Technical Data Sheet

Pacific Blue™ Mouse anti-p38 MAPK (pT180/pY182)

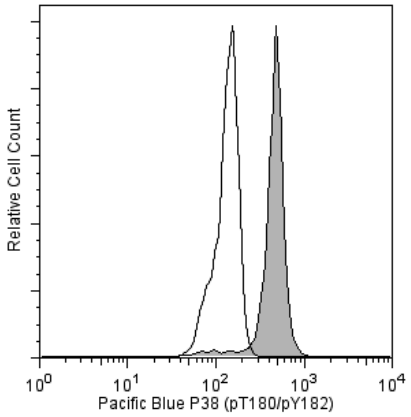
Product Information

Material Number:	**560313**
Alternate Name:	MK14, 11, 12, 13; CSBP1; SAPK2, 2A, 3, 4; MX12, ERK-6, ERK5
Size:	50 tests
Vol. per Test:	20 µl
Clone:	36/p38 (pT180/pY182)
Immunogen:	Phosphorylated Human p38 MAPK (pT180/pY182) Peptide
Isotype:	Mouse IgG1, κ
Reactivity:	QC testing: Human Tested in development by western blot using purified antibody: Human, Mouse, Rat
Storage Buffer:	Aqueous buffered solution containing BSA, protein stabilizer, and ≤0.09% sodium azide.

Description

Activation of the immune and inflammatory responses often involves the recognition of bacterial endotoxin (lipopolysaccharide or LPS). Binding of LPS by monocytes results in the production and release of proinflammatory cytokines, such as IL-1 and TNF. LPS-induced signaling cascades involve members of the Ser/Thr protein kinase family known as the **M**itogen **A**ctivated **P**rotein **K**inases (MAPKs). MAPK signal transduction pathways mediate the effects of various extracellular stimuli on biological processes such as proliferation, differentiation, and death. The p38 MAPKs include p38α (MAPK14), β (MAPK11), γ (MAPK12), and δ (MAPK13). These Ser/Thr kinases are activated by dual phosphorylation on threonine (T) and tyrosine (Y) within the motif Thr-Gly-Tyr located in kinase subdomain VIII. Activation of p38 MAPK is mediated specifically by the *M*AP *K*inase *K*inases, MKK3, MKK4, and MKK6. This leads to the activation of multiple transcription factors (NF-κB, ATF-2, Elk-1, and CHOP) that induce expression of many different genes, including proinflammatory cytokine genes. Thus, p38 MAPKs are central kinases in multiple signal transduction pathways.

The 36/p38 (pT180/pY182) monoclonal antibody recognizes the conserved dual phosphorylated site pT180/pY182 of p38α, β, γ, and δ.



Analysis of p38 MAPK (pT180/pY182) in human peripheral blood monocytes. *Human peripheral blood mononuclear cells (PBMC) were either left unstimulated (open histogram) or stimulated with 40 µM Anisomycin (Calbiochem, Cat. No. 176880) for 20 minutes (shaded histogram). The cells were fixed (BD Cytofix™ buffer, Cat. No. 554655) for 10 minutes, then permeabilized (BD Phosflow™ Perm Buffer III, Cat. No. 558050) on ice for 30 minutes, and then stained with Pacific Blue™ Mouse anti-p38 MAPK (pT180/pY182). For data analysis, monocytes were selected by scatter profile. Flow cytometry was performed on a BD FACSCanto™ II flow cytometer.*

Preparation and Storage

Store undiluted at 4°C and protected from prolonged exposure to light. Do not freeze.
The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
The antibody is conjugated to Pacific Blue™ under optimum conditions, and unreacted Pacific Blue™ was removed.

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The purified or conjugated mAb was characterized by flow cytometry (Flow) and western blot (WB) using these model systems:

Method	*Species*	*Cells*	*Treatment*	*Fixation*	*Perm buffer*	*Result*
Flow	Human	PBMC	PMA	Cytofix	Perm I, II, or III	Weak induction observed
	Human	Whole Blood	PMA	Lyse/Fix	Perm III	Weak induction observed
	Human	PBMC	LPS or Anisomycin	Cytofix	Perm I, II, or III	Greater induction on monocytes than lymphocytes
WB	Human	HeLa	Anisomycin			38-42-kDa band induced
	Human	PBMC	Anisomycin			38-42-kDa band induced

Application Notes

Application

Intracellular staining (flow cytometry)	Routinely Tested

Recommended Assay Procedure:

This antibody conjugate is suitable for intracellular staining of human peripheral blood mononuclear cells (using BD Cytofix™ Fixation Buffer). Any of the three BD Phosflow™ permeabilization buffers may be used.

Suggested Companion Products

Catalog Number	Name	Size	Clone
554655	Fixation Buffer	100 ml	(none)
557885	Perm/Wash Buffer I	125 ml	(none)
558052	Perm Buffer II	125 ml	(none)
558050	Perm Buffer III	125 ml	(none)
612288	Purified Mouse Anti-p38 MAPK (pT180/pY182)	50 µg	36/p38 (pT180/pY182)
612289	Purified Mouse Anti-p38 MAPK (pT180/pY182)	150 µg	36/p38 (pT180/pY182)

Product Notices

1. This reagent has been pre-diluted for use at the recommended Volume per Test. We typically use 1 × 10^6 cells in a 100-µl experimental sample (a test).
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. Pacific Blue™ has a maximum absorption of 416 nm and maximum emission of 451 nm. Before staining with this reagent, please confirm that your flow cytometer is capable of exciting the fluorochrome and discriminating the resulting fluorescence.
4. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
5. The Alexa Fluor®, Pacific Blue™, and Cascade Blue® dye antibody conjugates in this product are sold under license from Molecular Probes, Inc. for research use only, excluding use in combination with microarrays, or as analyte specific reagents. The Alexa Fluor® dyes (except for Alexa Fluor® 430), Pacific Blue™ dye, and Cascade Blue® dye are covered by pending and issued patents.
6. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
7. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
8. Pacific Blue™ is a trademark of Molecular Probes, Inc., Eugene, OR.
9. All other brands are trademarks of their respective owners.

References

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Han J, Lee JD, Bibbs L, Ulevitch RJ. A MAP kinase targeted by endotoxin and hyperosmolarity in mammalian cells. *Science.* 1994; 265(5173):808-811. (Biology)

Winston BW, Chan ED, Johnson GL, Riches DW. Activation of p38mapk, MKK3, and MKK4 by TNF-alpha in mouse bone marrow-derived macrophages. *J Immunol.* 1997; 159(9):4491-4497. (Biology)

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