

## Background

Several classes of small RNAs, including short interfering RNAs (siRNAs), microRNAs (miRNAs), and Piwi-interacting RNAs (piRNAs) have been identified. MicroRNAs are about 21 nucleotides in length and have been implicated in many cellular processes such as development, differentiation, and stress response. These small RNAs function together with complexes called micro-ribonucleoproteins (miRNPs) to regulate gene expression by modulating mRNA translation or stability. Among the most important components in these complexes are argonaute proteins. There are four members in the mammalian argonaute family and only argonaute 2 (Ago2) possesses the Slicer endonuclease activity. Argonaute proteins participate in various steps of microRNA-mediated gene silencing, such as repression of translation and mRNA turnover. These activities may be regulated by cell signaling events that alter argonaute phosphorylation. EGFR phosphorylates Tyr-393 in Ago2, which reduces binding to Dicer and inhibits miRNA processing. Akt3 phosphorylates Ago2 at Ser-387 leading to reduced mRNA cleavage and enhanced translational repression.

## Background References

Peters, L. & Meister, G. (2007) Mol Cell 26:611.  
Filipowicz, W. et al. (2008) Nat Rev Genet. 9:102.  
Shen, J. et al. (2013) Nature 497:383.

## 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-Argonaute 2 (a.a. 389-398) antibody (AP5281) in ELISA, and has been shown to block the reactivity of AP5281 in Western blot. In addition, the peptide is recommended for use in blocking AP5281 reactivity in immunocytochemistry. The peptide can also be used as an unphosphorylated control peptide for AX5315.

\*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

Ago2 (a.a. 389-398) synthetic peptide corresponding to amino acid 389 to 398 in human Ago2. This peptide sequence is highly conserved in mouse, rat, chick, and fish Ago2.

## 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

AK6340 Akt Phospho-Regulation Antibody Sampler Kit  
AM5271 Argonaute 2 (N-terminus) Rat Monoclonal  
AP5281 Argonaute 2 (a.a. 389-398) Rabbit Polyclonal  
AP5291 Argonaute 2 (Ser-387), phospho-specific Rabbit Polyclonal  
AP5311 Argonaute 2 (Tyr-393), phospho-specific Rabbit Polyclonal

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