10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

BRG1 Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AP52834

Product Information

Application	WB, ICC, IP
Primary Accession	P51532
Reactivity	Human, Mouse
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Calculated MW	184646

Additional Information

Gene ID	6597
Other Names	ATP dependent helicase SMARCA4;ATP-dependent helicase SMARCA4;BAF 190;BAF190;BAF190A;Brahma protein homolog 1;Brahma protein like 1;BRG1;BRG1 associated factor 190A;BRG1 protein;BRG1-associated factor 190A;BRM/SWI2 related gene 1;Global transcription activator homologous sequence;global transcription activator snf2l4;Homeotic gene regulator;hSNF2b;Mitotic growth and transcription activator;MRD16;Nuclear protein GRB1;Protein brahma homolog 1;Protein BRG-1; Protein BRG1;RTPS2;SMARC A4;SMARCA4;SMCA4_HUMAN;SNF2;SNF2 beta;SNF2 like 4;SNF2-beta;SNF2B;SNF2L4;SNF2LB;Sucrose nonfermenting like 4;SWI/SNF related matrix associated actin dependent regulator of chromatin subfamily A member 4;SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 4;SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 4;SWI2;Transcription activator BRG1.
Dilution	WB~~1:1000 ICC~~1:50 IP~~1:500
Format	Purified mouse monoclonal antibody in PBS(pH 7.4) containing with 0.09% (W/V) sodium azide and 50% glycerol.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	SMARCA4 (HGNC:11100)
Function	ATPase involved in transcriptional activation and repression of select genes by chromatin remodeling (alteration of DNA-nucleosome topology). Component of SWI/SNF chromatin remodeling complexes that carry out key enzymatic activities, changing chromatin structure by altering DNA-histone

	contacts within a nucleosome in an ATP-dependent manner (PubMed:15075294, PubMed:29374058, PubMed:30339381, PubMed:32459350). Component of the CREST-BRG1 complex, a multiprotein complex that regulates promoter activation by orchestrating the calcium-dependent release of a repressor complex and the recruitment of an activator complex. In resting neurons, transcription of the c-FOS promoter is inhibited by SMARCA4-dependent recruitment of a phospho- RB1-HDAC repressor complex. Upon calcium influx, RB1 is dephosphorylated by calcineurin, which leads to release of the repressor complex. At the same time, there is increased recruitment of CREBBP to the promoter by a CREST-dependent mechanism, which leads to transcriptional activation. The CREST-BRG1 complex also binds to the NR2B promoter, and activity-dependent induction of NR2B expression involves the release of HDAC1 and recruitment of CREBBP (By similarity). Belongs to the neural progenitors-specific chromatin remodeling complex (npBAF complex) and the neuron-specific chromatin remodeling complex (nBAF complex). During neural development, a switch from a stem/progenitor to a postmitotic chromatin remodeling mechanism occurs as neurons exit the cell cycle and become committed to their adult state. The transition from proliferating neural stem/progenitor cells to postmitotic neurons requires a switch in subunit composition of the npBAF and nBAF complexes. As neural progenitors exit mitosis and differentiate into neurons, npBAF complexes which contain ACTL6A/BAF53A and PHF10/BAF45A, are exchanged for homologous alternative ACTL6B/BAF53B and DPF1/BAF45B or DPF3/BAF45C subunits in neuron- specific complexes (nBAF). The npBAF complex is essential for the self- renewal/proliferative capacity of the multipotent neural stem cells. The nBAF complex along with CREST plays a role regulating the activity of genes essential for dendrite growth. SMARCA4/BAF190A may promote neural stem cell self-renewal/proliferation by enhancing Notch-dependent proliferative signals, while concurrently making the neural stem cell insensitive to SHH-dependent differentiating cues (By similarity). Acts as a corepressor of ZEB1 to regulate E-cadherin transcription and is required for induction of epithelial-mesenchymal transition (EMT) by ZEB1 (PubMed:20418909). Binds via DLX1 to enhancers located in the intergenic region between DLX5 and DLX6 and this binding is stabilized by the long non-coding RNA (lncRNA) Evf2 (By similarity). Binds to RNA in a promiscuous manner (By similarity). In brown adipose tissue, involved in the regulation of thermogenic genes expression (By similarity).
Cellular Location	Nucleus {ECO:0000255|PROSITE-ProRule:PRU00549, ECO:0000269|PubMed:20418909, ECO:0000269|PubMed:25593309} Note=Colocalizes with long non-coding RNA Evf2 in nuclear RNA clouds (By similarity). Localizes to sites of DNA damage (PubMed:25593309) {ECO:0000250|UniProtKB:Q3TKT4, ECO:0000269|PubMed:25593309}
Tissue Location	Colocalizes with ZEB1 in E-cadherin-negative cells from established lines, and stroma of normal colon as well as in de- differentiated epithelial cells at the invasion front of colorectal carcinomas (at protein level).

