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BANF1 Polyclonal Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP54891

Product Information

Application	WB, IHC-P, IHC-F, IF, ICC, E
Primary Accession	O75531
Reactivity	Rat, Dog, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	10059
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human BANF1/BAF
Epitope Specificity	21-89/89
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus. Cytoplasm. Chromosome. Significantly enriched at the nuclear inner membrane, diffusely throughout the nucleus during interphase and concentrated at the chromosomes during the M-phase. May be included in HIV-1 virions via its interaction with viral GAG polyprotein. Tissue Specificity : Widely expressed. Expressed in colon, brain, heart, kidney, liver, lung, ovary, pancreas, placenta, prostate, skeletal muscle, small intestine, spleen and testis. Not detected in thymus and peripheral blood leukocytes.
SIMILARITY	Belongs to the BAF family.
SUBUNIT	Homodimer. Heterodimerizes with BAFL. Interacts with ANKLE2/LEM4, leading to decreased phosphorylation by VRK1 and promoting dephosphorylation by protein phosphatase 2A (PP2A). Binds non-specifically to double-stranded DNA, and is found as a hexamer or dodecamer upon DNA binding. Binds to LEM domain-containing nuclear proteins such as LEMD3/MAN1, TMPO/LAP2 and EMD (emerin). Interacts with CRX and LMNA (lamin-A). Binds linker histone H1.1 and core histones H3 with in vitro affinities of 500-900 and 100-200 nM. Interacts with HIV-1 pre-integration complex in cytoplasm by binding to viral matrix protein and Gag polyprotein.
Post-translational modifications	Partially phosphorylated on serine. Ser-4 phosphorylation may block BAF ability to promote EMD binding to lamins in vitro. Non phosphorylated BAF seems to enhances binding between EMD and LMNA.
DISEASE	Defects in BANF1 are the cause of Nestor-Guillermo progeria syndrome (NGPS) [MIM:614008]. NGPS is an atypical progeroid syndrome characterized by normal development in the first years of life, later followed by the emergence of generalized lipoatrophy, severe osteoporosis, and marked osteolysis. The atrophic facial subcutaneous fat pad and the marked osteolysis of the maxilla and mandible result in a typical pseudosenile facial appearance with micrognatia, prominent subcutaneous venous patterning, a convex nasal ridge, and proptosis. Cognitive development is completely normal. Patients do not have cardiovascular dysfunction, atherosclerosis, or metabolic anomalies.
Important Note	This product as supplied is intended for research use only, not for use in

	human, therapeutic or diagnostic applications.
Background Descriptions	Barrier-to-autointegration factor (BAF) binds non-specifically to double stranded DNA, possibly to play a role in tissue- or cell type-specific gene expression by interacting with different homeodomain transcription factors. BAF compresses chromatin structure and interacts with the LEM domain of nuclear proteins to play a crucial role in membrane recruitment and chromatin decondensation during nuclear assembly. Additionally, retroviruses like HIV-1 incorporate BAF from host cells into preintegration complexes (PICs) to prevent autointegration of retroviral DNA and thereby promote integration of retroviral DNA into the host chromosome.

Additional Information

Gene ID	8815
Other Names	Barrier-to-autointegration factor, Breakpoint cluster region protein 1, Barrier-to-autointegration factor, N-terminally processed, BANF1, BAF, BCRG1
Target/Specificity	Widely expressed. Expressed in colon, brain, heart, kidney, liver, lung, ovary, pancreas, placenta, prostate, skeletal muscle, small intestine, spleen and testis. Not detected in thymus and peripheral blood leukocytes.
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,ICC=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Format	0.01M TBS(pH7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glyce
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	BANF1 {ECO:0000303|PubMed:21549337, ECO:0000312|HGNC:HGNC:17397}
Function	Non-specific DNA-binding protein that plays key roles in mitotic nuclear reassembly, chromatin organization, DNA damage response, gene expression and intrinsic immunity against foreign DNA (PubMed:10908652, PubMed:11792822, PubMed:12163470, PubMed:18005698, PubMed:25991860, PubMed:28841419, PubMed:31796734, PubMed:32792394). Contains two non-specific double-stranded DNA (dsDNA)-binding sites which promote DNA cross-bridging (PubMed:9465049). Plays a key role in nuclear membrane reformation at the end of mitosis by driving formation of a single nucleus in a spindle-independent manner (PubMed:28841419). Transiently cross-bridges anaphase chromosomes via its ability to bridge distant DNA sites, leading to the formation of a dense chromatin network at the chromosome ensemble surface that limits membranes to the surface (PubMed:28841419). Also acts as a negative regulator of innate immune activation by restricting CGAS activity toward self-DNA upon acute loss of nuclear membrane integrity (PubMed:32792394). Outcompetes CGAS for DNA-binding, thereby preventing CGAS activation and subsequent damaging autoinflammatory responses (PubMed:32792394). Also involved in DNA damage response: interacts with PARP1 in response to oxidative stress, thereby inhibiting the ADP-ribosyltransferase activity of PARP1 (PubMed:31796734). Involved in the recognition of exogenous dsDNA

	in the cytosol: associates with exogenous dsDNA immediately after its appearance in the cytosol at endosome breakdown and is required to avoid autophagy (PubMed:25991860). In case of poxvirus infection, has an antiviral activity by blocking viral DNA replication (PubMed:18005698).
Cellular Location	Nucleus. Chromosome. Nucleus envelope. Cytoplasm. Note=Significantly enriched at the nuclear inner membrane, diffusely throughout the nucleus during interphase and concentrated at the chromosomes during the M-phase (PubMed:16495336, PubMed:24600006). The phosphorylated form (by VRK1) shows a cytoplasmic localization whereas the unphosphorylated form locates almost exclusively in the nucleus (PubMed:16495336, PubMed:24600006). May be included in HIV-1 virions via its interaction with viral GAG polyprotein (PubMed:14645565)
Tissue Location	Widely expressed. Expressed in colon, brain, heart, kidney, liver, lung, ovary, pancreas, placenta, prostate, skeletal muscle, small intestine, spleen and testis. Not detected in thymus and peripheral blood leukocytes.