Revision 1

Store at -20C

#31549

Cancer Associated Fibroblast Marker Antibody Sampler Kit

1 Kit (6 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
PDGF Receptor α (D1E1E) XP® Rabbit mAb	3174	20 µl	190 kDa	Rabbit IgG
α-Smooth Muscle Actin (D4K9N) XP® Rabbit mAb	19245	20 µl	42 kDa	Rabbit IgG
PDGF Receptor β (28E1) Rabbit mAb	3169	20 µl	190 kDa	Rabbit IgG
Vimentin (D21H3) XP® Rabbit mAb	5741	20 µl	57 kDa	Rabbit IgG
FAP (E1V9V) Rabbit mAb	66562	20 µl	90 kDa	Rabbit IgG
S100A4 (D9F9D) Rabbit mAb	13018	20 µl	12 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Cancer Associated Fibroblast Marker Antibody Sampler Kit provides an economical means of detecting proteins reported to be expressed in Cancer Associated Fibroblasts (CAFs). The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibody.*

Background

The tumor microenvironment (TME) has been shown to play an important role in tumor initiation, development, and metastasis. Numerous factors contribute to the nature of the TME such as the presence of immune cells; T-cells, B-cells, and natural killer (NK) cells, and wider environmental factors, such as extracellular matrix (ECM) stiffness, hypoxia, and interstitial pressure. Amongst all these various factors, fibroblasts have been suggested to play a key role in tumor development.

Fibroblasts have been studied extensively, however, much regarding their influence on the TME remains to be understood. During tumor development, a subpopulation of hyper-activated fibroblasts become prominent in the TME and secretion of cytokines and chemokines from these cells promotes pro-tumorigenic activity. These highly heterogeneous fibroblast populations are known collectively as CAFs (Cancer Associated Fibroblasts).

Due to high plasticity and variability within CAF populations it has been difficult for researchers to define a universal marker for these cells. In lieu of a single marker, a number of markers are currently used to investigate CAFs. PDGFRα and PDGFRβ are common markers used for fibroblast identification, although PDGFRα is more widely expressed over the larger fibroblast populations. α-Smooth Muscle Actin is widely used to identify CAFs, however, some reports suggest it is not expressed by all functionally active CAFs. FSP-1/S100A4 is expressed by cells of mesenchymal origins. Although commonly used as a CAF marker, it too is not expressed by all fibroblasts present in a tumor. Some reports even suggest it to be a marker for quiescent fibroblasts. Fibroblast Activation Protein, or FAP as it is more commonly known, has traditionally been associated with tissue repair, fibrosis, and extracellular matrix degradation. FAP has more recently been described as a useful marker of CAFs. Vimentin strongly characterizes cells of a mesenchymal phenotype. It is frequently used as one marker of CAFs, but it is important to note that it is also highly expressed in fibroblasts of all types, as well as numerous other cell types, such as macrophages and adipocytes, and by epithelial cells undergoing epithelial-to-mesenchymal transition (EMT) (Reviewed in 1,2).

Background References

1. LeBleu, V.S. and Kalluri, R. (2018) *Dis Model Mech* 11, pii: dmm029447. doi: 10.1242/dmm.029447.
2. Nurmik, M. et al. (2019) *Int J Cancer*, doi: 10.1002/ijc.32193.

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