

Product Information

Anti-FRAT1

produced in rabbit, affinity isolated antibody

Catalog Number **F9056**

Product Description

Anti-FRAT1 is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 185-201 of human FRAT1 (GeneID: 10023), conjugated to KLH. The corresponding sequence is highly conserved (single amino acid insertion) in mouse FRAT1 and has significant homology (64% identity) to FRAT2. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-FRAT1 specifically recognizes human FRAT1. The antibody may be used in various immunochemical techniques including immunoblotting (~29 kDa). Detection of the FRAT1 band by immunoblotting is specifically inhibited by the FRAT1 immunizing peptide.

The Wnt signaling pathways play an essential role in the regulation of cellular proliferation, differentiation, motility, morphogenesis and has been linked to some forms of cancer.^{1,2} Upon activation of the wnt/ β -catenin signaling pathway, dissociation of axin/GSK3 and axin interaction with the Wnt-Fz-LRP6 complex, prevents the phosphorylation of β -catenin, resulting in up-regulation of β -catenin and activation of TCF/LEF-1-dependent transcription. FRAT1 (frequently rearranged in advanced T-cell lymphomas-1) is a GSK3 β -binding protein that plays a pivotal role in the wnt signaling pathway.^{1,2} FRAT1 contains a conserved GSK3 β interacting domain. FRAT1 competes with axin for binding of GSK3 β , thus displacing GSK3 β from the axin- β -catenin complex. Two FRAT genes have been identified in humans, FRAT1 and FRAT2, whereas three isoforms FRAT1-3 have been identified in mouse.³⁻⁶ Although, both human FRAT1 and FRAT2 are ubiquitously expressed, tissue expression indicate that FRAT2 is expressed at higher levels in brain than FRAT1, suggesting that it may play a more prominent role in regulating neuronal GSK3 β signaling.^{4,6} In contrast FRAT1 has been shown to be more efficient than FRAT2 in the canonical wnt signaling pathway. FRAT1 expression is up-regulated in several human cancer lines primarily in gastric cancer, and has been shown to be over-expressed in esophageal squamous cell carcinoma (ESCC).^{3,7}

Reagent

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

Antibody concentration: ~1.5 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

Store at -20 °C. For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 1-2 μ g/mL is recommended using rat liver extract (S1 fraction) and a HEK-293T cell lysate expressing human FRAT1.

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

References

1. Nusse, R., *Trends Genet.*, **15**, 1-3 (1999).
2. Katoh, M., *Curr. Drug Targets*, **9**, 565-570 (2008).
3. Saitoh, T., et al., *Int. J. Oncol.*, **20**, 785-789 (2002).
4. Freemantle, S.J., et al., *Gene*, **291**, 17-27 (2002).
5. Saitoh, T., et al., *Biochem. Biophys. Res. Commun.*, **281**, 815-820 (2001).
6. van Amerongen, R., et al., *J. Biol. Chem.*, **279**, 26967-26974 (2004).
7. Wang, Y., et al., *Int. J. Cancer*, **123**, 561-568 (2007).

ER,TD,KAA,PHC 07/09-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply.

Please see reverse side of the invoice or packing slip.