Phospho-Ask1 (Ser83) (G4) rabbit mAb

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Catalog: #2096

Store at: -20ºC

For Research Use Only. Not For Use In Diagnostic Procedures.

Applications	Detection	Clonality	Isotype
Flow Cytometry,WB	Anti-Rabbit IgG	Monoclonal	Rabbit IgGk

Format: Unconjugated

Cross Reactivity: Predicted to work with mouse, rat and other homologues.

Formulation: 1X PBS, 0.02% NaN3, 50% Glycerol, 0.1% BSA

Preparation: Protein A+G

Reactivity: Human,Mouse,Rat

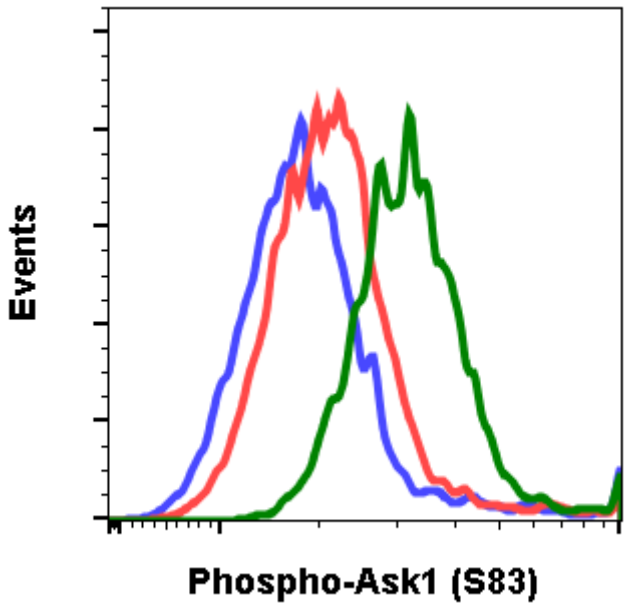
Recommended Usage: 1µg/mL – 0.001µg/mL. It is recommended that the reagent be titrated for optimal performance for each application. See product image legends for additional information.

Immunogen: A synthetic phospho-peptide corresponding to residues surrounding Ser83 of human phospho Ask1

