Anti-CD31 Antibody [7-A1]

M1511-8

Product Type:	Mouse monoclonal IgG2a, primary antibodies
Species reactivity:	Human, Mouse
Applications:	WB, IF-Cell, IHC-P, mIHC
Molecular Wt:	Predicted band size: 83 kDa
Clone number:	7-A1

Description: Cell adhesion molecules are a family of closely related cell surface glycoproteins involved in cell-cell interactions during growth and are thought to play an important role in embryogenesis and development. Neuronal cell adhesion molecule (NCAM) expression is observed in a variety of human tumors including neuroblastomas, rhabdomyosarcomas, Wilms' tumors, Ewing's sarcomas and some primitive myeloid malignancies. The intracellular adhesion molecule-1 (ICAM-1), also referred to as CD54, is an integral membrane protein of the immunoglobulin superfamily. PECAM-1 (platelet/endothelial cell adhesion molecule-1), also referred to as CD31, is a glycoprotein expressed on the cell surfaces of monocytes, neutrophils, platelets and a subpopulation of T cells. VCAM-1 (vascular cell adhesion molecule-1) was first identified as an adhesion molecule induced on human endothelial cells by inflammatory cytokines such as IL-1, tumor necrosis factor (TNF) and lipopolysaccharide (LPS). The KALIG gene encodes a nerve cell adhesion molecule (NCAM)-like protein and is deleted in 66% of patients with Kallmann's syndrome, anosmia with secondary hypogonadism.

Immunogen:	Synthetic peptide (KLH-coupled) within C-terminal residues of human CD31.
Positive control:	THP-1 cell lysate, Jurkat cell lysate, U-937 cell lysate, mouse lung tissue lysate, mouse spleen tissue lysate, human pancreatic carcinoma, human gastric cancer, THP-1, human appendix tissue, human placenta tissue, human uterus tissue, human striated muscle tissue, human kidney tissue, human liver tissue, human stomach cancer tissue, mouse lymph node tissue, Jurkat, human lung squamous cell carcinoma tissue.
Subcellular location:	Cell junction. Cell membrane. Membrane.
Database links:	SwissProt: P16284 Human | Q08481 Mouse
Recommended Dilutions:	
WB	1:2,000-1:5,000
IF-Cell	1:100-1:200
IHC-P	1:500-1:2,000
mIHC	1:1,000-1:3,000
Storage Buffer:	1*TBS (pH7.4), 0.2% BSA, 50% Glycerol. Preservative: 0.05% Sodium Azide.
Storage Instruction:	Shipped at 4℃. Store at +4℃ short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20℃ long term.
Purity:	Immunogen affinity purified.

Images

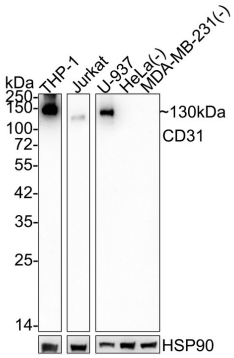

Fig1: Western blot analysis of CD31 on different lysates with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution.

Lane 1: THP-1 cell lysate
Lane 2: Jurkat cell lysate
Lane 3: U-937 cell lysate
Lane 4: HeLa cell lysate (negative)
Lane 5: MDA-MB-231 cell lysate (negative)

Lysates/proteins at 20 µg/Lane.

Predicted band size: 83 kDa
Observed band size: 130 kDa

Exposure time: 1 minute 58 seconds;

4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (M1511-8) at 1/2,000 dilution was used in 5% NFDM/TBST at 4℃ overnight. Goat Anti-Mouse IgG - HRP Secondary Antibody (HA1006) at 1/50,000 dilution was used for 1 hour at room temperature.

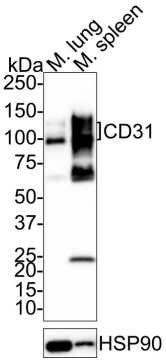

Fig2: Western blot analysis of CD31 on different lysates with Mouse anti-CD31 antibody (M1511-8) at 1/500 dilution.

