

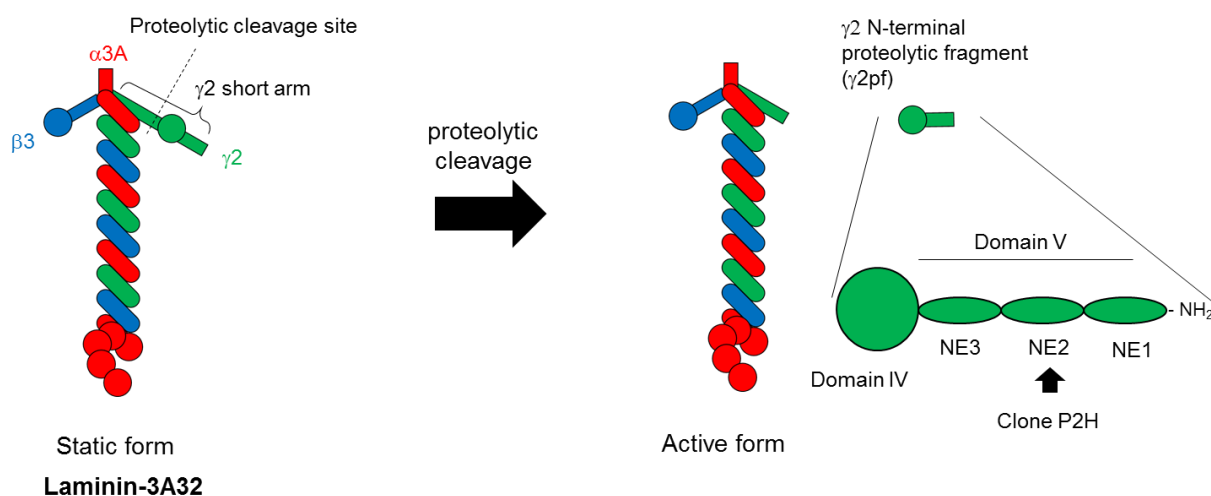
# Anti-Laminin $\gamma$ 2 N-terminal fragment, Human, Mouse-Mono (Clone P2H)

Catalog NO. FDV-0025

Research use only, not for human or animal therapeutic or diagnostic use.

## Product Background

Laminins, which consist of three subunits called  $\alpha$ ,  $\beta$  and  $\gamma$  chains, are major cell adhesive components of extracellular matrix, especially basement membrane (BM). The laminin family is constituted of over 15 isoforms, expressed in a tissue-specific manner and plays differential roles in each tissue. Laminin  $\gamma$ 2 chain is a subunit of laminin-332 isoform, formerly laminin-5, but it is frequently overexpressed as a monomer form or the  $\beta$ 3- $\gamma$ 2 heterodimer in invasive cancers. Laminin  $\gamma$ 2 is a protein of approximately 150 kDa and cleaved at its short arm mainly by bone morphogenic protein-1 (BMP1) in cancer cells, releasing an N-terminal proteolytic fragment ( $\gamma$ 2pf) of 45 kDa. The short arm and  $\gamma$ 2pf are also cleaved by MMPs and serine proteinases, releasing further small N-terminal fragments. Mouse monoclonal antibody clone P2H is against  $\gamma$ 2pf and can efficiently detect invasive cancer cells. Clone P2H recognizes laminin  $\gamma$ 2 chain of laminin-332 on normal epithelial basement membranes, while in malignant cancer tissues it strongly immunostains the cytoplasm of cancer cells at invasion fronts. Thus, P2H is an important antibody capable of highly detecting the tumor invasion marker laminin  $\gamma$ 2 chain. P2H is an only commercially available antibody to detect the N-terminal proteolytic fragments of laminin  $\gamma$ 2 chain in cancer tissues. It is useful for pathological assessment of invasiveness and malignancy in various types of human cancers. P2H is applicable to not only immunohistochemistry, but also immunoblotting, ELISA and immunoprecipitation.