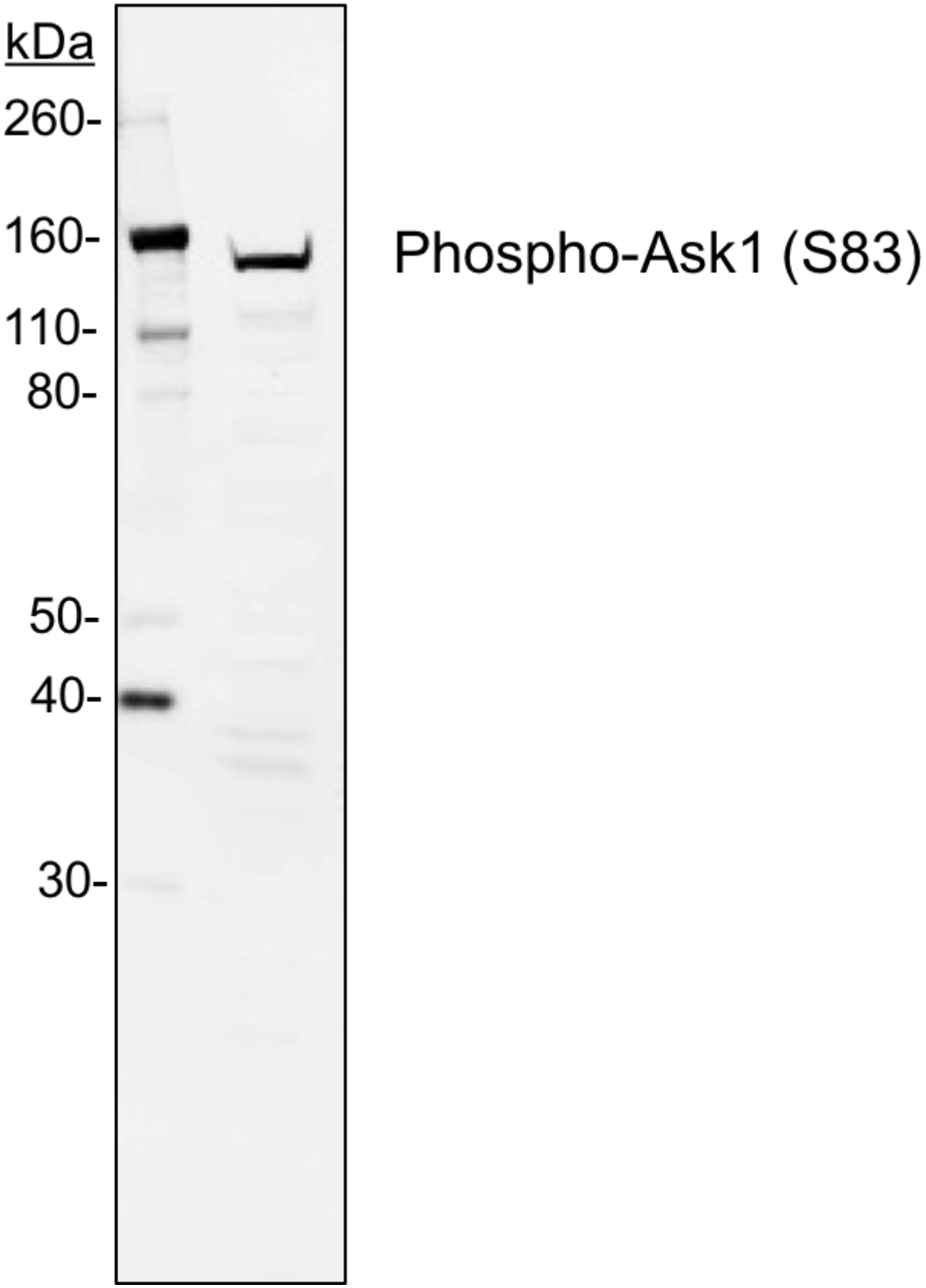
Description: Stress signaling in cells are partly mediated through c-Jun N-terminal kinase (JNK) and p38 mitogen-activated protein kinase (MAPK). A kinase upstream of these stress-mediated pathways is apoptosis signal-regulating kinase 1 (ASK1). ASK1 is a serine/threonine kinase that belongs to the family of mitogen-activated protein kinase kinase kinase (MAP3K). It is endogenously expressed in various cells. Various stress signaling activates ASK1 including reactive oxygen species (ROS), tumor necrosis factor alpha (TNFa), lipopolysaccharide (LPS) and endoplasmic reticulum (ER) stress. These events ultimately lead to the activation of JNK and p38 MAPK. As a result, ASK1-MAPK signaling is associated with various cellular stress responses including apoptosis, differentiation, and inflammation. Several studies show that aberrant ASK1 signaling leads to severe human diseases such as neurodegenerative diseases, induction of inflammatory diseases and cancer. The phosphorylation of the threonine residues 838 (Thr838) in human and Thr845 in mice is important for ASK1 activation. At basal inactive state, ASK1 is a homooligomer, which binds to another ASK1 via its C-terminal coiled-coil domain. The N-terminal coiled-coil of ASK1 binds to thioredoxin (Trx), which suppresses ASK1 kinase activity. Under oxidative stress, oxidized Trx is separated from ASK1 and unbond ASK1 is activated by phosphorylation. Calcium influx and oxidative stress can elicit phosphorylation of the ASK1. After H2O2 injury, tumor necrosis factor 2, (TRAF2) and TRAF6 act as positive regulator of ASK1. 14-3-3 proteins, act as negative regulator of ASK1 by binding to the C-terminal of ASK1 after Ser966 phosphorylation. However oxidative stress promotes dephosphorylation of Ser966 and lead to detachment of 14-3-3. TNF and Fas death receptor activate ASK1. ASK1 is an early signal stress responder to oxidative stress in cerebral ischemia. ASK1 has also been implicated in thrombosis, brain edema, inflammatory response, and reactive gliosis.

