Revision 1

#89210 Store at +4C

ARC (D7Q3G) Rabbit mAb (PE Conjugate)

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
FC-FP	H	Endogenous	Rabbit IgG	#O60936	8996

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

ARC (D7Q3G) Rabbit mAb (PE Conjugate) recognizes endogenous levels of total ARC protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro125 of human ARC protein, specific to a region encoded by isoform 2 of the *NOL3* gene.

Product 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 ARC (D7Q3G) Rabbit mAb #38916.

Background

Apoptosis repressor with caspase recruitment domain (ARC), also independently identified as muscle-enriched cytoplasmic protein (MYP), is a CARD domain protein that regulates apoptosis (1). The ARC protein CARD domain is highly homologous to those in other cell death regulators, including caspase-2, caspase-9, RAIDD, and Apaf-1 (2). The *NOL3* gene encodes both the cytoplasmic ARC protein and a 30 kDa nucleolar protein (Nop30) that is involved in RNA splicing. ARC is encoded from isoform 2 of *NOL3*, while isoform 1 produced by alternative splicing encodes Nop30. Both ARC and Nop30 proteins share common amino-terminal sequences (3). Research studies show that ARC can bind to caspase-8 and caspase-2 and inhibit apoptosis through extrinsic pathways that involve the receptor proteins Fas, TNFR1, and DR3 (1). Additional research indicates that the ARC anti-apoptotic mechanism may include both intrinsic (mitochondrial) and extrinsic (death receptor) pathways (4). In addition to binding caspases, ARC can disrupt the interaction with the death domains of Fas and FADD, which inhibits death-inducing signaling complex (DISC) assembly. The CARD domain of ARC can inhibit intrinsic apoptosis through binding to the pro-apoptotic Bax protein (5). Phosphorylation of ARC at Thr149 by CK2 is required for targeting of ARC to the mitochondria (6). ARC is able to suppress necroptosis, a programmed pathway of necrosis triggered by blocking the recruitment of RIP1 to TNFR1 (7). Expression of ARC protein is predominantly seen in terminally differentiated cells under normal conditions and is markedly induced in a variety of cancers including pancreatic, colorectal, breast, lung, glioblastoma, liver, kidney, melanoma, and acute myeloid leukemia (1, 8-12).

Background References

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3. Stoss, O. et al. (1999) *J Biol Chem* 274, 10951-62.
4. Nam, Y.J. et al. (2004) *Mol Cell* 15, 901-12.
5. Gustafsson, A.B. et al. (2004) *J Biol Chem* 279, 21233-8.
6. Li, P.F. et al. (2002) *Mol Cell* 10, 247-58.
7. Kung, G. et al. (2014) *Cell Death Differ* 21, 634-44.
8. Mercier, I. et al. (2008) *Cell Cycle* 7, 1640-7.
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11. Chen, L.H. et al. (2008) *Cancer Res* 68, 834-42.
12. Carter, B.Z. et al. (2011) *Blood* 117, 780-7.

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 **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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Limited Uses