

## DESCRIPTION

|                                                                                                                                                                                                         |                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b>                                                                                                                                                                               | Human                                                                                                |
| <b>Specificity</b>                                                                                                                                                                                      | Detects human Biglycan in direct ELISAs and Western blots.                                           |
| <b>Source</b>                                                                                                                                                                                           | Monoclonal Mouse IgG <sub>1</sub> Clone # 303203                                                     |
| <b>Purification</b>                                                                                                                                                                                     | Protein A or G purified from hybridoma culture supernatant                                           |
| <b>Immunogen</b>                                                                                                                                                                                        | Mouse myeloma cell line NS0-derived recombinant human Biglycan<br>Asp38-Lys368<br>Accession # P21810 |
| <b>Conjugate</b>                                                                                                                                                                                        | Alexa Fluor 532<br>Excitation Wavelength: 534 nm<br>Emission Wavelength: 553 nm                      |
| <b>Formulation</b>                                                                                                                                                                                      | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide                                         |
| *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |                                                                                                      |

## 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.

**Western Blot** Optimal dilution of this antibody should be experimentally determined.

## PREPARATION AND STORAGE

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| <b>Stability &amp; Storage</b> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

## BACKGROUND

Biglycan, also known as PG I, is a secreted chondroitin/dermatan sulfate proteoglycan in the small leucine-rich proteoglycan (SLRP) family. SLRP family members are characterized by N-terminal and C-terminal cysteine-rich regions that flank a central region containing 10 - 12 tandem leucine-rich repeats (LRRs). Biglycan function is important in the development and maintenance of many tissues (1, 2). The human Biglycan cDNA encodes a 368 amino acid (aa) precursor with a 19 aa signal sequence and a 18 aa propeptide that is cleaved by BMP-1 (3). Mature Biglycan contains N-linked glycosylation in addition to two glycosaminoglycan (GAG) chains (4). The 45 kDa core protein is approximately one third the molecular weight of the fully glycanated form and can assemble into noncovalently-associated dimers (5). Human Biglycan shares 97% aa sequence identity with bovine, mouse, and rat Biglycan and 57% aa sequence identity with human Decorin. Biglycan binds several matrix proteins, including fibrillar collagens, Matrilin-1, and  $\beta$ IG-H3 (6 - 8). Its multiple LRRs, N-linked glycosylation, and GAG chains mediate distinct interactions that enable extensive crosslinking and stabilization of the collagen matrix (6 - 8). Mature Biglycan can be further cleaved by proteases, resulting in non-glycanated fragments (9). In osteoarthritis, MMP-13-induced breakdown of Biglycan likely interferes with collagen crosslinking and contributes to cartilage degradation (10). Biglycan also binds and modulates the activity of a variety of non-matrix proteins, including BMP-4, C1q, collectins, TGF- $\beta$ , TNF- $\alpha$ , and WISP-1 (11, 12). Biglycan functions as a proinflammatory mediator by binding TLR2 and TLR4 on macrophages and inducing TNF- $\alpha$  and MIP-2 production (13). Biglycan knockout mice have compromised inflammatory responses and are resistant to LPS-induced septic shock (13). Biglycan binds HDL/Apolipoprotein E complexes in atherosclerotic plaques and also binds SR-A, blocking the uptake and degradation of LDL (14, 15).

## PRODUCT SPECIFIC NOTICES

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