References:

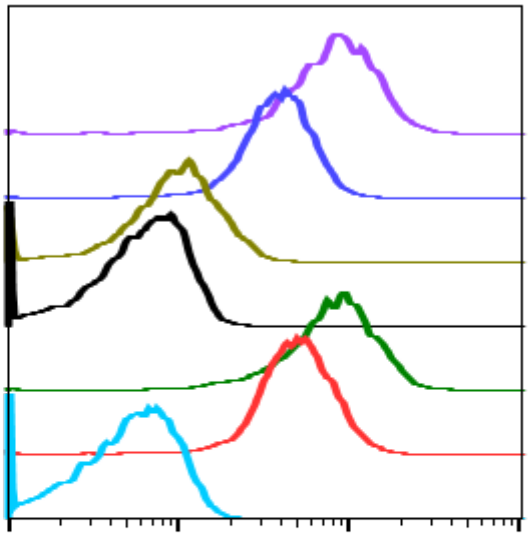
Matsukawa J, et al., (2004) J Biochem 136: 261-265.
Shizaka S., et al., 2013, Adv Biol Reg 53: 135-144.
Sekine Y., et al., (2006), Curr Mol Medicine, 6: 87-89.
Matsuzawa A., et al., (2002) Antioxidants Redox Signal 4:415-425.
Nagai H., el al., (2007), BMB report, 40:1-6.
Kulkarni S., et al., (2000), J Clin Invest 112:3555-3562.



Flow cytometric analysis of K562 cells secondary antibody only negative control (blue) or treated with imatinib (red) or with IFNα + IL-4 + pervanadate (green) using Phospho-Ask1 (Ser83) antibody Ask1S83-G4 at 5ng/mL. Cat. #2096.

