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SKA1 Antibody

Catalog # ASC10981

Product Information

Application	WB, E
Primary Accession	Q96BD8
Other Accession	Q96BD8, 74731226
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	29484
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SKA1 antibody can be used for detection of SKA1 by Western blot at 0.5 - 1 g/mL.

Additional Information

Gene ID	220134
Other Names	Spindle and kinetochore-associated protein 1, SKA1, C18orf24
Target/Specificity	SKA1;
Reconstitution & Storage	SKA1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	SKA1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SKA1
Synonyms	C18orf24
Function	Component of the SKA complex, a microtubule plus end-binding complex of the outer kinetochore that stabilizes spindle microtubule- kinetochore attachments, promotes alignment of chromosomes at the mitotic spindle equator (chromosome congression) and assists suppression of the spindle assembly checkpoint (PubMed:17093495, PubMed:19289083, PubMed:22371557, PubMed:22483620, PubMed:23085020, PubMed:26981768, PubMed:27697923, PubMed:29487209, PubMed:31804178). Kinetochores, consisting of a centromere-associated inner segment and a microtubule-contacting outer segment, play a crucial

role in chromosome segregation by mediating the physical connection between centromeric DNA and spindle microtubules (PubMed:19289083, PubMed:22483620, PubMed:23085020, PubMed:28479321, PubMed:29487209). The outer kinetochore is made up of the ten-subunit KMN network complex, comprising the MIS12, NDC80 and KNL1 complexes, and auxiliary microtubule-associated components such as the SKA complex; together they connect the outer kinetochore with the inner kinetochore, bind microtubules, and mediate interactions with mitotic checkpoint proteins that delay anaphase until chromosomes are bioriented on the spindle (PubMed:17093495, PubMed:19289083, PubMed:23085020, PubMed:28479321, PubMed:29487209). The SKA complex is loaded onto bioriented kinetochores and it facilitates chromosome congression by stabilizing microtubules together with MAPRE1, and end-on attachment of the NDC80 complex to depolymerizing spindle microtubules, thereby assisting the poleward-moving kinetochore in withstanding microtubule pulling forces (PubMed:19289083, PubMed:22371557, PubMed:22454517, PubMed:23085020, PubMed:24413531, PubMed:27697923, PubMed:28479321, PubMed:28495837, PubMed:29487209). The complex associates with dynamic microtubule plus- ends and can track both depolymerizing and elongating microtubules (PubMed:23085020, PubMed:29153323). The complex recruits protein phosphatase 1 (PP1) to the kinetochore in prometaphase and metaphase, to oppose spindle assembly checkpoint signaling and promote the onset of anaphase (PubMed:26981768). In the complex, it mediates interactions with microtubules (PubMed:19289083, PubMed:22483620, PubMed:23085020, PubMed:24413531, PubMed:27667719, PubMed:29153323, PubMed:36592928). It also stimulates AURKB/Aurora B catalytic activity (PubMed:27697923). During meiosis the SKA complex stabilizes the meiotic spindle and is required for its migration to the cortex (By similarity).

Cellular Location

Cytoplasm, cytoskeleton, spindle. Chromosome, centromere, kinetochore. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome Note=Localizes to bioriented kinetochores and spindle microtubules during metaphase in a NDC80 complex-dependent manner (PubMed:17093495, PubMed:28479321, PubMed:29487209). The SKA complex begins to concentrate at kinetochores before microtubule attachment but reaches maximum levels on bioriented metaphase chromosomes (PubMed:17093495) Localizes both to microtubule plus-ends and along the length of microtubules (PubMed:27225956). The localization of the SKA complex to kinetochores is positively regulated by protein serine/threonine kinase CDK1 (PubMed:28479321). The localization of the SKA complex to kinetochores is negatively regulated by protein serine/threonine kinase AURKB, and this action is opposed directly or indirectly by the PP1 and PP2A protein phosphatase complexes (PubMed:22371557, PubMed:27697923) Localizes at the centrosome during interphase and prophase (PubMed:19646878). Localizes to the meiotic spindle, but not to kinetochores, from the stage of germinal vesicle breakdown (GVBD) to meiosis II (MII) (By similarity). {ECO:0000250|UniProtKB:Q9CPV1, ECO:0000269|PubMed:17093495, ECO:0000269|PubMed:19646878, ECO:0000269|PubMed:22371557, ECO:0000269|PubMed:27225956, ECO:0000269|PubMed:27697923, ECO:0000269|PubMed:28479321, ECO:0000269|PubMed:29487209}

Background

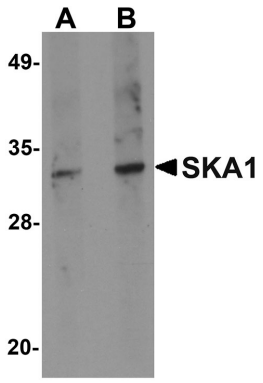
SKA1 Antibody: Upon entry into mitosis, the cell's microtubule (MT) network forms the mitotic spindle, allowing the segregation of paired chromosomes. Proteinaceous structures on centromeric chromatin termed kinetochores (KT) are essential for the proper attachment of the chromosomes to the spindle MTs. A recently discovered spindle and kinetochore complex, comprised of proteins SKA1, SKA2, and SKA3, has been found to be required for stable KT-MT interactions and timely anaphase onset. Depletion of either

SKA1 or SKA2 by siRNA results in the loss of both proteins from the KT, but does not impact overall KT structure. Cells depleted of the SKA complex undergo a prolonged checkpoint-dependent delay in a metaphase-like state, indicating the importance of the SKA complex in the maintenance of the metaphase plate and spindle checkpoint silencing.

References

Cleveland DW, Mao Y, and Sullivan KF. Centromeres and kinetochores: from epigenetics to mitotic checkpoint signaling. Cell2003; 112:407-21.
Hanisch A, Sillje HHW, and Nigg EA. Timely anaphase onset requires a novel spindle and kinetochore complex comprising Ska1 and Ska EMBO J.2006; 25:5504-15.
Gaitanos TN, Santamaria A, Jeyaprakash AA, et al. Stable kinetochore-microtubule interactions depend on the Ska complex and its new component Ska3/C13Orf EMBO J.2009; 28:1442-52.

Images



Western blot analysis of SKA1 in A549 cell lysate with SKA1 antibody at (A) 0.5 and (B) 1 µg/mL.

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