

Anti-Laminin α 3B, Human, Mouse-Mono (Clone F7)

Catalog NO. FDV-0023

Research use only. Not for use in human.

This product has been commercialized under the license from Yokohama City University.

Product Background

Laminins, which consist of three subunits called α , β and γ chains, are major cell-adhesive components of extracellular matrix, especially basement membranes (BMs). The laminin family is constituted of over 15 isoforms, and each member is expressed in a tissue-specific manner and plays a differential role in each tissue. In the case of laminin α 3 chain, there are two splicing variants, the truncated form α 3A and the full-length α 3B. Laminin-3A32 (Lm3A32) (Figure 1 left), formerly called laminin-5 or -5A, is composed of α 3A, β 3 and γ 2 chains and distributed in the skin, esophagus, lung, breast and other epithelial tissues. This laminin has been extensively investigated in cancer biology because of its strong cell adhesion and cell motility activities. It also supports growth and adhesion of some types of stem cells. On the other hand, laminin-3B32 (Lm3B32) (formerly, laminin-5B; Figure 1 right) is composed of α 3B, β 3 and γ 2 chains and less widely expressed than laminin-3A32. Although laminin-3B32 shows higher cell adhesion activity than laminin-3A32 *in vitro*, differences of biological functions between two laminins remain to be clarified. Recent studies identified laminin-3B11 (Lm3B11) as a new α 3B-type laminin. Laminin-3B11 is localized in vascular basement membranes in normal tissues, but this expression is down-regulated in cancer tissues. Laminin-3B11 stimulates microvascular endothelial cells to extend lamelliopodial protrusions. Dr. Kaoru Miyazaki and co-workers developed two types of anti- α 3 antibodies, clone BG5 for α 3A and clone F7 for α 3B. Clone F7 is an only commercially available antibody for laminin α 3B and can be applied for immunoblotting under both reducing and non-reducing conditions, immunohistochemistry, ELISA and immunoprecipitation/immunoaffinity purification. Clone F7 detects laminin-3B32 in the basement membranes of normal epithelial tissues and of relatively benign or differentiated carcinomas and laminin-3B11 in normal vascular basement membranes. Clone F7 is a powerful tool to detect laminin α 3B isoform and investigate its fundamental functions in epithelial and vascular basement membranes.

Note: anti-laminin α 3A clone BG5 is also available as catalog no. FDV-0024.

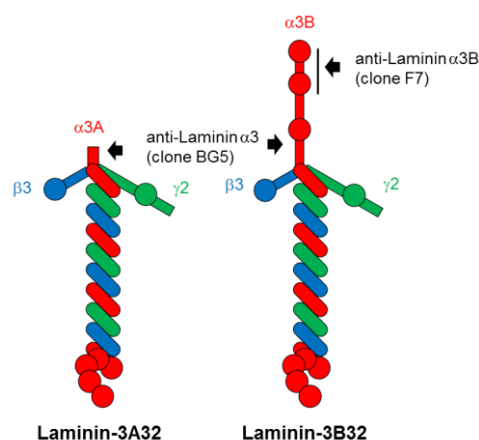


Figure 1. Protein structure of laminin-332s and binding sites of antibodies

Description

Catalog Number : FDV-0023

Format : Mouse ascites

Volume : 100 μ L

Formulation : Ascites without any additives

Host Species and Clonality : Mouse monoclonal

Isotype and Subclass : IgG1

Purification : No purification

Lot Number : see vial label

Specificity : Human, other species not tested yet

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 with paraffin and frozen sections
- Immunoprecipitation and immunoaffinity purification
- ELISA

NOTE: The reactivity on reducing conditions of western blotting is much weaker than on non-reducing conditions.

Recommended usage

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

Application examples

Western blot

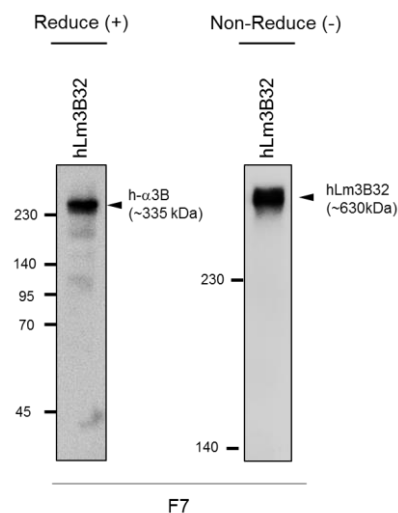
Sample : recombinant human intact laminin-3B32 (Lm3B32)
containing α 3B, β 3 and γ 2 chains

Gel conc. : Reduced conditions = 7%

Non-reduced conditions = 5%

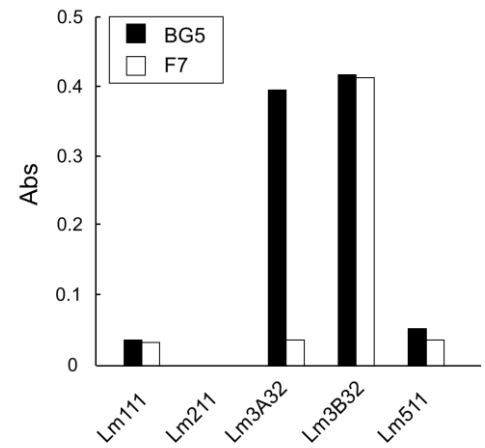
1st Antibody : clone F7, 1/10,000 dilution

