COSMO BIO CO., LTD.
Inspiration for Life Science

MONOCLONAL ANTIBODY

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Catalog No. PRPG-VS-M03

Anti Versican [CSPG2] (2B3)

BACKGROUND

Versican, the product of the VCAN/CSPG2 gene, is a large extracellular matrix chondroitin sulfate proteoglycan ubiquitously expressed in interstitial matrices of the human body, including brain ECM [1-4]. It was first isolated from bovine aorta [5, 6] and later on isolated from the chick embryo [7]. Cloning of the human VCAN/CSPG2 gene was accomplished in 1989 by D. Zimmermann and E. Ruoslahti [8], who also cognated the name *versican* in recognition of its versatile modular structure.∗

Product type	Primary antibodies
Immunogen	Versican-enriched proteoglycan preparation from bovine aorta
Host Species	Mouse
Fusion Partner	-
Clone Designation	2B3
Isotype	IgM
Host	-
Source	Hybridoma cell culture
Purification	-
Form	Liquid
Formulation Buffer	Supernatant supplemented with 0.05% NaN_3
Concentration	ND
Volume	2 mL
Label	Unlabeled
Specificity	Versican V0, V1 and V2 isoforms (V3 isoform reactivity not ascertained)
Cross species reactivity	Human, Bovine Other species have not been tested.
Storage Conditions	Store at 4°C for short-term storage and -20°C for prolonged storage Aliquot to avoid cycles of freeze / thaw.
Other	**Data Link** : UniProtKB/Swiss-Prot P81282 (CSPG2_BOVIN)

Application notes
Recommended dilutions

- **Western blotting**, 1/20 - 1/60*
- **Immunohistochemistry**, 1/20 - 1/40 (Paraffin sections)
- **ELISA,** 1/50 - 1/150

Optimal dilutions/concentrations should be determined by the end user.

References

1) Wight TN., *Curr Opin Cell Biol*.2002 Oct;14(5):617-23. PMID:12231358
2) Wu YJ, et all., *Cell Res*. 2005 Jul;15(7):483-94. PMID:16045811.
3) Cattaruzza S, et all., *J Biol Chem*. 2002 Dec 6;277(49):47626-35..PMID:12221092
4) Garusi E, et all., *Cell Mol Life Sci.* 2012 Feb;69(4):553-79. PMID:21964924
5) Heinegard D, et all., *Biochem J.* 1985 Aug 15;230(1):181-94. PMID:4052035
6) Kimata K, et all., *J Biol Chem*.1986 Oct 15;261(29):13517-25. PMID:3759975
7) Morgelin M., et all., *J Biol Chem*.1989 Jul 15;264(20):12080-90. PMID:2745430
8) Zimmermann DR, et all., *EMBO J*. 1989 Oct;8(10):2975-81. PMID:2583089

ANTIBODY CHARACTERIZATION

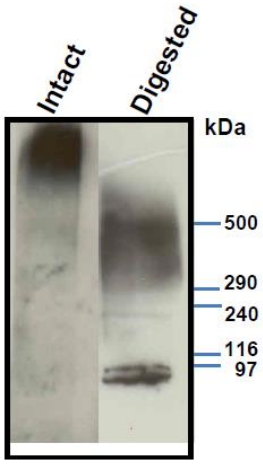

Fig.1 Western blotting of purified human aorta versican resolved by SDS-PAGE on 3-8% linear gradient gels (MW, HiMark Unstained Protein Standard) before (*Intact*) and after combined chondroitinase ABC and endo-b-galactosidase pretreatment (*Digested*).
* Banding pattern observed by immunoblotting depends upon the isoforms and is often complex. In the intact forms, i.e. without removal of GAGs, V0, V1 and V2 do not enter acrylamide gels and therefore agarose gels are recommended. Following chondroitinase-digestion and extensive enzymatic deglycosylation, most isoforms still show complex, smeared banding patterns

