

BM4018**Monoclonal Antibody to Fibroblasts (Pan Reticular) - Purified****Alternate names:**

Fibroblast Marker, Fibroblasten

Quantity:

0.2 mg

Concentration:

0.4 mg/ml (after reconstitution)

Background:

Connective tissue consists of a ground of glycosaminoglycans, proteoglycans and glycoproteins through which various fibres run. These fibres can be collagenous, elastic or reticular. Reticular fibres are composed from the family of collagen proteins and give tensile strength. These fibres are made by reticular fibroblasts. Fibroblasts are the least specialized cells in the connective-tissue family. They are dispersed in connective tissue throughout the body, where they secrete a nonrigid extracellular matrix (ECM) that is rich in type I and/or type III collagen. Connective tissue consists of glycosaminoglycans, proteoglycans and glycoproteins through which various fibres run. These fibres can be collagenous, elastic or reticular. Reticular fibres are composed from the family of collagen proteins and give tensile strength. These fibres are made by reticular fibroblasts. The activation of fibroblasts by inflammatory stimuli results in their migration, proliferation and deposition of extracellular matrix components, important features involved in both wound healing and fibrosis.

Host / Isotype:

Rat / IgG2a

Recommended Isotype

SM15P, SM15PX

Controls:**Clone:**

ER-TR7

Immunogen:

Murine thymic reticulum.

Epitope: The antigen has not been fully characterized.

The epitope may be part of reticulín.

Format:**State:** Lyophilized purified IgG fraction**Purification:** Affinity Chromatography**Buffer System:** Stock solution contains PBS, pH 7.2 with 5 mg/ml BSA as a stabilizer and 0.09% Sodium Azide as preservative**Reconstitution:** Restore with 0.5 ml distilled water.**Applications:****Immunohistochemistry on Frozen Sections:** 1 µg/ml (1/400) freshly prepared for Mouse tissue and 4 µg/ml (1/100) on Human/Porcine tissue.**Recommended Positive Control:** Mouse spleen.

Does not react on routinely processed Paraffin Sections.

Has been described to work in **FACS**.

Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:

Reacts with Mouse reticular fibroblasts, reticular fibres and Human tonsil.

ER-TR7 detects an antigen present in and produced by reticular fibroblasts. The recognized antigen is most likely distinct from Laminin, Fibronectin, Collagen types I-IV, Heparan Sulfate Proteoglycan, Entactin, and Nidogen.

The antibody is useful to stain the microanatomy of various organs, in particular the connective tissue framework in lymphoid organs. The antibody also stains subendothelial deposits in the plaque area of atherosclerotic plaques.

Antigen Distribution

Isolated Cells: The antigen is found in the cytoplasm of fibroblast cell lines.

Tissue Sections: The antigen is expressed in connective tissues which form a supporting network between parenchymal cells of all organs tested so far (see table below). Thus, the supportive mesenchymal structures of larger vessels can be studied. In spleen, a very clear delineation of red and white pulp is obtained. Capsule, sinuses, follicles, paracortex and medullary cords are also clearly delineated in lymph nodes.

Species Reactivity:

Tested: Mouse (Reticular Fibroblasts, Reticular Fibres), Pig and Human.

Storage:

Store lyophilized at 2-8°C for 6 months or at -20°C long term.

After reconstitution store the antibody undiluted at 2-8°C for one month or (in aliquots) at -20°C long term.

Avoid repeated freezing and thawing.

Shelf life: one year from despatch.

Product Citations:**Purchased from Acris:**

1. Choi BK, Kim YH, Kwon PM, Lee SC, Kang SW, Kim MS, et al. 4-1BB functions as a survival factor in dendritic cells. *J Immunol.* 2009 Apr 1;182(7):4107-15. doi: 10.4049/jimmunol.0800459. PubMed PMID: 19299708.
2. Malan D, Reppel M, Dobrowolski R, Roell W, Smyth N, Hescheler J, et al. Lack of laminin gamma1 in embryonic stem cell-derived cardiomyocytes causes inhomogeneous electrical spreading despite intact differentiation and function. *Stem Cells.* 2009 Jan;27(1):88-99. doi: 10.1634/stemcells.2008-0335. PubMed PMID: 18927478.
3. Achtman AH, Höpken UE, Bernert C, Lipp M. CCR7-deficient mice develop atypically persistent germinal centers in response to thymus-independent type 2 antigens. *J Leukoc Biol.* 2009 Mar;85(3):409-17. doi: 10.1189/jlb.0308162. Epub 2008 Dec 12. PubMed PMID: 19074554.
4. Rangel-Moreno J, Moyron-Quiroz JE, Hartson L, Kusser K, Randall TD. Pulmonary expression of CXC chemokine ligand 13, CC chemokine ligand 19, and CC chemokine ligand 21 is essential for local immunity to influenza. *Proc Natl Acad Sci U S A.* 2007 Jun 19;104(25):10577-82. Epub 2007 Jun 11. PubMed PMID: 17563386.
5. Rangel-Moreno J, Moyron-Quiroz J, Kusser K, Hartson L, Nakano H, Randall TD. Role of CXC chemokine ligand 13, CC chemokine ligand (CCL) 19, and CCL21 in the organization and function of nasal-associated lymphoid tissue. *J Immunol.* 2005 Oct 15;175(8):4904-13. PubMed PMID: 16210592.
6. Bajénoff M, Glaichenhaus N, Germain RN. Fibroblastic reticular cells guide T lymphocyte entry into and migration within the splenic T cell zone. *J Immunol.* 2008 Sep 15;181(6):3947-54. PubMed PMID: 18768849.
7. Bajénoff M, Germain RN. B-cell follicle development remodels the conduit system and allows soluble antigen delivery to follicular dendritic cells. *Blood.* 2009 Dec 3;114(24):4989-97. doi: 10.1182/blood-2009-06-229567. Epub 2009 Aug 27. PubMed PMID: 19713459.

