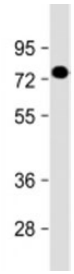
PGLYRP2 Antibody / N-acetylmuramoyl-L-alanine amidase (F53926)

Catalog No.	Formulation	Size
F53926-0.2ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.2 ml
F53926-0.05ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.05 ml

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
UniProt	Q96PD5
Applications	Western blot: 1:1000-2000
Limitations	This PGLYRP2 antibody is available for research use only.



Western blot testing of human placenta lysate with PGLYRP2 antibody at 1:2000. Predicted molecular weight ~62 kDa but may be observed at higher molecular weights due to glycosylation.

Description

PGLYRP2 antibody detects N-acetylmuramoyl-L-alanine amidase, a secreted enzyme and pattern recognition receptor that contributes to innate immunity by recognizing bacterial peptidoglycan and hydrolyzing its amide bonds. The UniProt recommended name is N-acetylmuramoyl-L-alanine amidase (PGLYRP2). This protein belongs to the peptidoglycan recognition protein (PGRP) family, a group of evolutionarily conserved molecules that detect bacterial cell wall components and mediate antimicrobial defense.

Functionally, PGLYRP2 antibody identifies a 583-amino-acid zinc-dependent N-acetylmuramoyl-L-alanine amidase that

enzymatically cleaves the bond between N-acetylmuramic acid and L-alanine in bacterial peptidoglycan. Unlike other PGRPs that primarily function as bactericidal receptors, PGLYRP2 possesses strong enzymatic activity and degrades bacterial peptidoglycan into non-inflammatory fragments. This catalytic activity reduces immune overstimulation and maintains mucosal immune homeostasis by limiting recognition of proinflammatory bacterial debris.

The PGLYRP2 gene is located on chromosome 19q13.33 and encodes a secreted protein synthesized predominantly in the liver and released into the bloodstream. PGLYRP2 is also expressed at epithelial barriers, including the intestine, lung, and skin, where it acts as part of the first line of host defense. The protein contains an N-terminal amidase domain with a zinc-binding catalytic center and a C-terminal peptidoglycan recognition domain responsible for binding bacterial cell wall substrates.

PGLYRP2 plays a dual role in innate immunity. It provides enzymatic degradation of bacterial peptidoglycan to prevent excessive immune activation, while its expression is upregulated by microbial exposure and proinflammatory cytokines such as interleukin-1ÃŽÂ² and tumor necrosis factor alpha. By regulating bacterial recognition, PGLYRP2 helps maintain tolerance to commensal microbiota and prevents chronic inflammation. Mice deficient in PGLYRP2 exhibit exaggerated inflammatory responses and increased susceptibility to colitis and sepsis, emphasizing its immunomodulatory importance.

Beyond antimicrobial defense, PGLYRP2 is involved in epithelial barrier integrity and modulation of gut microbiome composition. It has been shown to influence susceptibility to inflammatory bowel disease, psoriasis, and airway inflammation by maintaining balanced host-microbe interactions. In humans, certain polymorphisms in PGLYRP2 are associated with altered immune responses and disease predisposition, particularly in gastrointestinal and dermatological disorders.

At the molecular level, PGLYRP2 operates in concert with other pattern recognition receptors such as NOD2 and TLR2 to fine-tune inflammatory signaling pathways. Its enzymatic activity provides a protective mechanism against bacterial components that could otherwise activate excessive NF-ÃŽÂºB or inflammasome signaling. In this way, PGLYRP2 serves as both an immune effector and regulator of inflammation. In addition, recent studies suggest that PGLYRP2 may have non-enzymatic roles in tissue homeostasis, wound healing, and modulation of microbial communities at mucosal surfaces.

PGLYRP2 antibody is widely used in immunology, microbiology, and epithelial biology research. It is suitable for western blotting, immunohistochemistry, and immunofluorescence to detect PGLYRP2 expression in tissues and cell lysates. This antibody supports studies of host-pathogen interactions, bacterial recognition, and innate immune regulation. In translational research, it aids in understanding the role of PGLYRP2 in inflammatory disease and mucosal defense mechanisms.

Structurally, PGLYRP2 consists of an N-terminal catalytic amidase domain that binds zinc through conserved histidine residues essential for hydrolytic activity, and a C-terminal PGRP domain responsible for bacterial peptidoglycan recognition. The enzyme is secreted as a soluble monomer but can associate with bacterial cell wall fragments during infection. NSJ Bioreagents provides PGLYRP2 antibody reagents validated for use in immune recognition, epithelial defense, and inflammation control research.

Application Notes

Titration of the PGLYRP2 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 75-107 from the human protein was used as the immunogen for the PGLYRP2 antibody.

Storage

Aliquot the PGLYRP2 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

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