**Figure 1. Protein structure of laminin-3A32s and cleavage site/N-terminal fragment of  $\gamma$ 2 chain**

## Description

Catalog Number : FDV-0025

Format : Mouse ascites

Volume : 100  $\mu$ L

Formulation : Ascites without any additives

Host Species and Clonality : Mouse monoclonal

Isotype and Subclass : IgG2a

Purification : No purification

Lot Number : see vial label

Specificity : Human, mouse, other species not tested yet

Antigen : recombinant human  $\gamma$ 2pf containing domain IV + V

Epitope :  $\gamma$ 2 domain V, NE2

Storage : For short-term storage, -20°C. For long-term storage, -80°C storage is preferable.

Avoid repeated freeze-thaw cycles and avoid storage at 4°C.

## Application

- Western blotting under both reducing, and non-reducing conditions
- Immunohistochemistry
- ELISA

## Recommended usage

- Western blotting 1/1,000-1/10,000
- Immunohistochemistry Optimal dilutions should be determined by the researcher.
- ELISA Optimal conditions should be determined by the researcher.

## Application examples

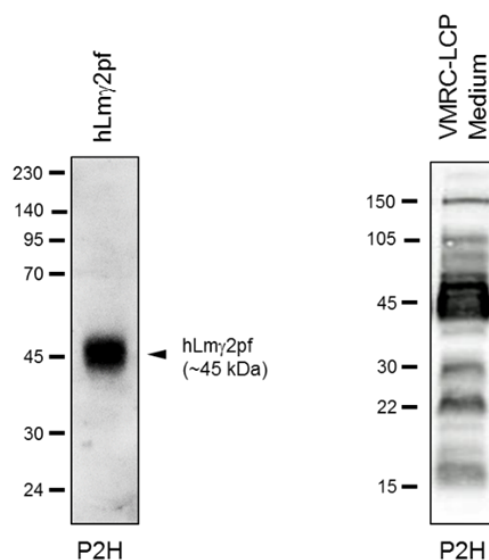
### Western blots

Samples : (left) recombinant human  $\gamma$ 2pf under reducing conditions  
(right) conditioned medium of VMRC-LCP lung cancer cells. Small  $\gamma$ 2 N-terminal fragments are seen below the  $\gamma$ 2pf band (45 kDa), and 15-kDa bands corresponds to NE1-2 and NE2-3.

Gel conc. : 10% (left), gradient gel (right)

1<sup>st</sup> Antibody : clone P2H, 1/1,000 dilution

2<sup>nd</sup> Antibody : anti-mouse IgG (H+L)-HRP conjugate

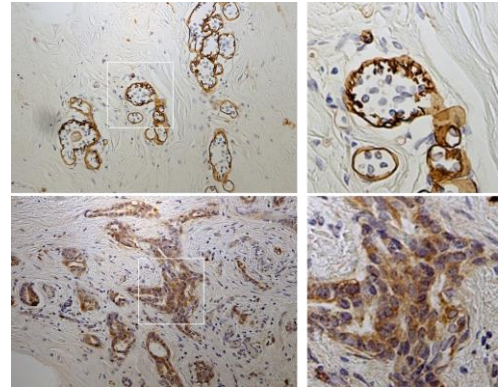


### Immunohistochemistry : Normal mammary gland and breast cancer

Upper panel : Normal mammary gland

Lower panel : Breast cancer

P2H stains basement membranes surrounding mammary glands in normal tissue, whereas in a breast cancer tissue cytoplasmic accumulation of  $\gamma 2$ pf or its fragments is detected with P2H.