8. Rehm A, Mensen A, Schradi K, Gerlach K, Wittstock S, Winter S, et al. Cooperative function of CCR7 and lymphotoxin in the formation of a lymphoma-permissive niche within murine secondary lymphoid organs. *Blood*. 2011 Jul 28;118(4):1020-33. doi: 10.1182/blood-2010-11-321265. Epub 2011 May 17. PubMed PMID: 21586747.
9. Mionnet C, Sanos SL, Mondor I, Jorquera A, Laugier JP, Germain RN, et al. High endothelial venules as traffic control points maintaining lymphocyte population homeostasis in lymph nodes. *Blood*. 2011 Dec 1;118(23):6115-22. doi: 10.1182/blood-2011-07-367409. Epub 2011 Sep 21. PubMed PMID: 21937697.
10. Rode I, Boehm T. Regenerative capacity of adult cortical thymic epithelial cells. *Proc Natl Acad Sci U S A*. 2012 Feb 28;109(9):3463-8. doi: 10.1073/pnas.1118823109. Epub 2012 Feb 13. PubMed PMID: 22331880.
11. Tan KW, Yeo KP, Wong FH, Lim HY, Khoo KL, Abastado JP, et al. Expansion of cortical and medullary sinuses restrains lymph node hypertrophy during prolonged inflammation. *J Immunol*. 2012 Apr 15;188(8):4065-80. doi: 10.4049/jimmunol.1101854. Epub 2012 Mar 19. PubMed PMID: 22430738.
12. Biferi MG, Nicoletti C, Falcone G, Puggioni EM, Passaro N, Mazzola A, et al. Proliferation of Multiple Cell Types in the Skeletal Muscle Tissue Elicited by Acute p21 Suppression. *Mol Ther*. 2015 May;23(5):885-95. doi: 10.1038/mt.2015.27. Epub 2015 Feb 11. PubMed PMID: 25669433.
13. Yao Y, Norris EH, Mason CE, Strickland S. Laminin regulates PDGFR β (+) cell stemness and muscle development. *Nat Commun*. 2016 May 3;7:11415. doi: 10.1038/ncomms11415. PubMed PMID: 27138650.

General Readings:

1. Van Vliet E, Melis M, Foidart JM, Van Ewijk W. Reticular fibroblasts in peripheral lymphoid organs identified by a monoclonal antibody. *J Histochem Cytochem*. 1986 Jul;34(7):883-90. PubMed PMID: 3519751.

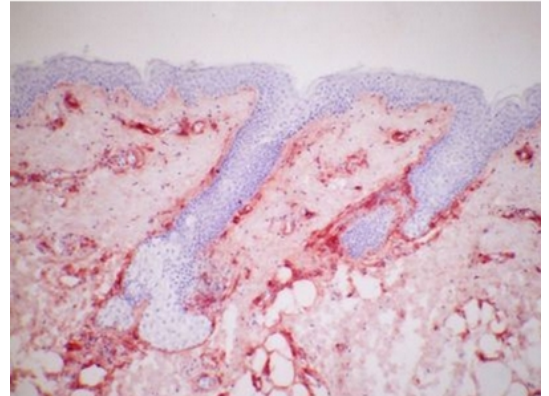
Protocols:***Protocol with frozen, Ice-cold Acetone-Fixed Sections:***

(The whole procedure is performed at room temperature).

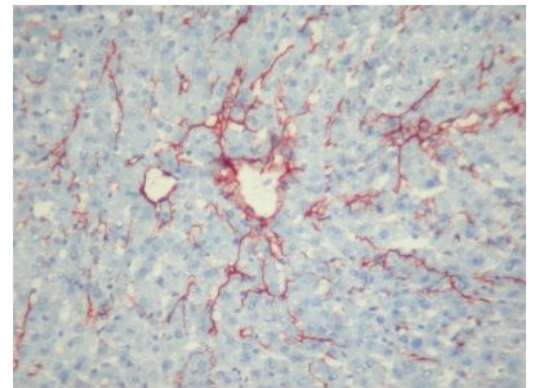
1. Wash in PBS.
2. Block endogenous peroxidase.
3. Wash in PBS.
4. Block with 10% normal goat serum in PBS for 30min. in a humid chamber.
5. Incubate with primary antibody (dilution see datasheet) for 1h in a humid chamber.
6. Wash in PBS.
7. Incubate with secondary antibody (peroxidase-conjugated goat anti rat IgG (H+L) minimal-cross reaction to mouse) for 1h in a humid chamber.
8. Wash in PBS.
9. Incubate with AEC substrate (3-amino-9-ethylcarbazol) for 12min.
10. Wash in PBS.
11. Counterstain with Mayers hemalum.

