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KD-Validated Anti-CDK5RAP3 Rabbit Monoclonal Antibody

Rabbit monoclonal Antibody
Catalog # AGI2197

Product Information

Application	WB, FC
Primary Accession	Q96JB5
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	25GB115
Calculated MW	56921
Gene Name	CDK5RAP3
Aliases	CDK5RAP3; CDK5 Regulatory Subunit Associated Protein 3; IC53; LZAP; OK/SW-Cl.114; MST016; HSF-27; C53; LXXLL/Leucine-Zipper-Containing ARF-Binding Protein; LXXLL/Leucine-Zipper-Containing ARFbinding Protein; Ischemic Heart CDK5 Activator-Binding Protein C53; CDK5 Regulatory Subunit-Associated Protein 3; FLJ13660; CDK5 Regulatory Subunit Associated Protein IC53-2; CDK5 Activator-Binding Protein C53; Protein HSF-27; PP1553
Immunogen	A synthesized peptide derived from human CDK5RAP3

Additional Information

Gene ID	80279
Other Names	CDK5 regulatory subunit-associated protein 3, CDK5 activator-binding protein C53, LXXLL/leucine-zipper-containing ARF-binding protein, Protein HSF-27 {ECO:0000312|EMBL:AAK69655.1}, CDK5RAP3 {ECO:0000303|PubMed:30635284, ECO:0000312|HGNC:HGNC:18673}

Protein Information

Name	CDK5RAP3 {ECO:0000303|PubMed:30635284, ECO:0000312|HGNC:HGNC:18673}
Function	Substrate adapter of E3 ligase complexes mediating ufmylation, the covalent attachment of the ubiquitin-like modifier UFM1 to substrate proteins, and which is involved in various processes, such as ribosome recycling and reticulophagy (also called ER-phagy) (PubMed:23152784, PubMed:30635284, PubMed:32851973, PubMed:36121123, PubMed:36543799, PubMed:37595036, PubMed:38383785, PubMed:38383789). As part of the UREL complex, plays a key role in ribosome recycling by promoting mono-ufmylation of RPL26/uL24 subunit of the 60S ribosome (PubMed:38383785, PubMed:38383789). Ufmylation of RPL26/uL24 occurs on free 60S ribosomes following ribosome dissociation: it weakens the junction

between post-termination 60S subunits and SEC61 translocons, promoting release and recycling of the large ribosomal subunit from the endoplasmic reticulum membrane (PubMed:38383785, PubMed:38383789). Ufmylation of RPL26/uL24 and subsequent 60S ribosome recycling either take place after normal termination of translation or after ribosome stalling during cotranslational translocation at the endoplasmic reticulum (PubMed:32851973, PubMed:37595036, PubMed:38383785, PubMed:38383789). Within the UREL complex, CDK5RAP3 acts as a substrate adapter that constrains UFL1 ligase activity to mono-ufmylate RPL26/uL24 at 'Lys-134' (PubMed:36121123, PubMed:38383785, PubMed:38383789). The UREL complex is also involved in reticulophagy in response to endoplasmic reticulum stress by promoting ufmylation of proteins such as CYB5R3, thereby promoting lysosomal degradation of ufmylated proteins (PubMed:36543799). Also acts as a regulator of transcription: negatively regulates NF-kappa-B-mediated gene transcription through the control of RELA phosphorylation (PubMed:17785205, PubMed:20228063). Also regulates mitotic G2/M transition checkpoint and mitotic G2 DNA damage checkpoint (PubMed:15790566, PubMed:19223857). Through its interaction with CDKN2A/ARF and MDM2 may induce MDM2-dependent p53/TP53 ubiquitination, stabilization and activation in the nucleus, thereby promoting G1 cell cycle arrest and inhibition of cell proliferation (PubMed:16173922). May also play a role in the rupture of the nuclear envelope during apoptosis (PubMed:23478299). May regulate MAPK14 activity by regulating its dephosphorylation by PPM1D/WIP1 (PubMed:21283629). Required for liver development (By similarity).

Cellular Location

Endoplasmic reticulum membrane. Cytoplasm. Nucleus. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Cytoplasm, cytoskeleton. Note=Tethered to the endoplasmic reticulum membrane as part of the UFM1 ribosome E3 ligase (UREL) complex (PubMed:38383785, PubMed:38383789). Colocalizes and associates with microtubules (PubMed:23478299)

Tissue Location

Ubiquitously expressed (PubMed:10721722, PubMed:12054757). Expressed in heart, brain, placenta, lung, liver, skeletal muscle, kidney and pancreas. Isoform 3 is expressed in kidney, liver, skeletal muscle and placenta (PubMed:12737517)

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