

## Background

Formins include several families of proteins that regulate actin cytoskeletal dynamics via two conserved formin homology domains, FH1 and FH2. Through cooperation of FH1 and FH2, formins construct actin-based structures comprising linear, unbranched filaments that are used in stress fibers, actin cables, microspikes, and contractile rings. A subgroup of the formins is the diaphanous (Dia) family, which includes mDia1 (Diap1), mDia2 (Diap3), and mDia3 (Diap2). The mDia2 protein has been implicated in cell migration and cytokinesis. This Dia protein can nucleate actin polymerization and stabilize microtubules. mDia2 may also function in the nucleus as the protein continually shuttles between the cytoplasm and nucleus. Regulation of mDia2 activity may occur through ROCK phosphorylation of Thr-1061 and Ser-1070. This phosphorylation disrupts inhibitory interactions between the DAD and DID domains leading to enhanced mDia2 activation of RhoA.

## Background References

Alberts, A.S. (2001) *J Biol Chem.* 276:2824.  
Bartolini, F. et al. (2008) *J Cell Biol.* 181:523.  
Miki, T. et al. (2009) *J Biol Chem.* 284:5753.

## Applications

Blocking 1:1000  
ELISA 50 ng/well

End user should determine optimal dilution for their particular applications and experiments.  
Western blot membranes were incubated with diluted antibody in 5% non-fat milk, PBS, 0.04% Tween20 for 1 hour at room temperature.

## Specificity

The peptide is specifically recognized by anti-mDia2 (Thr-1061) phospho-specific antibody (DP4481) in ELISA, and has been shown to block the reactivity of DP4481 during Western blot. In addition, the peptide is recommended for use in blocking DP4481 reactivity in immunocytochemistry.

\*All molecular weights (MW) are confirmed by comparison to Bio-Rad Rainbow Markers and to western blot mobilities of known proteins with similar MW.

## Peptide Sequence

Phospho-mDia2 (Thr-1061) synthetic peptide corresponding to amino acid residues surrounding Thr-1061 in mouse mDia2 (Diap3). This peptide sequence is identical in rat and has 2 amino acid differences to human mDia2. The sequence has low homology to other formins.

## Buffer and Storage

Blocking Peptide is supplied in 50µl phosphate-buffered saline and 0.05% sodium azide.  
Store at -20°C. Stable for 1 year.

## Related Products

DK6630 mDia Phospho-Regulation Antibody Sampler Kit  
DP4471 mDia1 (a.a. 66-77) Rabbit Polyclonal  
DP3491 mDia2 (C-terminal region) Rabbit Polyclonal  
DP4481 mDia2 (Thr-1061), phospho-specific Rabbit Polyclonal  
DP4511 mDia3 (C-terminus) Rabbit Polyclonal

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