Lane 1: Mouse lung tissue lysate (no heat)
Lane 2: Mouse spleen tissue lysate (no heat)

Notice: no heat means the lysate is not boiled.

Lysates/proteins at 20 µg/Lane.

Predicted band size: 83 kDa
Observed band size: 83-130 kDa

Exposure time: 5 minutes;

4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (M1511-8) at 1/500 dilution was used in 5% NFDM/TBST at room temperature for 2 hours. Goat Anti-Mouse IgG - HRP Secondary Antibody (HA1006) at 1/100,000 dilution was used for 1 hour at room temperature.

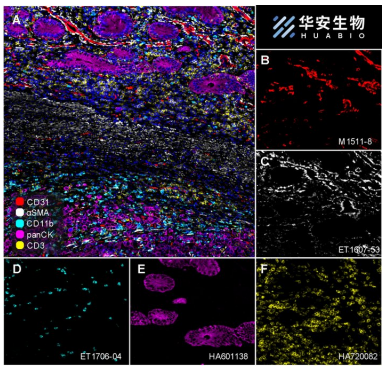

Fig3: Fluorescence multiplex immunohistochemical analysis of the human gastric cancer (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-CD31 (M1511-8, red), anti-αSMA (ET1607-53, gray), anti-CD11b (ET1706-04, cyan), anti-panCK (HA601138, magenta) and anti-CD3 (HA720082, yellow) on human gastric cancer. Panel B: anti-CD31 stained on the endothelial cells. Panel C: anti-αSMA stained on cancer-associated fibroblasts and smooth muscle cells. Panel D: anti-CD11b stained on myeloid cells. Panel E: anti-panCK stained on cancer cells. Panel F: anti-CD3 stained on T cells. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in five rounds of staining: in the order of M1511-8 (1/1,000 dilution), ET1607-53 (1/2,000 dilution), ET1706-04 (1/1,000 dilution), HA601138 (1/3,000 dilution), and HA720082 (1/500 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Olympus VS200 Slide Scanner.

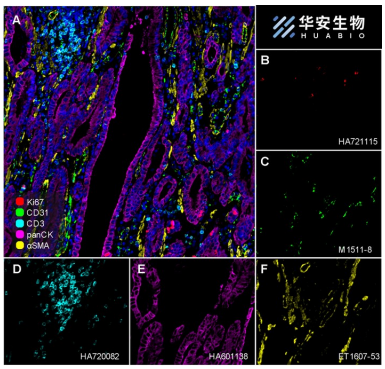

Fig4: Fluorescence multiplex immunohistochemical analysis of the human gastric cancer (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-Ki67 (HA721115, red), anti-CD31 (M1511-8, green), anti-CD3 (HA720082, cyan), anti-panCK (HA601138, magenta) and anti-αSMA (ET1607-53, yellow) on human gastric cancer. Panel B: anti- Ki67 stained on cells in G1, S, G2 and M phases of cell cycle. Panel C: anti-CD31 stained on the endothelial cells. Panel D: anti-CD3 stained on T cells. Panel E: anti-panCK stained on cancer cells. Panel F: anti-αSMA stained on cancer-associated fibroblasts and smooth muscle cells. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in five rounds of staining: in the order of HA721115 (1/2,000 dilution), M1511-8 (1/1,000 dilution), HA720082 (1/500 dilution), HA601138 (1/3,000 dilution), and ET1607-53 (1/2,000 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Olympus VS200 Slide Scanner.

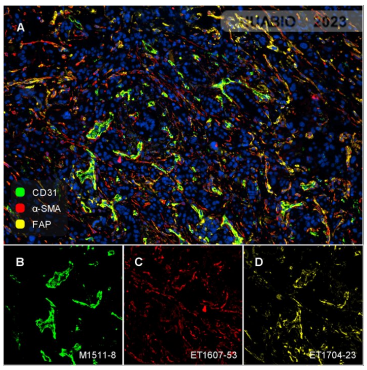

Fig5: Fluorescence multiplex immunohistochemical analysis of the human pancreatic carcinoma (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-CD31 (M1511-8, green), anti-α-SMA (ET1607-53, red) and anti-FAP (ET1704-23, yellow) on human pancreatic carcinoma. Panel B: anti- CD31 stained on the endothelial cells. Panel C: anti-α-SMA stained on cancer-associated fibroblasts and smooth muscle cells. Panel D: anti-FAP stained on the cancer-associated fibroblasts. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in three rounds of staining: in the order of M1511-8 (1/5,000 dilution), ET1704-23 (1/1,000 dilution), and ET1607-53 (1/3,000 dilution) for 20 mins at room temperature. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Nikon ECLIPSE Ni-E microscope.