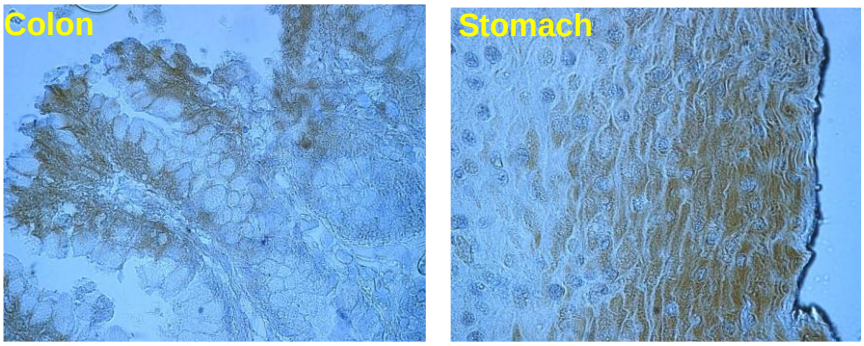

Fig.2 Immunolocalization of versican isoforms (primarily a mixture of V1 and V2 isoforms) recognized by mAb 2B3 in the indicated human adult tissues (peroxidase reaction).
< Staining Pattern >
* mAb 2B3 detects specific versican V0-V2 isoforms widely distributed in connective tissues and particularly concentrated in vascular structures. Chondroitinase ABC pre-digestion of the sections may affect the staining pattern.

∗< BACKGROUND : Versican [CSPG2] >

Versican, the product of the VCAN/CSPG2 gene, is a large extracellular matrix chondroitin sulfate proteoglycan ubiquitously expressed in interstitial matrices of the human body, including brain ECM [1-4]. It was first isolated from bovine aorta [5, 6] and later on isolated from the chick embryo [7]. Cloning of the human VCAN/CSPG2 gene was accomplished in 1989 by D. Zimmermann and E. Ruoslahti [8], who also cognated the name *versican* in recognition of its versatile modular structure. Versican belongs to the *lectican* proteoglycan subgroup, to which aggrecan, brevican and neurocan also pertain and share the N-terminal (G1) globular domain. This consists of Ig-like loops and two link modules and is responsible for the binding to hyaluronan, which may or may not be further stabilized by link proteins. At least 4 different alternative spliced versican isoforms are known in higher vertebrates, denoted V0, V1, V2 and V3, while lower vertebrates have additional ones as a result of duplication of the gene. The different versican isoforms are generated through differential utilization of central regions of the core protein denoted GAG-α and GAG-β and encompassing the glycosaminoglycan (chondroitin sulfate) attachment sites of the proteoglycan. The V0 isoform is the parental one containing both the above “GAG-attachment” exons; the V1 isoforms has only the GAG-β domain exon; the V2 isoform has only the GAG-α domain exon; and the V3 isoform is void of any GAG attachment domain exons, and is therefore a GAG-free proteoglycan. This implies that the polypeptides constituting the versican isoforms have a molecular mass range of 50-550 kDa in their unglycosylated version and molecular weights vary from about 60 kDa to 1,500-2,000 kDa in fully glycosylated/glycanated versions [9, 10]. The C-terminal (G3) globular domain consists of one or two EGF repeats, a C-type lectin module and complement regulatory protein (CRP)-like domain. The C-terminal domain binds a variety of ligands in the ECM and thereby contributes to the macromolecular organization of versican. The role of versican in ECM assembly (in particular elastic matrices), cell adhesion, cell migration, and cell proliferation is extensively described and its essential role during embryonic development is confirmed by the early lethality observed after unconditional deletion of the CSPG2 gene. As many other large proteoglycans, versican is processed by multiple MMPs and ADAMTSs and its matrix deposition may be strongly down- or up-regulated in degenerative diseases and cancer. In some tumours its expression pattern has been proposed to have a prognostic value and versican overexpression is also highly critical during inflammation and tissue degenerative conditions [4, 11-13].

