostate carcinoma (**right**) using anti-Menin antibody at a dilution of 1:1,000.

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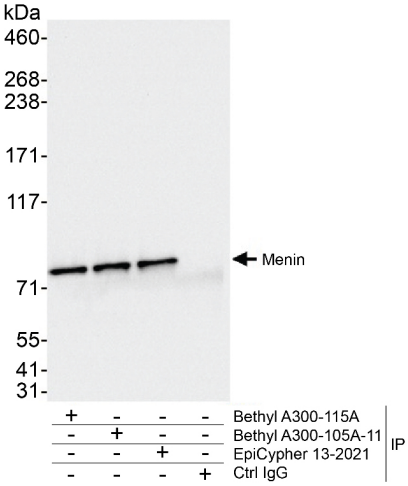

FIGURE 4 Immunoprecipitation data. EpiCypher Menin antibody (6 µg) was used to immunoprecipitate whole cell lysates (1 mg, 20% of IP loaded) isolated from HeLa cells. A negative control IgG antibody and positive control antibodies targeting Menin (Bethyl Laboratories) were also used to demonstrate specificity of the IP. EpiCypher 13-2021 and Bethyl A300-105A-11 target the same epitope, while Bethyl A300-115A targets a different epitope (between amino acids 500 and 550). For blotting immunoprecipitates, EpiCypher Menin antibody was used at a dilution of 1:25,000.

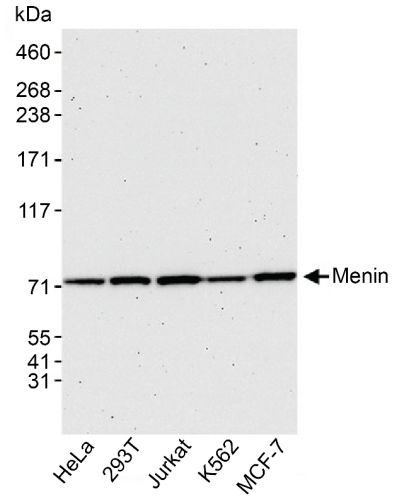

FIGURE 5 Western blot data. Western analysis of Menin in whole cell extracts from HeLa, HEK293T, Jurkat, K562, and MCF-7 cells. Fifty micrograms of lysate was resolved via SDS-PAGE and detected with a 1:25,000 dilution of Menin antibody.