

Anti-Laminin α 3A, Human, Mouse-Mono (Clone BG5)

Catalog NO. FDV-0024

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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 extensively been 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. Dr. Kaoru Miyazaki and co-workers developed two types of anti- α 3 antibodies, clone BG5 for α 3A/ α 3B and clone F7 for anti- α 3B. Although clone BG5 recognizes both α 3A and α 3B chains by immunoblotting, ELISA, immunoprecipitation/immunoaffinity purification, it specifically detects α 3A chain in immunohistochemistry. In the analysis, BG5 highly detects laminin-3A32 in the basement membranes of normal epithelial tissues and of relatively benign or differentiated carcinomas. It may also detect laminin-3A11. As its sister clone F7 is specific for α 3B chain, the combination of BG5 and F7 is an important tool to investigate the difference of the full-length and truncated α 3 laminins. These antibodies, together with the anti- γ 2 antibody P2H capable of detecting invasive cancers, are powerful tools in pathological analyses of human cancers.

Note: anti-laminin α 3B clone F7 and anti-laminin γ 2 clone P2H are also available as catalog no. FDV-0023 and FDV-0025, respectively.

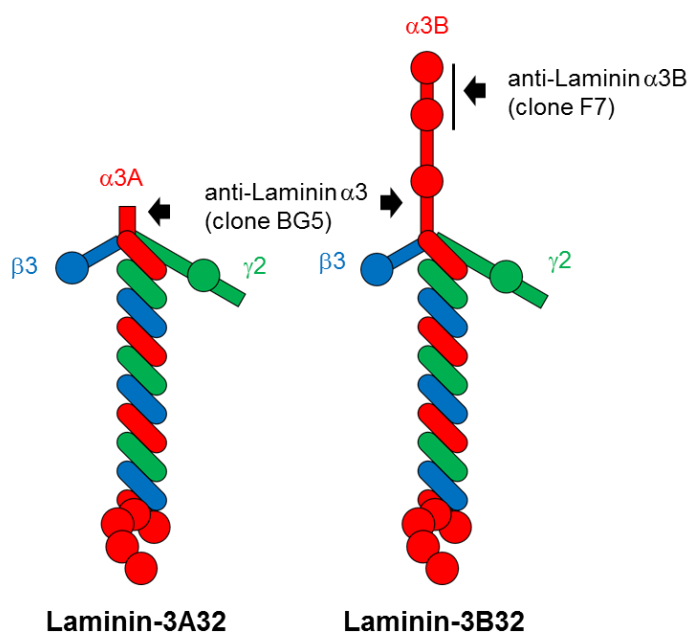


Figure 1. Protein structure of laminin-332s and binding sites of antibodies

Description

Catalog Number : FDV-0024

Format : Mouse ascites

Volume : 100 μ 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, 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 of paraffin and frozen sections
- Immunoprecipitation and immunoaffinity purification
- ELISA

NOTE: BG5 specifically detects α 3A on immunohistochemistry, but on western blot, ELISA and IP, it detects both α 3A and α 3B chains.

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

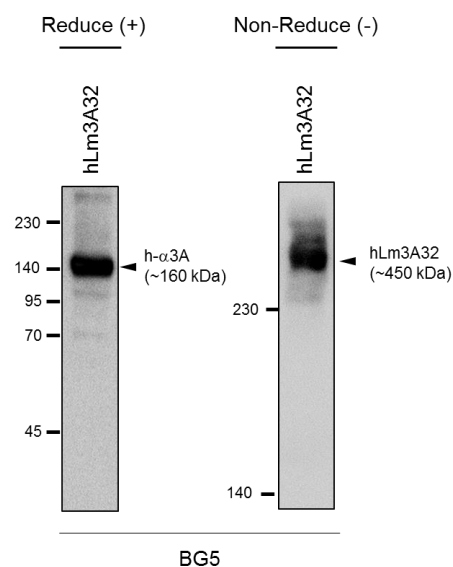
Sample : recombinant human intact laminin 3A32
containing α 3A, β 3 and γ 2 chains

