Revision 1

Store at -20C

#4289

# K48-linkage Specific Polyubiquitin Antibody

Cell Signaling TECHNOLOGY®

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

| Applications: | Reactivity: | Sensitivity: | Source/Isotype: |
|---|---|---|---|
| W | All | Endogenous | Rabbit |

## 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 and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

## Specificity/Sensitivity

K48-linkage Specific Polyubiquitin Antibody detects polyubiquitin chains formed by Lys48 residue linkage. Antibody demonstrates slight cross-reactivity with linear polyubiquitin chain. No cross-reactivity observed with monoubiquitin or polyubiquitin chains formed by specific linkage to different lysine residues.

## Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the Lys48 branch the human diubiquitin chain. Antibodies are purified by protein A and peptide affinity chromatography.

## 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 polyubiquinated at specific lysine residues display a tendency to be targeted for different processes; K48-linked polyubiquitin chains mainly target proteins for proteasomal degradation while K63-linked polyubiquitin regulates protein function, subcellular localization, or protein-protein interactions (8).

## Background References

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3. Hochstrasser, M. (2000) *Science* 289, 563-4.
4. Bernardi, R. et al. (2000) *Oncogene* 19, 2447-54.
5. Aberle, H. et al. (1997) *EMBO J* 16, 3797-804.
6. Salomoni, P. and Pandolfi, P.P. (2002) *Nat Cell Biol* 4, E152-3.
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8. Komander, D. (2009) *Biochem Soc Trans* 37, 937-53.

## 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

**W:** Western Blotting

## Cross-Reactivity Key

**All:** All Species Expected

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