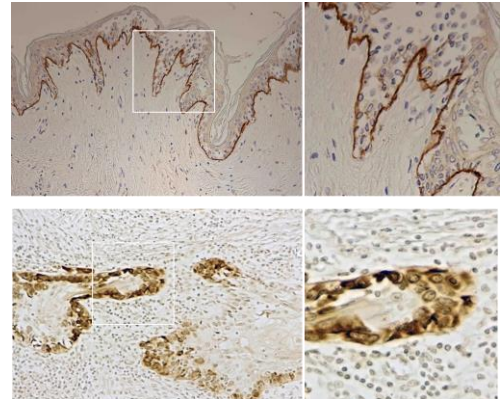


### Immunohistochemistry : Normal skin and skin cancer

Upper panel : Normal skin tissue

Lower panel : Skin cancer tissue

Although P2H stains epithelial basement membranes in normal skin, in a skin cancer tissue it strongly stains invading cancer cells or their cytoplasm.

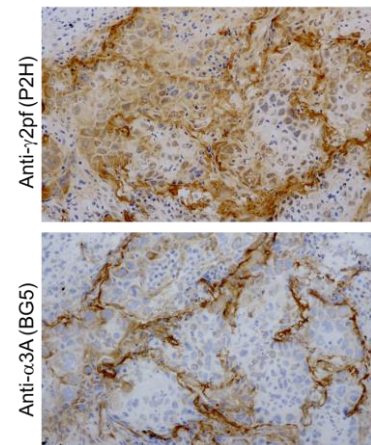


### Immunohistochemistry : Lung cancers - SCC

Right upper panel : Stained by P2H (anti- $\gamma 2$ pf)

Right lower panel : Stained by BG5 (anti- $\alpha 3A$ , cat. No. FDV-0024)

Although BG5 detected basement membrane (BM)-like structure surrounding tumor cells, P2H detected not only BMs but also the cytoplasm of cancer cells.

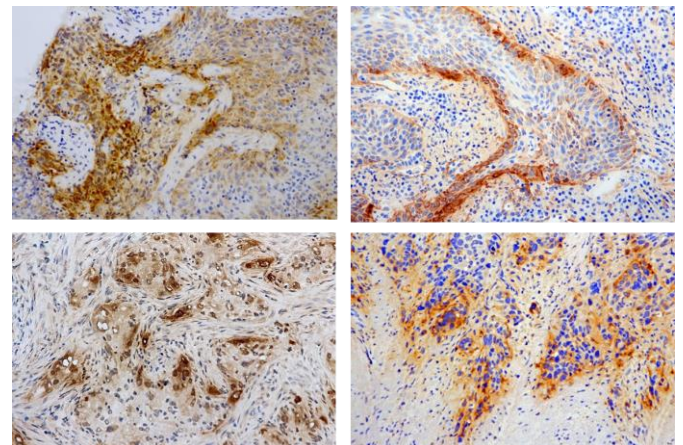


### Immunohistochemistry : Lung SCC and ADC

Upper two panels : Invasive lung SCC

Lower two panels : Invasive lung ADC

P2H strongly detected cytoplasm of cancer cells at invasion fronts.



\*All data are provided from Dr. Kaoru Miyazaki.

## Reference

1. Miyazaki *et al.*, *Cancer Sci.*, **107**, 1909-1918 (2016) Highly sensitive detection of invasive lung cancer cells by novel antibody against amino-terminal domain of laminin  $\gamma$ 2 chain.

## Related products

Catalog No.	Product name	Target	Application
FDV-0023	Anti-Laminin $\alpha$ 3B, Human, Mouse-Mono (F7)	Laminin $\alpha$ 3B	IHC, WB, IP, ELISA
FDV-0024	Anti-Laminin $\alpha$ 3A, Human, Mouse-Mono (BG5)	Laminin $\alpha$ 3A	IHC, WB, IP, ELISA
FDV-0025	Anti-Laminin $\gamma$ 2 N-terminal fragment, Human, Mouse-Mono (P2H)	Laminin $\gamma$ 2 N-terminal fragments	IHC, WB, ELISA
FDV-0026	Anti-Laminin 511, Human, Mouse-Mono (12D)	Trimeric Lm511 structure	IHC, WB, IP, ELISA

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