Gel conc. : Reduced condition = 7%

Non-reduced condition = 5%

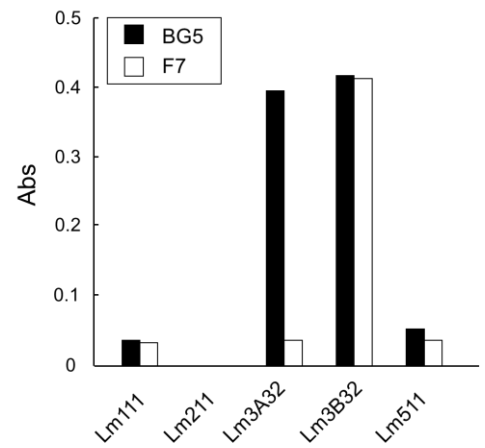
1st Antibody : clone BG5, 1/10,000 dilution

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



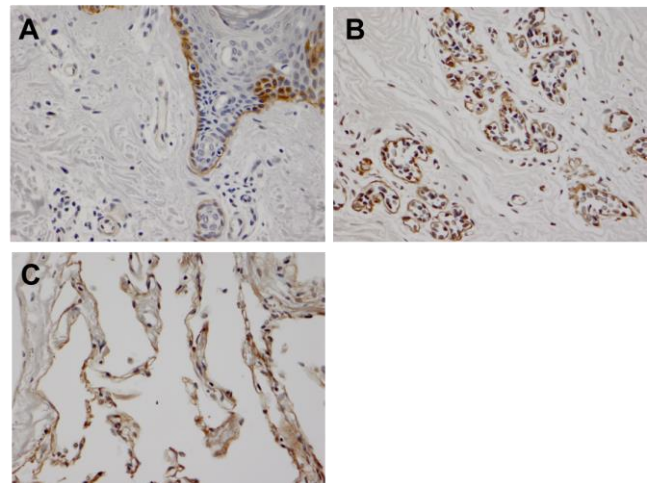
Validation of specificity by ELISA

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.



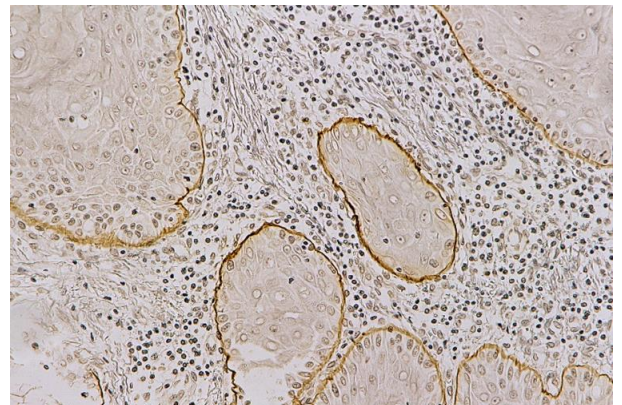
Immunohistochemistry : Normal tissues

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



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 ($\alpha 3\beta 3\gamma 2$) and NH₂-terminal proteolytic fragment of its $\alpha 3\beta$ 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 $\alpha 3\beta$, Human, Mouse-Mono (F7)	Laminin $\alpha 3\beta$	IHC, WB, IP, ELISA
FDV-0024	Anti-Laminin $\alpha 3\beta$ A, Human, Mouse-Mono (BG5)	Laminin $\alpha 3\beta$ A	IHC, WB, IP, ELISA
FDV-0025	Anti-Laminin $\gamma 2$ N-terminal fragment, Human, Mouse-Mono (P2H)	Laminin $\gamma 2$ N-terminal fragment	IHC, WB, IP, ELISA
FDV-0026	Anti-Laminin 511, Human, Mouse-Mono (12D)	Trimeric Lm511 structure	IHC, WB, IP, ELISA

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