2nd Antibody : anti-mouse IgG (H+L)-HRP conjugate



Validation of specificity by ELISA

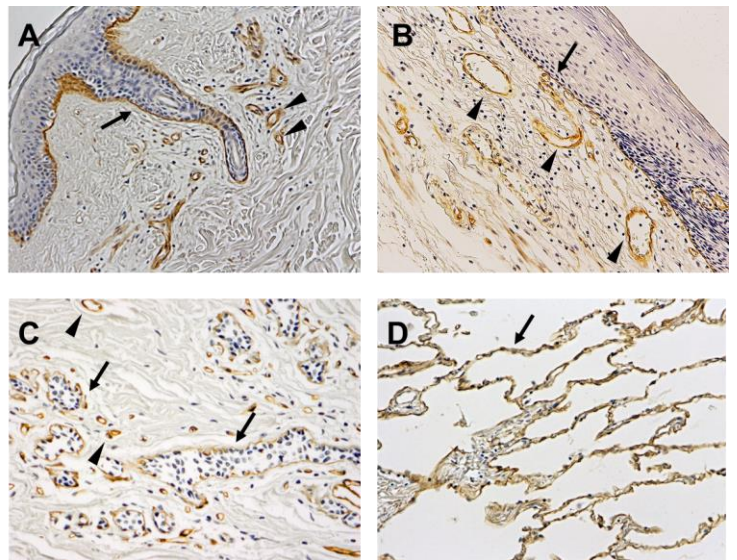
Five recombinant human laminins were coated on multi-well plate and detected by clone BG5 and F7. BG5 detects Lm3A32 and Lm3B32. F7 specifically detects Lm3B32 isoform.



Immunohistochemistry : Normal tissues

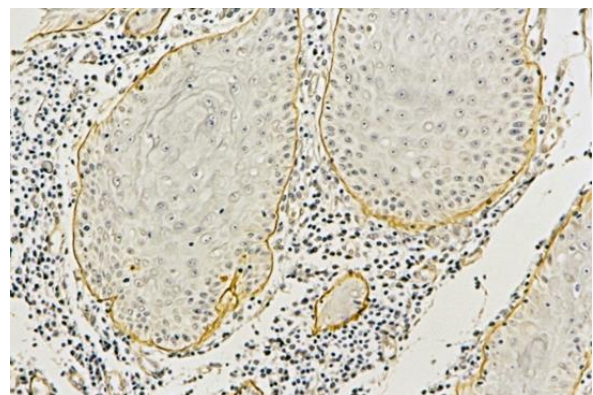
- Sample: A Normal skin tissue (paraffin slice)
- B Normal esophagus tissue (paraffin slice)
- C Normal mammary gland (paraffin slice)
- D Normal lung tissue (paraffin slice)

Black arrows: epithelial basement membranes
Arrow heads : vascular basement membrane



Immunohistochemistry : Skin cancer tissue

Sample : Skin cancer tissue



*All data are provided from Dr. Kaoru Miyazaki

Reference

1. Kariya *et al.*, *J. Biol. Chem.*, **279**, 24774-24784 (2004) Characterization of laminin-5B ($\alpha3\beta3\gamma2$) and NH₂-terminal proteolytic fragment of its $\alpha3\beta$ chain: Promotion of cellular adhesion, migration and proliferation.
2. Kariya *et al.*, *J. Mol. Histol.*, **39**, 435-446 (2008) Localization of laminin alpha3B chain in vascular and epithelial basement membranes of normal human tissues and its down-regulation in skin cancers.
3. Mori *et al.*, *J. Biol. Chem.*, **285**, 35068-35078 (2010) Laminin-3B11, a novel vascular type laminin capable of inducing prominent lamellipodial protrusions in microvascular endothelial cells.
4. Mori *et al.*, *Cancer Sci.*, **102**, 1095-1100 (2011) Downregulation of a newly identified laminin, laminin-3B11, in vascular basement membranes of invasive human breast cancers.
5. 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 gamma2 chain.

Related products

Catalog No.	Product name	Target	Application
FDV-0023	Anti-Laminin $\alpha3\beta$, Human, Mouse-Mono (F7)	Laminin $\alpha3\beta$	IHC, WB, IP, ELISA
FDV-0024	Anti-Laminin $\alpha3A$, Human, Mouse-Mono (BG5)	Laminin $\alpha3A$	IHC, WB, IP, ELISA
FDV-0025	Anti-Laminin $\gamma2$ N-terminal fragment, Human, Mouse-Mono (P2H)	Laminin $\gamma2$ N-terminal fragment	IHC, WB, ELISA
FDV-0026	Anti-Laminin 511, Human, Mouse-Mono (12D)	Trimeric Lm511 structure	IHC, WB, IP, ELISA