Revision 1

HDAC6 (D2E5) Rabbit mAb (PE Conjugate)

#10421 Store at +4C

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
FC-FP	H Mk	Endogenous	Rabbit IgG	#Q9UBN7	10013

Product Usage Information

Application	Dilution
Flow Cytometry (Fixed/Permeabilized)	1:50

Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

Specificity/Sensitivity

HDAC6 (D2E5) Rabbit mAb (PE Conjugate) recognizes endogenous levels of total HDAC6 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a recombinant protein specific to the carboxy terminus of human HDAC6 protein.

Description

This Cell Signaling Technology antibody is conjugated to phycoerythrin (PE) and tested in-house for direct flow cytometric analysis in human cells. This antibody is expected to exhibit the same species cross-reactivity as the unconjugated HDAC6 (D2E5) Rabbit mAb #7558.

Background

HDAC6 is a class II histone deacetylase enzyme localized to the cytoplasm and associated with the microtubule network (1). It is involved in the regulation of many cellular processes, including cell migration, immune synapse formation, viral infection, and degradation of misfolded proteins (1). HDAC6 contains two tandem catalytic domains that facilitate the deacetylation of multiple protein substrates, including histones and non-histone proteins such as tubulin, cortactin, and HSP90. Despite the ability to deacetylate histone proteins *in vitro*, there is no evidence for HDAC6-mediated deacetylation of histones *in vivo* (2,3). The acetylation/deacetylation of tubulin on Lys40 regulates binding and motility of the kinesin-1 motor protein and subsequent transport of cargo proteins such as JNK-interacting protein 1 (JIP1) (4). The acetylation/deacetylation of cortactin regulates cell motility by modulating the binding of cortactin to F-actin (5). Acetylation/deacetylation of HSP90 modulates chaperone complex activity by regulating the binding of an essential cochaperone protein, p23 (6,7). In addition to its role as a protein deacetylase, HDAC6 functions as a component of the aggresome, a proteinaceous inclusion body that forms in response to an accumulation of misfolded or partially denatured proteins (8). Formation of the aggresome is a protective response that sequesters cytotoxic protein aggregates for eventual autophagic clearance from the cell. HDAC6 contains a zinc finger ubiquitin-binding domain that binds both mono- and poly-ubiquitinated proteins (8). HDAC6 binds to both poly-ubiquitinated misfolded proteins and dynein motors, facilitating the transport of misfolded proteins to the aggresome (9,10). HDAC6 is also required for subsequent recruitment of the autophagic machinery and clearance of aggresomes from the cell (11). Thus, HDAC6 plays a key role in the protection against the deleterious effects of pathological protein aggregation that occurs in various diseases, such as neurodegenerative Huntington's disease (11).

Background References

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3. Zhang, Y. et al. (2003) *EMBO J* 22, 1168-79.
4. Reed, N.A. et al. (2006) *Curr Biol* 16, 2166-72.
5. Zhang, X. et al. (2007) *Mol Cell* 27, 197-213.
6. Kovacs, J.J. et al. (2005) *Mol Cell* 18, 601-7.
7. Murphy, P.J. et al. (2005) *J Biol Chem* 280, 33792-9.
8. Seigneurin-Berny, D. et al. (2001) *Mol Cell Biol* 21, 8035-44.
9. Kawaguchi, Y. et al. (2003) *Cell* 115, 727-38.
10. Boyault, C. et al. (2006) *EMBO J* 25, 3357-66.
11. Iwata, A. et al. (2005) *J Biol Chem* 280, 40282-92.

Species Reactivity

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

Applications Key

FC-FP: Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **Mk:** Monkey

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Limited Uses