



Qty: 100 µg/400 µl

Rabbit anti-JIP1 (N-terminus)

Catalog No. 34-5200

Lot No. See product label

## Rabbit anti-JIP1 (N-terminus)

### FORM

This polyclonal antibody is supplied as a 400 µl aliquot at a concentration of 0.25 mg/ml in phosphate buffered saline (pH 7.4) containing 0.1% sodium azide. The antibody is epitope-affinity-purified from rabbit antiserum.

PAD: ZMD.176

### IMMUNOGEN

Synthetic peptide derived from the N-terminal region of the human JIP1 protein.

### SPECIFICITY

This antibody reacts with human and mouse JIP1.

### REACTIVITY

Reactivity has been confirmed with mouse brain homogenates and human embryonic kidney HEK293 cell lysates transfected with full-length JIP1. This antibody identifies an ~100-110 kDa isoform of JIP1 on Western blots.

Sample	Western Blotting	Immunoprecipitation
Human	+++	+++
Mouse	+++	+++
Immunogen	N/A	N/A

(Excellent +++, Good++, Poor +, No reactivity 0, Not applicable N/A, Not Determined ND)

### USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

**Western Blotting:** 1-3 µg/mL  
**Immunoprecipitation:** 5-10 µg/mL

### STORAGE

Store at 2-8°C for up to one month. Store at -20°C for long-term storage. Avoid repeated freezing and thawing.

(cont'd)

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PI345200

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## BACKGROUND

The JNK (c-Jun NH<sub>2</sub>-terminal kinase) signal transduction cascade is one of three identified MAP kinase pathways in mammals. JNK pathway activation occurs in response to environmental stress, is associated with the nuclear accumulation of JNK itself, and is implicated in the immune response, cellular proliferation, oncogenic transformation, morphogenesis, and apoptosis.<sup>1</sup>

JIP1 (JNK-interacting protein-1, also known as Islet Brain-1 and mitogen-activated protein kinase 8-interacting protein-1,) is a cytoplasmic protein that possesses an N-terminal JNK-binding domain and a C-terminal SRC homology 3 (SH3) domain.<sup>2</sup> Its SH3 domain is related to the SH3 domains of the tyrosine kinase c-Fyn and the p85 subunit of phosphoinositide-3 kinase (PI3K). Overexpression of JIP1 causes cytoplasmic retention of JNK, thereby preventing its nuclear accumulation and the subsequent activation of the JNK pathway.<sup>2</sup> This observation led to the original hypothesis that JIP1 acts as a cytoplasmic anchor for JNK.

JIP1 has been shown to bind selectively to JNK but not to the ERK or p38 MAP kinases; it has also demonstrated selectivity in its binding to specific proteins of the JNK pathway. In addition to JNK, JIP1 binds to the JNK activator MKK7 (MAP kinase kinase 7) and the MKK7 activators MLK3 (mixed-lineage protein kinase 3) and DLK (dual leucine zipper-bearing kinase), all at separate binding sites.<sup>3,4</sup> JIP1's assembly of multiple components of the JNK pathway into a functional signaling module provides precise regulation of the JNK cascade and defines JIP1 as a JNK-scaffolding protein.<sup>3,5</sup> Multiple transcription variants of JIP1 have been cloned: JIP1 has been identified in brain and kidney tissues while JIP2a, JIP2b, and JIP3 are specifically expressed in the brain, particularly in the adult cerebral cortex and hippocampus.<sup>6</sup> All JIP1 isoforms inhibit JNK signaling when overexpressed.<sup>6</sup>

A recent study has discovered a direct interaction between JIP1 and amyloid- $\beta$ -precursor protein (APP), the precursor to the  $\beta$ -amyloid peptide that comprises the amyloid plaques characteristic of Alzheimer's disease, in the adult mouse brain. Taken together with previous reports of active JNK in the brains of Alzheimer's disease patients, this evidence suggests that the JNK signaling pathway, and thus the scaffolding function of JIP1, may be fundamental to the progression of Alzheimer's disease.<sup>7</sup>

## REFERENCES

1. Ip YT, Davis RJ. *Curr Opin Cell Biol* 10:205-219, 1998.
2. Dickens M, et al. *Science* 277:693-696, 1997.
3. Whitmarsh AJ, et al. *Science* 281:1671-1674, 1998.
4. Schaeffer HJ, Weber MJ. *Mol Cell Biol* 19(4):2435-2444, 1999.
5. Yasuda J, et al. *Mol Cell Biol* 19(10):7245-7254, 1999.
6. Kim IJ, et al. *J Neurochem* 72(4):1335-1343, 1999.
7. Scheinfeld MH, et al. *J Biol Chem* 277(5):3767-3775, 2002.

## RELATED PRODUCTS

<b>Product</b>	<b>Clone/PAD*</b>	<b>Cat. No.</b>
Rabbit anti-JIP1/2 (SH3 domain)	ZMD.177	34-5300
Mouse anti-ERK1	ERK-6B11	13-8600
Mouse anti-ERK2	107	13-4800
Rabbit anti-ERK2	Polyclonal	71-1800
Mouse anti-ERK1 + ERK2	ERK-7D8	13-6200
Rabbit anti-ERK1 + ERK2	Polyclonal	61-7400
Mouse anti-ERK3	ERK3-11D10	32-4100
Mouse anti-p38- $\alpha$ MAP Kinase	p38-3F11	33-1300
Mouse anti-p38- $\beta$ MAP Kinase	p38-11A5	33-8700
Mouse anti-p59 <sup>lyn</sup>	Fyn-1S	13-7800
Mouse anti-Amyloid- $\beta$ -Precursor Protein	LN27	13-0200
Rabbit anti-Amyloid- $\beta$ -Precursor Protein	CT695	51-2700
Rabbit anti-LMW-DSP2	ZMD.169	52-6407
Rabbit anti-MLTK- $\alpha$	ZRDT.4	52-3767
Rabbit anti-MLTK- $\beta$	Z10023	52-3657

\*PAD: Polyclonal Antibody Designation

<b>Conjugate</b>	<b>ZyMAX™ Goat x Rabbit IgG (H+L)</b>	<b>ZyMAX™ Goat x Mouse IgG (H+L)</b>
Purified	81-6100	81-6500
FITC	81-6111	81-6511
TRITC	81-6114	81-6514
Cy™3	81-6115	81-6515
Cy™5	81-6116	81-6516
HRP	81-6120	81-6520
AP	81-6122	81-6522
Biotin	81-6140	81-6540

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