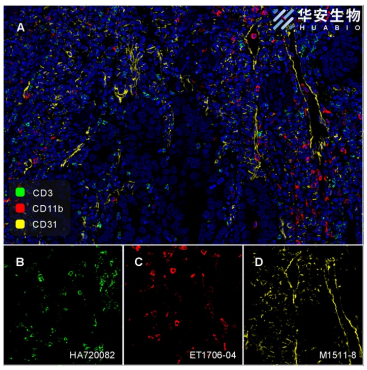

Fig6: Fluorescence multiplex immunohistochemical analysis of human gastric cancer (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-CD11b (ET1706-04, Red), anti-CD3 (HA720082, Green) and anti-CD31 (M1511-8, Yellow) on human gastric cancer. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in three rounds of staining: in the order of ET1706-04 (1/1,000 dilution), HA720082 (1/500 dilution) and M1511-8 (1/1,000 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Zeiss Observer 7 Inverted Fluorescence Microscope.

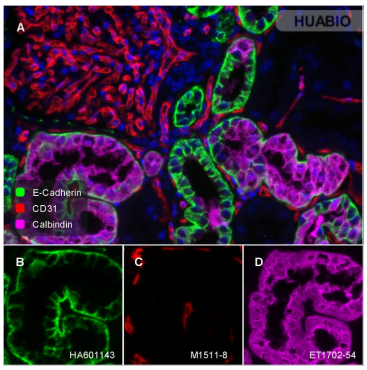

Fig7: Fluorescence multiplex immunohistochemical analysis of human kidney (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-CD31 (M1511-8, Red), anti-E-Cadherin (HA601143, Green), anti-Calbindin (ET1702-54, Magenta) on human kidney. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in three rounds of staining: in the order of M1511-8 (1/1,000 dilution), HA601143 (1/4,000 dilution) and ET1702-54 (1/4,000 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was

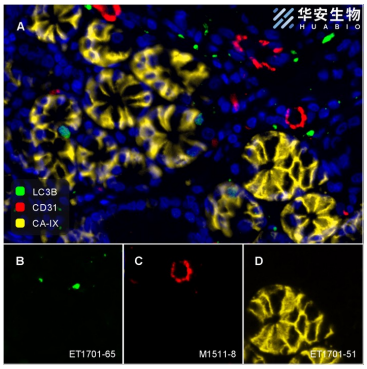

Fig8: Fluorescence multiplex immunohistochemical analysis of human gastric cancer (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-LC3B (ET1701-65, Green), anti-CD31 (M1511-8, Red) and anti-CA-IX (ET1701-51, Yellow) on human gastric cancer. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH900205). The section was incubated in three rounds of staining: in the order of ET1701-65 (1/100 dilution), M1511-8 (1/2,000 dilution) and ET1701-51 (1/100 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Olympus VS200 Slide Scanner.

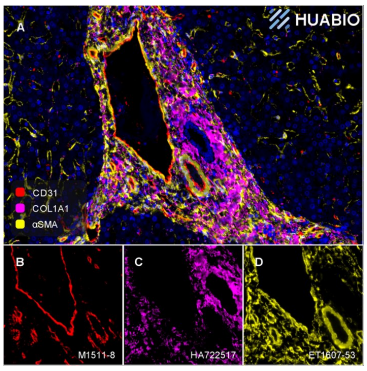

Fig9: Fluorescence multiplex immunohistochemical analysis of human liver (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-CD31(M1511-8, Red), anti-COL1A1(HA722517, Magenta) and anti-αSMA (ET1607-53, Yellow) on human liver. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in three rounds of staining: in the order of M1511-8 (1/1000 dilution), HA722517 (1/10000 dilution) and ET1607-53 (1/5000 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95C. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Olympus VS200 Slide Scanner.

