Revision 10

#9175 Store at +4C

PathScan® Neurofilament-L Sandwich ELISA Kit

1 Kit (96 assays)

Species Cross Reactivity: M R
UniProt ID: #P07196
Entrez-Gene Id: #4747

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Color	Storage Temp
Neurofilament-L Mouse mAb Coated Microwells	46007	96 tests		+4C
Neurofilament-L Rabbit Detection mAb	88902	1 ea	Green (Lyophilized)	+4C
Anti-rabbit IgG, HRP-linked Antibody (ELISA Formulated)	13272	1 ea	Red (Lyophilized)	+4C
Detection Antibody Diluent	13339	11 ml	Green	+4C
HRP Diluent	13515	11 ml	Red	+4C
TMB Substrate	7004	11 ml		+4C
STOP Solution	7002	11 ml		+4C
Sealing Tape	54503	2 ea		+4C
ELISA Wash Buffer (20X)	9801	25 ml		+4C
ELISA Sample Diluent	11083	25 ml	Blue	+4C
Cell Lysis Buffer (10X)	9803	15 ml		-20C

Kit contents scale proportionally with size, except sealing tape.
Example: The V1 kit contains 5X the listed quantities above, but will exclude the sealing tape.

The microwell plate is supplied as 12 8-well modules - Each module is designed to break apart for 8 tests.

Description

The PathScan® Neurofilament-L Sandwich ELISA Kit is a solid phase sandwich enzyme-linked immunosorbent assay (ELISA) that detects endogenous levels of neurofilament-L protein. A neurofilament-L mouse mAb has been coated onto the microwells. After incubation with cell lysates, the neurofilament-L proteins are captured by the coated antibody. Following extensive washing, an neurofilament-L rabbit detection mAb is added to detect captured neurofilament-L proteins. Anti-rabbit IgG, HRP-linked antibody is then used to recognize the bound detection antibody. HRP substrate, TMB, is added to develop color. The magnitude of absorbance for the developed color is proportional to the quantity of neurofilament-L protein.

*Antibodies in this kit are custom formulations specific to kit.

Specificity/Sensitivity

PathScan® Neurofilament-L Sandwich ELISA Kit detects endogenous levels of nerofilament-L protein in mouse or rat brains, as shown in Figure 1. The kit sensitivity is shown in Figure 2. This kit detects proteins from the indicated species, as determined through in-house testing, but may also detect homologous proteins from other species.

Background

The cytoskeleton consists of three types of cytosolic fibers: actin microfilaments, intermediate filaments, and microtubules. Neurofilaments are the major intermediate filaments found in neurons and consist of light (NFL), medium (NFM), and heavy (NFH) subunits (1). Similar in structure to other intermediate filament proteins, neurofilaments have a globular amino-terminal head, a central α-helical rod domain, and a carboxy-terminal tail. A heterotetrameric unit (NFL-NFM and NFL-NFH) forms a protofilament, with eight protofilaments comprising the typical 10 nm intermediate filament (2). While neurofilaments are critical for radial axon growth and determine axon caliber, microtubules are involved in axon elongation. PKA phosphorylates the head domain of NFL and NFM to inhibit neurofilament assembly (3,4). Research studies have shown neurofilament accumulations in many human neurological disorders, including Parkinson's disease (in Lewy bodies along with α-synuclein), Alzheimer's disease, Charcot-Marie-Tooth disease, and Amyotrophic Lateral Sclerosis (ALS) (1).

Background References

1. Al-Chalabi, A. and Miller, C.C. (2003) *Bioessays* 25, 346-55.
2. Cohlberg, J.A. et al. (1995) *J Biol Chem* 270, 9334-9.
3. Hisanaga, S. et al. (1994) *Mol Biol Cell* 5, 161-72.
4. Sihag, R.K. et al. (1999) *J Neurochem* 72, 491-9.

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Limited Uses