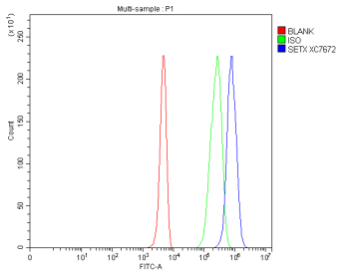
Senataxin Antibody / SETX (FY13393)

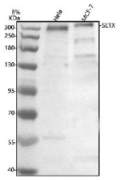
Catalog No.	Formulation	Size
FY13393	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q7Z333
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This Senataxin antibody is available for research use only.



Flow Cytometry analysis of human 293T cells using anti-Senataxin antibody. Overlay histogram showing 293T cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-Senataxin antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of Senataxin using anti-Senataxin antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates, Lane 2: human MCF-7 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-Senataxin antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A specific band was detected for Senataxin at approximately 303 kDa. The expected molecular weight of Senataxin is ~303 kDa.

Description

Senataxin antibody detects DNA/RNA helicase Senataxin, encoded by the SETX gene located on chromosome 9q34.13. Senataxin is a large nuclear helicase that unwinds DNA/RNA hybrids known as R-loops, thereby maintaining genomic stability during transcription and replication. It plays crucial roles in transcription termination, RNA processing, and DNA damage repair, linking transcriptional control with genome maintenance. Senataxin is expressed widely, with elevated levels in neurons, germ cells, and proliferative tissues where transcription-coupled DNA repair is highly active.

Structurally, Senataxin is a 2677-amino-acid helicase belonging to the superfamily 1 (SF1) of DNA/RNA helicases. It contains a C-terminal helicase domain with conserved Walker A and B motifs for ATP binding and hydrolysis, an N-terminal region that mediates protein-protein interactions, and nuclear localization sequences. The helicase activity of Senataxin resolves R-loop structures formed during transcription, preventing collisions between transcription and replication machinery. Co-localization studies show Senataxin enriched in nuclear foci associated with sites of active transcription and DNA repair.

Functionally, Senataxin maintains genome integrity by resolving R-loops and facilitating proper termination of RNA polymerase II transcription. It contributes to DNA double-strand break repair via homologous recombination and regulates transcription-coupled nucleotide excision repair. Senataxin also modulates RNA maturation by interacting with RNA processing factors such as XRN2 and the exosome complex. In neurons, it supports axonal maintenance and stress granule dynamics, while in germ cells, it regulates meiotic recombination and spermatogenesis.

Mutations in the SETX gene are linked to several neurodegenerative and neuromuscular disorders, including ataxia with oculomotor apraxia type 2 (AOA2) and juvenile amyotrophic lateral sclerosis type 4 (ALS4). These conditions are characterized by progressive neurodegeneration and impaired DNA repair capacity. Senataxin deficiency leads to accumulation of R-loops, transcriptional stress, and genomic instability. Pathway associations include RNA processing, DNA damage response, and transcription regulation. During development, Senataxin expression supports neuronal differentiation and genome maintenance in post-mitotic cells.

The Senataxin antibody from NSJ Bioreagents is a valuable reagent for studying transcription-coupled repair, RNA metabolism, and neurodegenerative disease mechanisms.

Application Notes

Optimal dilution of the Senataxin antibody should be determined by the researcher.

Immunogen

E.coli-derived human SETX recombinant protein (Position: E29-R2544) was used as the immunogen for the Senataxin antibody.

Storage

After reconstitution, the Senataxin antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.