3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-di-phospho-TDP-43 [pSer^{409}, pSer^{410}]
produced in rabbit, affinity isolated antibody

Product Number **SAB4200225**

Product Description

Anti-di-phospho-TDP-43 [pSer^{409}, pSer^{410}] is produced in rabbit using as the immunogen phosphorylated synthetic peptide of human TDP-43, conjugated to KLH.The corresponding sequence is identical in mouse TDP-43. The antibody is absorbed on the non-phosphorylated peptide and further affinity-purified using the immunizing di-phospho-peptide immobilized on agarose.

Anti-di-phospho-TDP-43 [pSer^{409}, pSer^{410}] specifically recognizes human and mouse TDP-43 phosphorylated at pSer^{409} and pSer^{410}. The antibody may be used in various immunochemical techniques including immunoblotting (~43 kDa). Detection of the phosphorylated TDP-43 band by immunoblotting is specifically inhibited by the diphosphorylated [pSer^{409}, pSer^{410}] TDP-43 immunizing peptide, but not by the non-phosphorylated TDP-43 peptide.

TDP-43 (TAR DNA binding protein, TARDP) belongs to the family of heterogeneous nuclear ribonucleoproteins (hnRNPs) that bind single stranded RNA. Members of hnRNP family play multiple roles in the generation and processing of RNA, including transcription, splicing, transport, and stability. TDP-43 has been implicated in the transcription regulation of HIV. TDP-43 has been identified as the major ubiquinated component of cytoplasmic inclusions in frontotemporal lobe degeneration subtype FTLD-U and amyotrophic lateral sclerosis (ALS).[1] TDP-43 is predominantly localized to the nucleus. Pathological TDP-43 forms abnormal inclusions in neuronal perikarya and neurites, indicating that redistribution of TDP-43 to the cytoplasm is a pathogenic mechanism. Several pathogenic TDP-43 mutations have been identified in familial ALS, causing aberrant cleavage of TDP-43 to C-terminal fragments, and predisposing nuclear TDP-43 to redistribute to the cytoplasm and form pathological aggregates.[1-3] Abnormal phosphorylation of TDP-43 at Ser$^{409/410}$ has also been observed in FTLD-U and ALS, suggesting a toxic gain of function leading to apoptosis.[4]

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

For R&D use only. Not for drug, household, or other uses. Please consult the 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, 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 concentration of 1-2 μg/mL is recommended using HepG2 and NIH3T3 cell lysates.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Neumann, M., et al., *Science,* **314**, 130-133 (2006).
2. Sreedharan, J., et al., *Science*, **319**, 1668-1672 (2008).
3. Zhang, Y., et al., *Proc. Natl. Acad. Sci. USA*, **106**, 7607-7612 (2009).
4. Inukai, Y., et al., *FEBS Lett.*, **582**, 2899-2904 (2008).

VS,ER,RC,KAA,PHC,MAM 07/19-1