Anti-human TDP43 mAb 2G10

Description:

TDP-43 (transactive response DNA binding protein of 43 kDa), encoded by the TARDBP gene, is a nuclear protein involved in RNA splicing, trafficking, stabilization, and gene expression regulation. In disease, TDP-43 is depleted from the nucleus, mislocalized to the cytoplasm, and accumulated in insoluble aggregates with multiple posttranslational modifications (such as ubiquitination, phosphorylation, and truncation) that may also contribute to neurotoxicity in TDP-43 proteinopathies. TDP-43 inclusion bodies are characteristic of amyotrophic lateral sclerosis (ALS) and certain forms of frontotemporal lobar degeneration (FTLD) and are also observed in Alzheimer's disease (AD) cases.

The clone 2G10 is a Monoclonal Mouse antibody against Human Amino acids MTEDELREFFSQYGDVM of TDP43 protein, TAR DNA-binding protein 44 (Uniprot: A0A0A0N0L3).

The antibody is produced exclusively from hybridoma and purified through one-step purification with Protein-A affinity chromatography.

Product-ID:	**INV4000050**
Clone:	2G10
Immunogen:	Animals were immunized with recombinant human TDP43
Host:	Mouse
Clonality:	Monoclonal
Isotype:	IgG1k
Formulation:	Clear Liquid, PBS, pH 7.4
Concentration:	> 1.0 mg/ml
Purity:	> 95% by SDS-PAGE
Sizes available:	0.1 mg and 1.0 mg
Storage:	at - 20 °C (repeated thawing and freezing should be avoided)
Tested application(s):	ELISA, Western Blot

The product is for research use only and not for use in diagnostic or therapeutic procedures.

Literature:

[1] - de Boer EMJ, Orie VK, Williams T, Baker MR, De Oliveira HM, Polvikoski T, Silsby M, Menon P, van den Bos M, Halliday GM, van den Berg LH, Van Den Bosch L, van Damme P, Kiernan MC, van Es MA, Vucic S. TDP-43 proteinopathies: a new wave of neurodegenerative diseases. J Neurol Neurosurg Psychiatry. 2020 Nov 11;92(1):86–95. doi: 10.1136/jnnp-2020-322983. Epub ahead of print. PMID: 33177049; PMCID: PMC7803890.

[2] - Meneses A, Koga S, O'Leary J, Dickson DW, Bu G, Zhao N. TDP-43 Pathology in Alzheimer's Disease. Mol Neurodegener. 2021 Dec 20;16(1):84. doi: 10.1186/s13024-021-00503-x. PMID: 34930382; PMCID: PMC8691026.

References:

a. Calderón-Garcidueñas L, Stommel EW, Torres-Jardón R, Hernández-Luna J, Aiello-Mora M, González-Maciel A, Reynoso-Robles R, Pérez-Guillé B, Silva-Pereyra HG, Tehuacanero-Cuapa S, Rodríguez-Gómez A, Lachmann I, Galaz-Montoya C, Doty RL, Roy A, Mukherjee PS. Alzheimer and Parkinson diseases, frontotemporal lobar degeneration and amyotrophic lateral sclerosis overlapping neuropathology start in the first two decades of life in pollution exposed urbanites and brain ultrafine particulate matter and industrial nanoparticles, including Fe, Ti, Al, V, Ni, Hg, Co, Cu, Zn, Ag, Pt, Ce, La, Pr and W are key players. Metropolitan Mexico City health crisis is in progress. Front Hum Neurosci. 2024 Jan 12;17:1297467. doi: 10.3389/fnhum.2023.1297467. PMID: 38283093; PMCID: PMC10811680.

b. Calderón-Garcidueñas L, Stommel EW, Lachmann I, Waniek K, Chao CK, González-Maciel A, García-Rojas E, Torres-Jardón R, Delgado-Chávez R, Mukherjee PS. TDP-43 CSF Concentrations Increase Exponentially with Age in Metropolitan Mexico City Young Urbanites Highly Exposed to PM2.5 and Ultrafine Particles and Historically Showing Alzheimer and Parkinson's Hallmarks. Brain TDP-43 Pathology in MMC Residents Is Associated with High Cisternal CSF TDP-43 Concentrations. Toxics. 2022 Sep 24;10(10):559. doi: 10.3390/toxics10100559. PMID: 36287840; PMCID: PMC9611594.

c. Calderón-Garcidueñas L, González-Maciel A, Reynoso-Robles R, Hammond J, Kulesza R, Lachmann I, Torres-Jardón R, Mukherjee PS, Maher BA. Quadruple abnormal protein aggregates in brainstem pathology and exogenous metal-rich magnetic nanoparticles (and engineered Ti-rich nanorods). The substantia nigrae is a very early target in young urbanites and the gastrointestinal tract a key brainstem portal. Environ Res. 2020 Dec;191:110139. doi: 10.1016/j.envres.2020.110139. Epub 2020 Sep 2. PMID: 32888951.

d. Fourier A, Escal J, Bernard E, Lachman I, Perret-Liaudet A, Leblanc P, Quadrio I. Development of an automated capillary nano-immunoassay-Simple Western assay-to quantify total TDP43 protein in human platelet samples. Anal Bioanal Chem. 2019 Jan;411(1):267-275. doi: 10.1007/s00216-018-1437-4. Epub 2018 Oct 29. PMID: 30374726.

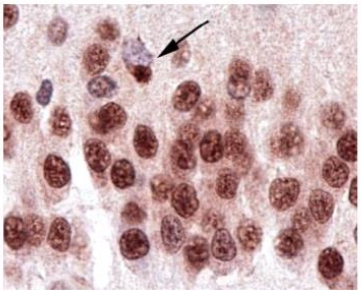
InVivo BioTech Services GmbH is certified to ISO 9001 and ISO 13485.

Anti-human TDP43 mAb 2G10 — Supplementary Data

Prominent nuclear physiological nuclear immunostaining of TDP-43

and a neuronal cytoplasmic inclusion body in a neuron lacking the physiological nuclear staining (arrow) using **2G10** antibody in a case with FTLD-TDP.

Results are kindly provided by Prof. Dr. Gabor G. Kovacs MUW (Vienna, Austria).



Fine neuropil threads in the hippocampus and neuronal cytoplasmic inclusions detected by **2G10** antibody in an Alzheimer diseased case with concomitant limbic TDP-43 proteinopathy.

Results are kindly provided by Prof. Dr. Gabor G. Kovacs MUW (Vienna, Austria).