Pictures:

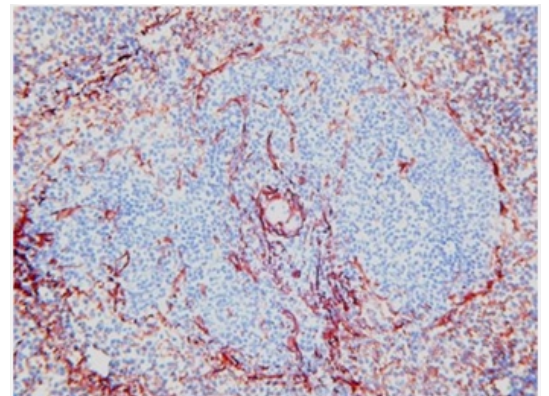
Immunohistochemistry on Human Skin
Frozen Sections using Fibroblast
Antibody Cat.No BM4018 clone ER-TR7.



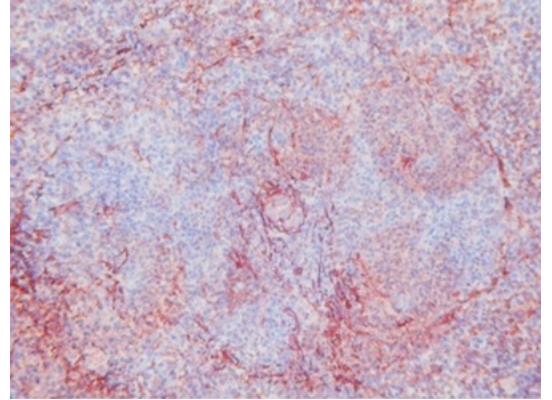
Immunohistochemistry on Mouse Liver
Frozen Sections using Fibroblast
Antibody Cat.-No BM4018 clone ER-TR7.



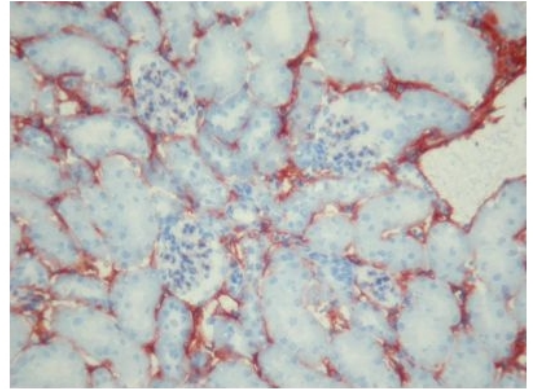
Immunohistochemistry on Mouse Spleen
Frozen Sections using Fibroblast
Antibody Cat.-No BM4018 clone ER-TR7.



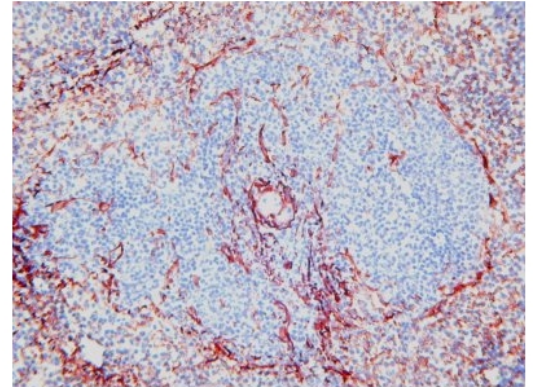
Immunohistochemistry on Swine Spleen Frozen Sections using Fibroblast Antibody Cat.-No BM4018 clone ER-TR7.



Immunohistochemistry on mouse Kidney frozen sections using fibroblast antibody clone ER-TR7.



Immunohistochemistry on Mouse Spleen Frozen Sections using Fibroblast Antibody Cat.-No BM4018 clone ER-TR7.



Reactivity of ER-TR7 with Various Non-Lymphoid Organs Of the Mouse.

Organ	Reactivity with
Submandibular salivary gland	Interstitial CT ¹⁾ between acini
Stomach	Lamina propria, CT of muscularis, serosa
Small intestine	Lamina propria, CT of muscularis, serosa
Pancreas	Interstitial CT between acini
Liver	Lining of liver cords
Skin	Dermis
Ear	Extracellular matrix of cartilage, dermis
Striated muscle	Interstitial CT between muscle fibres
Cardiac muscle	Interstitial CT between muscle fibres
Tendon	Fibres
Ovary	Connective tissue stroma, tunica albuginea
Testis	Interstitial CT between seminiferous tubuli
Kidney	Glomeruli and interstitial CT between tubuli
Brain	Blood vessels, meninges

¹⁾ CTs: connective tissue
²⁾ In tissues tested ER-TR7 reacts with blood vessel walls and capsules