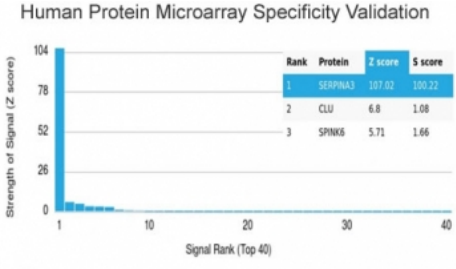
AACT Antibody for IHC / Alpha-1-antichymotrypsin Immunohistochemistry Antibody [clone SERPINA3/4184] (V9447)

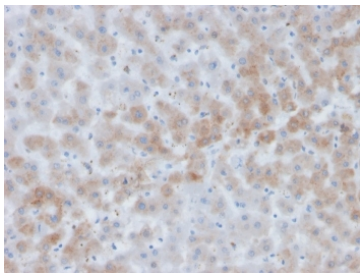
Catalog No.	Formulation	Size
V9447-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V9447-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V9447SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	SERPINA3/4184
Purity	Protein A/G affinity
UniProt	P01011
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml
Limitations	This AACT antibody is available for research use only.



AACT Antibody Protein Microarray Specificity Validation. Analysis of a HuProt(TM) microarray containing more than 19,000 full-length human proteins using AACT antibody demonstrates highly specific binding to SERPINA3, with minimal off-target interaction across the array. The signal distribution shows a strong primary peak corresponding to SERPINA3, while all other proteins exhibit substantially lower signal intensity, supporting target selectivity of the antibody. Z-score represents the signal strength generated by antibody binding, expressed as standard deviations above the mean signal of the array, while S-score reflects the separation between the top-ranked target and the next highest signal, indicating relative specificity. The high Z-score and clear S-score separation observed for SERPINA3 confirm the specificity profile of this antibody clone in a proteome-wide context.



AACT Antibody for IHC Human Liver Tissue. Immunohistochemistry of Alpha-1-antichymotrypsin / SERPINA3 in FFPE human liver tissue using a mouse monoclonal AACT antibody, clone SERPINA3/4184. Strong HRP-DAB brown cytoplasmic staining is observed in hepatocytes, consistent with the secretory nature of this acute phase protein, while nuclei are counterstained blue. The staining pattern highlights widespread hepatocellular expression with minimal background signal. Heat induced epitope retrieval was performed by boiling sections in pH 9 10 mM Tris with 1 mM EDTA for 20 min followed by cooling before staining.

Description

Alpha-1-antichymotrypsin (SERPINA3) is a secreted serine protease inhibitor belonging to the serpin superfamily and is widely recognized as a major acute phase protein in human biology. AACT Antibody for IHC is commonly used to evaluate tissue expression of this protein, particularly in liver where it is abundantly produced and secreted into circulation. AACT antibody, also referred to as Alpha-1-antichymotrypsin antibody or SERPINA3 antibody in the literature, is an important tool for studying protease regulation in inflammatory and disease-associated contexts.

SERPINA3 is primarily synthesized by hepatocytes and plays a central role in systemic inflammatory responses. Its expression is strongly induced by cytokines such as IL-6 and IL-1 beta, resulting in elevated circulating levels during acute phase reactions. In immunohistochemistry, AACT antibody staining typically shows strong cytoplasmic localization in hepatocytes, consistent with its role as a secreted glycoprotein. Additional staining may be observed in immune-related cells under inflammatory conditions, reflecting its broader involvement in host defense and tissue protection.

Functionally, Alpha-1-antichymotrypsin acts as an inhibitor of serine proteases including cathepsin G and chymotrypsin-like enzymes. By limiting proteolytic activity, SERPINA3 helps maintain extracellular matrix integrity and prevents excessive tissue damage during inflammation. AACT antibody is therefore useful for examining protease-antiprotease balance in tissues undergoing immune activation, injury, or remodeling. This regulatory function links SERPINA3 to a wide range of biological processes, including wound healing and chronic inflammatory disease progression.

In addition to its role in normal physiology, SERPINA3 expression has been associated with multiple pathological conditions, including cancer and neurodegenerative disease. Elevated expression has been reported in tumor tissues where inflammatory signaling is prominent, and it may contribute to tumor progression by influencing the tumor microenvironment. Immunohistochemical analysis using AACT antibody allows visualization of these expression patterns within tissue architecture, providing insight into both tumor cell behavior and surrounding stromal or immune components.

Evaluation of Alpha-1-antichymotrypsin expression is further strengthened by high-specificity validation approaches such as protein microarray analysis. The clone SERPINA3/4184 antibody has been assessed against thousands of human proteins, confirming selective binding to SERPINA3 and minimizing cross-reactivity concerns. This level of validation supports its use in complex tissue studies where specificity is critical, particularly when interpreting staining patterns in heterogeneous samples.

Combined with consistent liver immunohistochemistry staining and robust specificity data, AACT antibody provides a reliable approach for studying SERPINA3 expression across physiological and disease states. Its well-characterized biology, strong hepatic expression, and involvement in inflammatory pathways make it a valuable marker for research focused on protease regulation, immune response, and tissue homeostasis.

This antibody is part of a broader antibody panel offered by NSJ Bioreagents.

Application Notes

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

Immunogen

A portion of amino acids A portion of amino acids 49-187 was used as the immunogen for the AACT antibody.

Storage

Aliquot the AACT antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

Alpha-1-antichymotrypsin antibody, SERPINA3 antibody, AACT protein antibody, Serpin A3 antibody, Acute phase serpin antibody

Ordering: Phone: 858.663.9055 | Fax: 1.267.821.0800 | Email: info@nsjbio.com