

DESCRIPTION

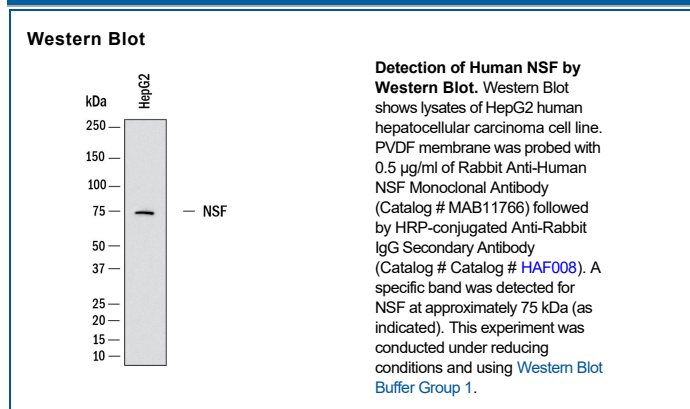
Species Reactivity	Human
Specificity	Detects a synthetic peptide specific for human NSF around amino acid 520 in direct ELISA
Source	Recombinant Monoclonal Rabbit IgG Clone # 3184A
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Synthetic Peptide Accession # P46459
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

	Recommended Concentration	Sample
Western Blot	0.5 µg/mL	HepG2 human hepatocellular carcinoma cell line

DATA



PREPARATION AND STORAGE

Reconstitution	Reconstitute lyophilized material at 0.2 mg/ml in sterile PBS. For liquid material, refer to CoA for concentration.
Shipping	Lyophilized product is shipped at ambient temperature. Liquid small pack size (-SP) is shipped with polar packs. Upon receipt, store immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> 12 months from date of receipt, -20 to -70 °C as supplied. 1 month, 2 to 8 °C under sterile conditions after reconstitution. 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

N-ethylmaleimide-sensitive factor (NSF) is an ATPase of the AAA+ protein family, with a molecular weight of approximately 83 kDa. NSF is a key component of membrane trafficking pathways and plays a central role in the disassembly of soluble N-ethylmaleimide-sensitive factor attachment protein receptor (SNARE) complexes, thereby facilitating vesicle fusion and neurotransmitter release. It is ubiquitously expressed across cell types and is essential for intracellular trafficking processes such as endocytosis, exocytosis, and autophagosome formation. NSF's functionality extends to maintaining the proper organization and dynamics of intracellular membranes, making it crucial for cellular homeostasis. Dysregulation of NSF activity has been implicated in various pathological conditions, including neurodegenerative disorders, where defects in vesicle fusion processes are linked to cognitive impairment. Additionally, NSF influences the recycling of neurotransmitter receptors and may play a role in synaptic plasticity, highlighting its importance in neuronal function and its potential as a therapeutic target for neurological diseases.

References:

- Hanson PI, Whiteheart SW. AAA+ proteins: have engine, will work. Nat Rev Mol Cell Biol. 2005 Jul;6(7):519-29. doi: 10.1038/nrm1684. PMID: 16072036.
- Yang J, Kong L, Zou L, Liu Y. The role of synaptic protein NSF in the development and progression of neurological diseases. Front Neurosci. 2024 Oct 21;18:1395294. doi: 10.3389/fnins.2024.1395294. PMID: 39498393; PMCID: PMC11532144.
- Zhao M, Brunger AT. Recent Advances in Deciphering the Structure and Molecular Mechanism of the AAA+ ATPase N-Ethylmaleimide-Sensitive Factor (NSF). J Mol Biol. 2016 May 8;428(9 Pt B):1912-26. doi: 10.1016/j.jmb.2015.10.026. Epub 2015 Nov 3. PMID: 26546278; PMCID: PMC4854814.