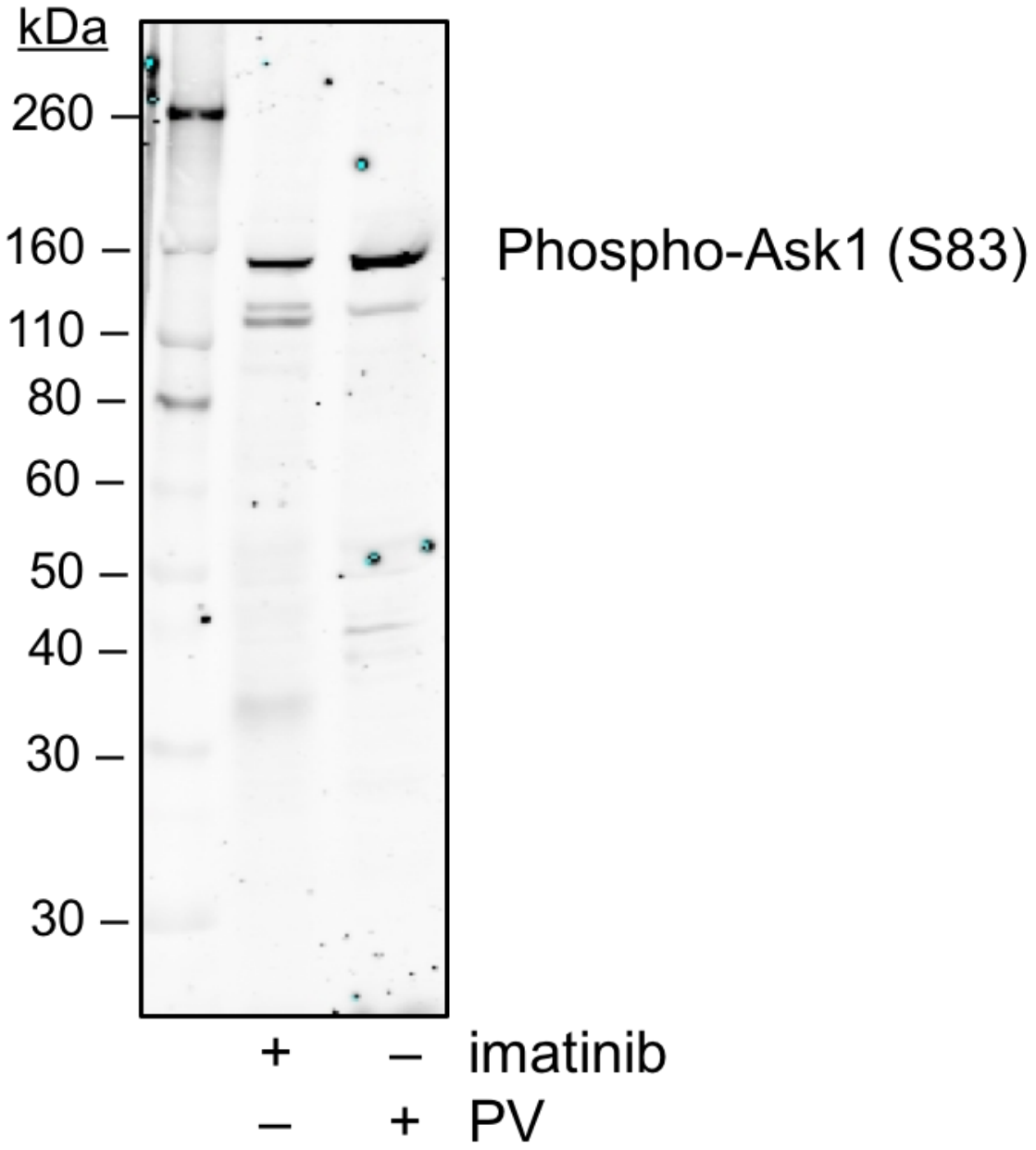


Western blot analysis of L929 cell extract treated with 20% FBS using Phospho-Ask1 (Ser83) antibody Ask1S83-G4 at 0.01µg/mL. Cat. #2096.

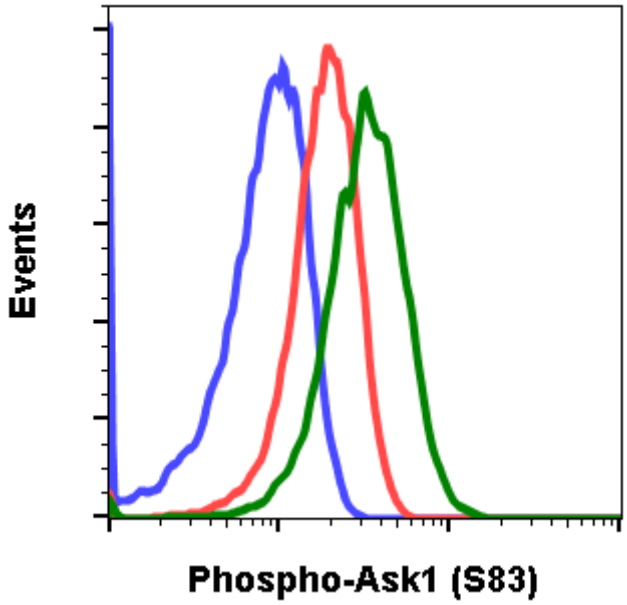


	SampleID	Count	Median : BL1-A
☐	Pv G4 N	2751	8214
☐	Imat G4 N	13154	3813
☐	Pv G4 P	2992	961
☐	Imat G4 P	10492	588
☐	Pv G4	3941	8118
☐	Imat G4	13763	4861
☐	Imat 2' only	15840	467