1. Wight TN. 2002. Versican: a versatile extracellular matrix proteoglycan in cell biology. *Curr Opin Cell Biol* 14, 617-623.
2. Wu YJ, La Pierre DP, Wu J, Yee AJ, Yang BB. The interaction of versican with its binding partners. Cell Res. 2005 Jul;15(7):483-494.
3. Cattaruzza S, Schiappacassi M, Ljungberg-Rose Å, Spessotto P, Perissinotto D, Mörgelin M, Mucignat MT, Colombatti A, Perris R. 2002. Distribution of PG-M/versican variants in human tissues and de novo expression of isoform V3 upon endothelial cell activation and neoangiogenesis. *J Biol Chem* 277, 47626-47635.
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10. Mazzucato M, Cozzi MR, Pradella P, Perissinotto D, Malmström A, Mörgelin M, Spessotto P, Colombatti A, De Marco L, Perris R. 2002. Vascular PG-M/versican variants promote platelet adhesion at low shear rates and cooperate with collagens to induce aggregation. *FASEB J* 16, 1903-1916.
11. Rahmani M, Wong BW, Ang L, Cheung CC, Carthy JM, Walinski H, McManus BM. 2006. Versican: signaling to transcriptional control pathways. Can J Physiol Pharmacol 84, 77-92.
12. Kenagy RD, Plaas AH, Wight TN. 2006. Versican degradation and vascular disease.
13. Ricciardelli C, Sakko AJ, Ween MP, Russell DL, Horsfall DJ. 2009. The biological role and regulation of versican levels in cancer. Cancer Metastasis Rev 28, 233-245

**References relative to this antibody are underlined.*

RELATED PRODUCT:

Product Name	Clone	Maker	Cat#
Anti CS [Chondroitin Sulfate] Monoclonal Antibody	2B6	CAC	PRPG-BC-M02
Anti CS [Chondroitin Sulfate] Monoclonal Antibody	1B5	CAC	PRPG-BC-M03
Anti CS [Chondroitin Sulfate] Monoclonal Antibody	3B3	CAC	PRPG-BC-M04
Anti Chondroitin Sulfate A Monoclonal Antibody	2H6	CAC	NU-07-001
Anti Aggrecan Monoclonal Antibody	6F4	CAC	PRPG-AG-M01
Anti Aggrecan Monoclonal Antibody	5D3	CAC	PRPG-AG-M02
Anti Aggrecan Monoclonal Antibody	5G2	CAC	PRPG-AG-M03
Anti Aggrecan Monoclonal Antibody	7B7	CAC	PRPG-AG-M04
Anti Versican/CSPG2 Monoclonal Antibody	5C12	CAC	PRPG-VS-M01
Anti Versican/CSPG2 Monoclonal Antibody	4C5	CAC	PRPG-VS-M02
Anti Versican/CSPG2 Monoclonal Antibody	2B3	CAC	PRPG-VS-M03
Anti Versican/CSPG2 Monoclonal Antibody	6B10	CAC	PRPG-VS-M04
Anti Neurocan Monoclonal Antibody	1G2	CAC	NU-07-002
Anti Neuroglycan C Monoclonal Antibody	C1	CAC	NU-07-003
Anti Neurocan peptides Polyclonal Antibody	-	CAC	NU-07-005
Anti N-syndecan Polyclonal Antibody	-	CAC	NU-07-004
Anti BPAG1(BP230) Monoclonal Antibody	279	CAC	NU-01-BP1
Anti NG2 / CSPG4 Monoclonal Antibody	2164H5	CAC	PRPG-NG-M01
Anti COMP Monoclonal Antibody	484D1	CAC	PRPG-CP-M01
Anti COMP Monoclonal Antibody	490D11	CAC	PRPG-CP-M02
Anti COMP Fragment Monoclonal Antibody	2117B2	CAC	PRPG-CPF-M01
Anti Keratan sulfate Monoclonal Antibody	373E1	CAC	PRPG-KS-M01
Anti KS [Keratan Sulfate] Monoclonal Antibody	5DA	CAC	PRPG-BC-M01
Anti Decorin Monoclonal Antibody	889C7	CAC	PRPG-DC-M01
Anti Fibromodulin Monoclonal Antibody	636B12	CAC	PRPG-FBM-M01
Anti Biglycan Monoclonal Antibody	905A7	CAC	PRPG-BG-M01
Anti XTP1 Monoclonal Antibody	2191H1	CAC	PRPG-XTP-M01
Anti SDP35 Monoclonal Antibody	2200D12	CAC	PRPG-SDP-M01
Anti Laminin α4 Monoclonal Antibody	652C4	CAC	PRPG-LA4-M01
Anti Laminin ALPHA3 Monoclonal Antibody	BM515	CAC	NU-01-LA3
Anti Laminin-nidogen complexe Monoclonal Antibody	331G3	CAC	PRPG-NDG-M01
Anti Collagen 7 Monoclonal Antibody	BML39	CAC	NU-01-CO7
Anti Collagen 12 Monoclonal Antibody	378D5	CAC	PRPG-CO12-M01

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