Background

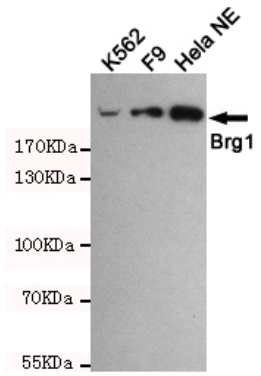
Transcriptional coactivator cooperating with nuclear hormone receptors to potentiate transcriptional activation. Component of the CREST-BRG1 complex, a multiprotein complex that regulates promoter activation by orchestrating a calcium-dependent release of a repressor complex and a recruitment of an activator complex. In resting neurons, transcription of the c-FOS promoter is inhibited by BRG1-dependent recruitment of a phospho-RB1-HDAC repressor complex. Upon calcium influx, RB1 is dephosphorylated by calcineurin, which leads to release of the repressor complex. At the same time, there is increased recruitment of CREBBP to the promoter by a CREST-dependent mechanism, which leads to transcriptional activation. The CREST-BRG1 complex also binds to the NR2B promoter, and activity-dependent induction of

NR2B expression involves a release of HDAC1 and recruitment of CREBBP. Belongs to the neural progenitors-specific chromatin remodeling complex (npBAF complex) and the neuron-specific chromatin remodeling complex (nBAF complex). During neural development a switch from a stem/progenitor to a post-mitotic chromatin remodeling mechanism occurs as neurons exit the cell cycle and become committed to their adult state. The transition from proliferating neural stem/progenitor cells to post-mitotic neurons requires a switch in subunit composition of the npBAF and nBAF complexes. As neural progenitors exit mitosis and differentiate into neurons, npBAF complexes which contain ACTL6A/BAF53A and PHF10/BAF45A, are exchanged for homologous alternative ACTL6B/BAF53B and DPF1/BAF45B or DPF3/BAF45C subunits in neuron- specific complexes (nBAF). The npBAF complex is essential for the self-renewal/proliferative capacity of the multipotent neural stem cells. The nBAF complex along with CREST plays a role regulating the activity of genes essential for dendrite growth. SMARCA4/BAF190A may promote neural stem cell self-renewal/proliferation by enhancing Notch-dependent proliferative signals, while concurrently making the neural stem cell insensitive to SHH-dependent differentiating cues (By similarity). Also involved in vitamin D-coupled transcription regulation via its association with the WINAC complex, a chromatin-remodeling complex recruited by vitamin D receptor (VDR), which is required for the ligand-bound VDR-mediated transrepression of the CYP27B1 gene. Acts as a corepressor of ZEB1 to regulate E-cadherin transcription and is required for induction of epithelial- mesenchymal transition (EMT) by ZEB1.

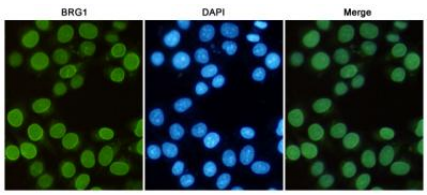
References

Khavari P.A.,et al.Nature 366:170-174(1993).
Khavari P.A.,et al.Submitted (JUN-1995) to the EMBL/GenBank/DDBJ databases.
Chiba H.,et al.Nucleic Acids Res. 22:1815-1820(1994).
Wong A.K.C.,et al.Cancer Res. 60:6171-6177(2000).
Medina P.P.,et al.Hum. Mutat. 29:617-622(2008).

Images

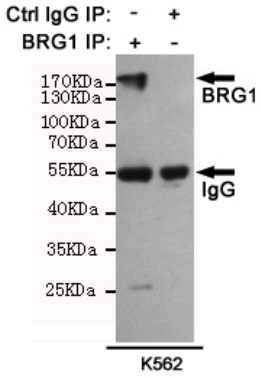


Western blot detection of BRG1 in Hela NE,F9 and K562 cell lysates using BRG1 mouse mAb (1:1000 diluted).Predicted band size:220KDa.Observed band size:220KDa.



Immunofluorescent analysis of Hela cells fixed with 4% Paraformaldehyde and using anti-BRG1 mouse mAb (dilution 1:50). DAPI was used to stain nucleus(blue).

Immunoprecipitation analysis of K562 cell lysates using BRG1 mouse mAb (201025).



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