

## BACKGROUND

KID is a kinesin-like DNA-binding protein and a member of the chromokinesin family. It is composed of three domains: an N-terminal kinesin-like motor domain that contains the nucleotide- and microtubule-binding sites; a 'stalk' domain containing an alpha-helical region that may form a coiled-coil; and a C-terminal non-helical 'tail' domain containing a DNA-binding region. KID protein has been reported to possess a microtubule-activated ATPase and an ATP-dependent microtubule-binding affinity. The localization of KID changes drastically during different cell cycle stages. In interphase, KID is found exclusively in the nucleus, and the localization pattern is diffuse. In mitotic prophase, a fraction of KID gradually accumulates at the microtubule-organizing center (MTOC), and then, in metaphase, KID localizes around chromosomes and spindle poles. At this stage, KID has been shown to distribute all along the length of mitotic chromosomes. On subsequent entry into anaphase, KID is enriched at the spindle pole-proximal side of the chromosomes. KID was required for chromosome alignment at the metaphase plate and chromosomal movement during mitosis and is essential for producing the polar ejection force that pushes chromosome arms away from the spindle poles.<sup>1</sup> It was demonstrated that KID was indeed a microtubule motor, and that the polarity of movement was plus end-directed. KID function is regulated by phosphorylation. It was shown that Ser427 and Thr463 as M phase-specific phosphorylation sites and Cdc2-cyclin B as a Thr463 kinase. Phosphorylation on Thr463 of KID downregulates its affinity for microtubules to ensure reversible association with spindles, allowing KID to bind chromosomes and exhibit its function.<sup>2</sup>

In addition, KID has been shown to interact with SIAH-1 protein [human homolog of the *Drosophila* seven in absentia (Sina)], which is involved in ubiquitin-mediated proteolysis of different target proteins, and ubiquitylation of KID has been shown to be mediated by SIAH-1 protein, implying a possible role for KID in controlling the progression of mitosis.<sup>3</sup>

### References:

1. Yajima, J. et al: EMBO J. 22:1067-74, 2003
2. Ohsugi, M. et al: EMBO J. 22:2091-13, 2003
3. Germani, A. et al: Oncogene 19:5997-6006, 2000

## TECHNICAL INFORMATION

### Source:

KID Antibody is a mouse monoclonal antibody raised against recombinant human KID fragments expressed in *E. coli*.

### Specificity and Sensitivity:

This antibody detects KID proteins in various cell lysate.

**Storage Buffer:** PBS and 30% glycerol

### Storage:

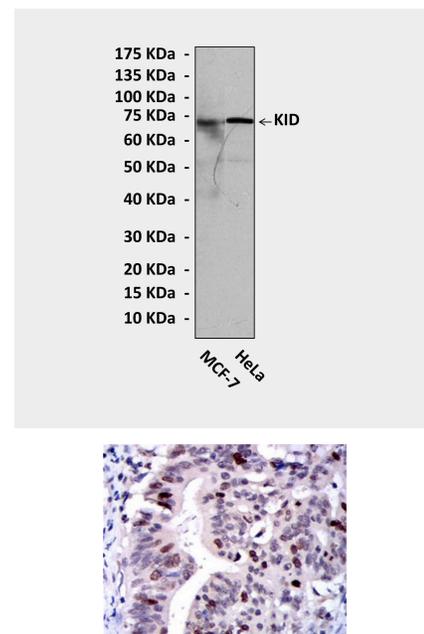
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC (Paraffin)	1:50-200
ICC	n/d
FACS	n/d

\*Optimal dilutions must be determined by end user.

## QUALITY CONTROL DATA



**Top:** Western blot detection of KID proteins in MCF-7 and HeLa cell lysates using KID Antibody. **Bottom:** This antibody stains paraffin-embedded human rectum cancer tissue in IHC analysis.

