# Product Information



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**Anti-STIM1 (C-terminal)**
produced in rabbit, affinity isolated antibody

Catalog Number **S6197**

## Product Description

Anti-STIM1 (C-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 657-683 of human STIM1 (GeneID: 6786), conjugated to KLH via an N-terminal cysteine residue. The corresponding sequence is identical in rat, mouse, bovine, monkey and dog. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-STIM1 (C-terminal) recognizes human, rat, and mouse STIM1. The antibody can be used for immunoblotting (90 kDa), immunoprecipitation, and immunofluorescence. Detection of the STIM1 band by immunoblotting is specifically inhibited by the immunizing peptide.

STIM1 (stromal interaction molecule 1) is a conserved single-pass transmembrane protein required for the activation of store-operated $Ca^{2+}$ influx.[1] Store-operated calcium entry is mediated by $Ca^{2+}$ release-activated $Ca^{2+}$ (CRAC) channels, following $Ca^{2+}$ depletion from the endoplasmic reticulum (ER) stores. This process is crucial for gene transcription, proliferation and cytokine release.[2] STIM1 is expressed ubiquitously in a wide variety of human primary and transformed cell types.[3] STIM1 is modified by phosphorylation and N-linked glycosylation.[4] STIM1 localizes predominantly in the membrane of the ER. It contains an N-terminal EF hand motif located in the ER lumen and appears to function as a sensor of ER $Ca^{2+}$ levels. Upon $Ca^{2+}$ store depletion, STIM1 undergoes rapid oligomerization and redistributes into discrete spots (punctae) that move towards and accumulate in the cell periphery, possibly to activate Orai1 that is located in the plasma membrane.[5, 6] Orai1, also called CRACM1, is an evolutionarily conserved plasma membrane protein essential for store-operated calcium entry in T cells and fibroblasts. There is strong evidence that Orai1 is a pore subunit of the CRAC channel.[4-6] Orai1 co-localizes with STIM1 near the plasma membrane after store depletion.[3] Overexpression of STIM1 and Orai1 together markedly increases the CRAC current (I-CRAC).[7] STIM1 binds TRPC1, TRPC4, and TRPC5 and determines their function as store operated channels.[8] TRPC1 also interacts with Orai1 and co-localizes with STIM1 and Orai1 in the plasma membrane region of cells. Dynamic assembly of TRPC1-STIM1-Orai1 ternary complex is involved in activation of SOC channel in response to internal $Ca^{2+}$ store depletion.[9]

## Reagent

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 15 mM sodium azide as preservative.

Antibody concentration: ~ 1.0 mg/ml

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

## Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

## Product Profile

Immunoblotting: a working concentration of 2-4 µg/ml is recommended using a whole extract of mouse 3T3 cells.

Immunoprecipitation: a working amount of 2.5-5 µg is recommended using extracts of rat PC12 cells.

Immunofluorescence: a working concentration of 2.5-5 µg/ml is recommended using human HeLa cells.

**Note**: In order to obtain the best results in various techniques and preparations, we recommend determining optimal working concentration by titration.

## References

1. Zhang, S.L., et al., *Nature*, **437**, 902-905 (2005).
2. Vig, M., et al., *Science*, **312**, 1220-1223 (2006).

3. Williams, R.T., et al., *Biochem. J.*, **357**, 673-685 (2001).
4. Manji, S.S., et al., *Biochim. Biophys. Acta*, **1481**, 147-155 (2000).
5. Gwack, Y., et al., *J. Biol. Chem*., **282**, 16232-16243 (2007).
6. Liou, J., et al., *Proc. Natl. Acad. Sci. USA*, **104**, 9301-9306 (2007).
7. Mercer, J.C., et al., *J. Biol. Chem*., **281**, 24979-24990 (2006).
8. Yuan, J. P., et al., *Nature Cell Biol.*, **9**, 636-645 (2007).
9. Ong, H.L., et al., *J. Biol. Chem*., **282**, 9105-9116 (2007

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