Revision 1

#5621 Store at -20C

K63-linkage Specific Polyubiquitin (D7A11) Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	Source/Isotype:
WB	All	Endogenous	Rabbit IgG

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

K63-linkage Specific Polyubiquitin (D7A11) Rabbit mAb detects polyubiquitin chains formed by Lys63 residue linkage. It does not react with monoubiquitin or polyubiquitin chains formed by linkage to a different lysine residue.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding the Lys63 branch of the human diubiquitin chain.

Background

Ubiquitin is a conserved polypeptide unit that plays an important role in the ubiquitin-proteasome pathway. Ubiquitin can be covalently linked to many cellular proteins by the ubiquitination process, which targets proteins for degradation by the 26S proteasome. Three components are involved in the target protein-ubiquitin conjugation process. Ubiquitin is first activated by forming a thiolester complex with the activation component E1; the activated ubiquitin is subsequently transferred to the ubiquitin-carrier protein E2, then from E2 to ubiquitin ligase E3 for final delivery to the epsilon-NH_2 of the target protein lysine residue (1-3). The ubiquitin-proteasome pathway has been implicated in a wide range of normal biological processes and in disease-related abnormalities. Several proteins such as IκB, p53, cdc25A, and Bcl-2 have been shown to be targets for the ubiquitin-proteasome process as part of regulation of cell cycle progression, differentiation, cell stress response, and apoptosis (4-7).

Substrate proteins are linked to ubiquitin using seven distinct ubiquitin lysine residues (Lys6, Lys11, Lys27, Lys29, Lys33, Lys48, and Lys63). Formation of a polyubiquitin chain occurs when a lysine residue of ubiquitin is linked to the carboxy-terminal glycine of another ubiquitin. Proteins polyubiquitinated at specific lysine residues display a tendency to be targeted for different processes (8). K63-linked polyubiquitin chains exert nonproteolytic functions in vivo, such as protein trafficking, kinase/phosphatase activation, and DNA damage control, all of which might be important in regulation of cancer survival and development (9,10).

Background References

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4. Bernardi, R. et al. (2000) *Oncogene* 19, 2447-54.
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7. Jesenberger, V. and Jentsch, S. (2002) *Nat Rev Mol Cell Biol* 3, 112-21.
8. Komander, D. (2009) *Biochem Soc Trans* 37, 937-53.
9. Chen, Z.J. and Sun, L.J. (2009) *Mol Cell* 33, 275-86.
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Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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