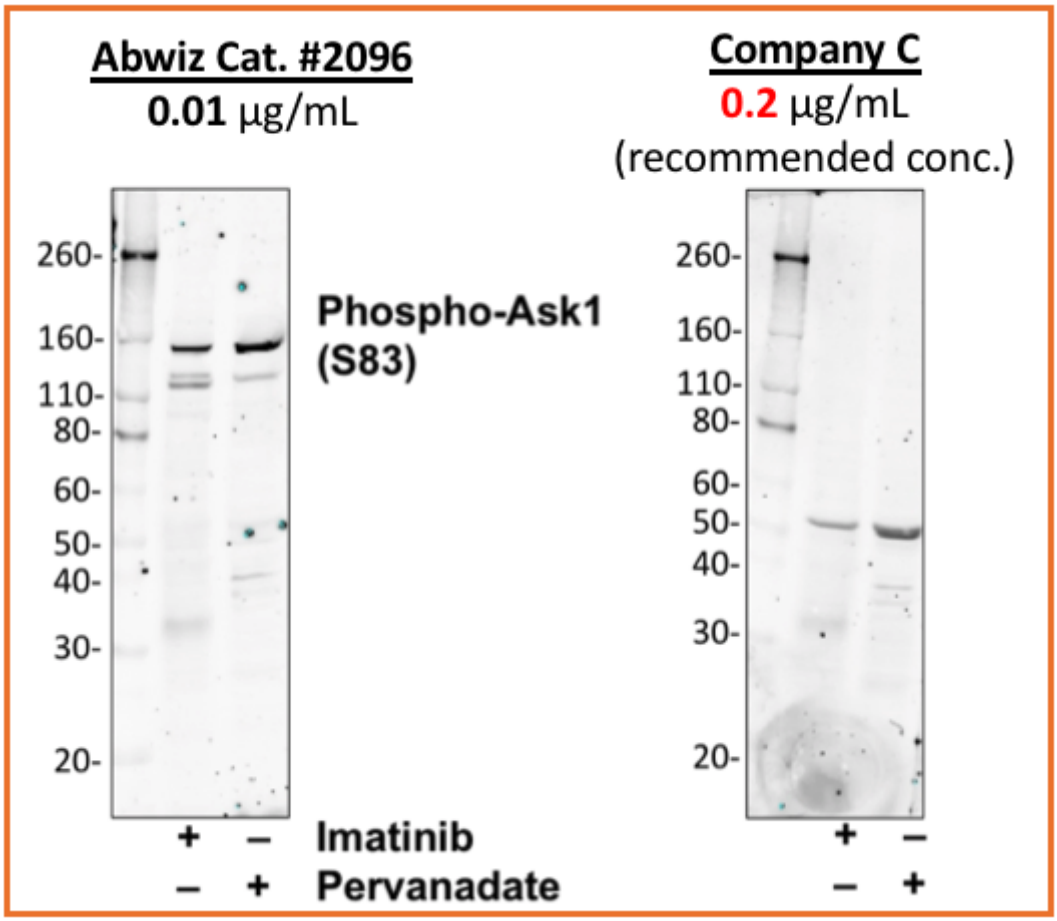
Peptide blocking flow cytometric analysis of C6 cells secondary antibody only negative control (light blue) or imatinib-treated (red) or pervandadate-treated (green) or imatinib and blocked with phospho-peptide (black) or pervanadate and blocked with phospho peptide (gold) or imatinib and blocked with non-phospho peptide (dark blue) or pervanadate and blocked with non-phospho peptide (purple) using Phospho-Ask1 (Ser83) antibody Ask1S83-G4 at 1ng/mL. Cat. #2096.



Western blot analysis of C6 cell extract treated with imatinib or treated with PV using Phospho-Ask1 (Ser83) antibody at 0.01 µg/mL. Ask1S83-G4. Cat. #2096.



Flow cytometric analysis of C6 cells secondary antibody only negative control (blue) or treated with imatinib (red) or with pervanadate (green) using Phospho-Ask1 (Ser83) antibody Ask1S83-G4 at 1ng/mL. Cat. #2096.



Western blot analysis of C6 cell extract treated with imatinib or with pervanadate using 0.01 µg/mL Phospho-Ask1 (Ser83) antibody Ask1S83-G4 Cat. #2096 or Company C antibody at 0.2 µg/mL (manufacturer's recommended concentration) developed using the same exposure.