

#### References:

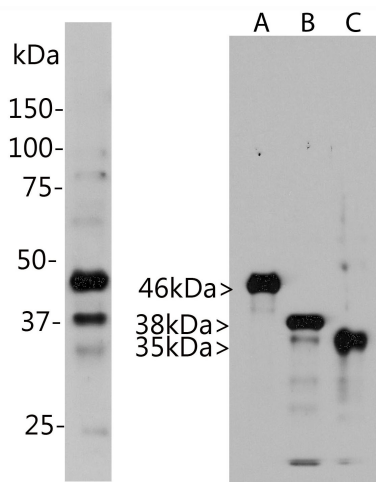
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A sequence alignment of the 3 human aurora molecules can be downloaded from [http://encorbio.com/Alignments/Aurora\\_alignment.pdf](http://encorbio.com/Alignments/Aurora_alignment.pdf).

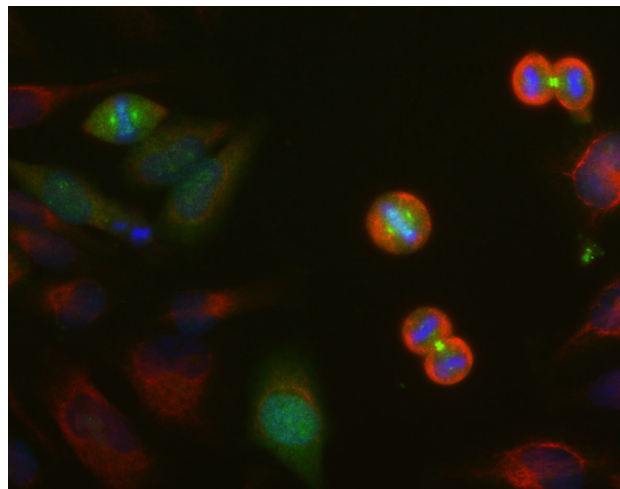
## Pan Aurora Kinases Mouse Monoclonal Antibody

## MCA-4A7

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
Wb, IF/ICC, IHC	Mouse	IgG1	46kDa, 38kDa, 35kDa	Hu, Rt, Ms, Co, Pi, Ho



Left: Western blot analysis of MCA-4A7 in HeLa cells. Blot of HeLa cells treated with 100ng/ml nocodazole for 18 hours was probed with MCA-4A7. Nocodazole is a microtubule depolymerizing agent which induces cells to halt at the G2/M phase and also induces aurora kinase expression. The MCA-4A7 monoclonal binds strongly to bands at about 46kDa and 38kDa, corresponding to aurora A and aurora B. It also recognizes a weak band at 35kDa which is aurora C. Right: Blot of recombinant full length human aurora A, B and C proteins were probed with MCA-4A7. This antibody therefore reacts strongly with all three aurora kinases proteins.



HeLa cell cultures were stained with MCA-4A7 antibody (green). Strong staining in spindle poles is seen in cells at anaphase and the antibody also stains the midbodies between daughter cells. Cells were counterstained with EnCor chicken polyclonal antibody to vimentin (red), revealing cytoplasmic intermediate filaments. Blue is a DNA stain.

#### Background:

Aurora proteins are a family of serine/threonine protein kinases which play a key role in the regulation of cell division which were originally discovered in studies of *Drosophila* (1). Mammalian genomes encode 3 aurora kinases named aurora A, B and C, each containing a variable regulatory domain at the N terminus followed by a catalytic serine/threonine kinase domain which is almost identical between them, see [here](#) for sequence alignment. Aurora A is required for centrosome duplication, entry into mitosis, formation of bipolar spindle and mitotic checkpoint (3). Aurora B is a chromosomal passenger protein and essential for chromosome condensation, kinetochore functions, spindle checkpoint activation and cytokinesis completion (4). Aurora C is heavily expressed in testis and is involved in spermatogenesis, but is also expressed in many cell lines and cancer cells and has been less well studied to date (5). As a result it is possible to generate antibodies which react with only one aurora kinase or cross react with other aurora kinases. The aurora kinases are essential for the progression to cell division and as a result there has been much interest in the development of drugs aimed at inhibiting their activity for use as anticancer agents (6,7).

The MCA-4A7 antibody was made against full length human aurora A protein and was shown to bind aurora A and C. As a result the epitope is likely within the highly conserved serine/threonine kinase domain. The antibody can be used to identify dividing or soon to be dividing cells and the antibody is also an excellent marker of midbodies both during and after cell division.

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#### Abbreviation Key:

**mAb**—Monoclonal Antibody **pAb**—Polyclonal Antibody **WB**—Western Blot **IF**—Immunofluorescence **ICC**—Immunocytochemistry  
**IHC**—Immunohistochemistry **E**—ELISA **Hu**—Human **Mo**—Monkey **Do**—Dog **Rt**—Rat **Ms**—Mouse **Co**—Cow **Pi**—Pig **Ho**—Horse **Ch**—Chicken  
**Dr**—*D. rerio* **Dm**—*D. melanogaster* **Sm**—*S. mutans* **Ce**—*C. elegans* **Sc**—*S. cerevisiae* **Sa**—*S. aureus* **Ec**—*E. coli*.