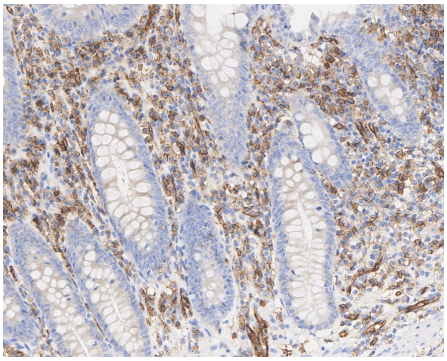

Fig10: Immunohistochemical analysis of paraffin-embedded human appendix tissue with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

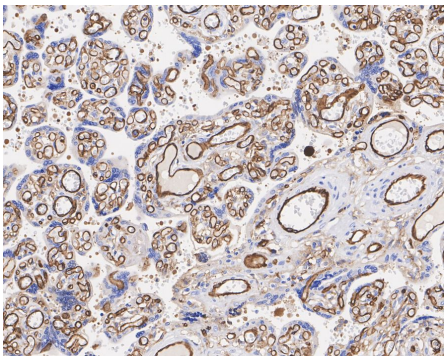

Fig11: Immunohistochemical analysis of paraffin-embedded human placenta tissue with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

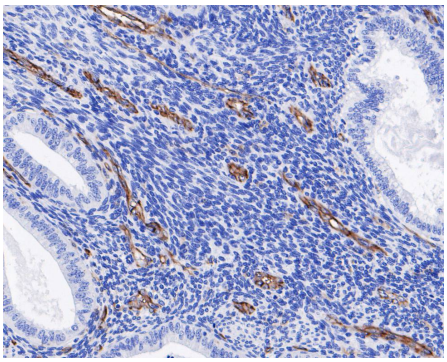

Fig12: Immunohistochemical analysis of paraffin-embedded human uterus tissue with Mouse anti-CD31 antibody (M1511-8) at 1/1,500 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/1,500 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

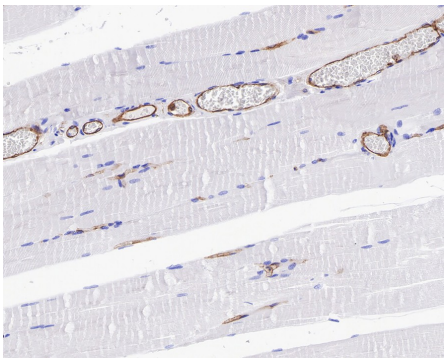

Fig13: Immunohistochemical analysis of paraffin-embedded human striated muscle tissue with Mouse anti-CD31 antibody (M1511-8) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

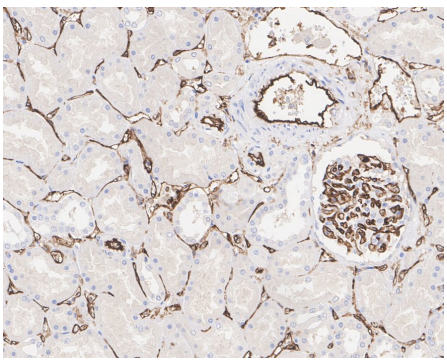

Fig14: Immunohistochemical analysis of paraffin-embedded human kidney tissue with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

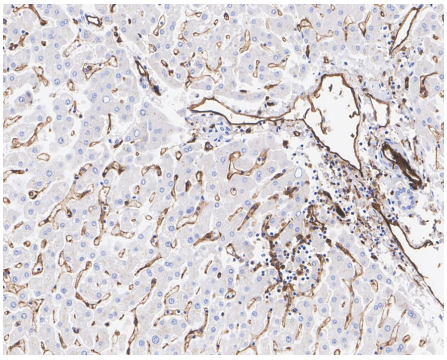

Fig15: Immunohistochemical analysis of paraffin-embedded human liver tissue with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

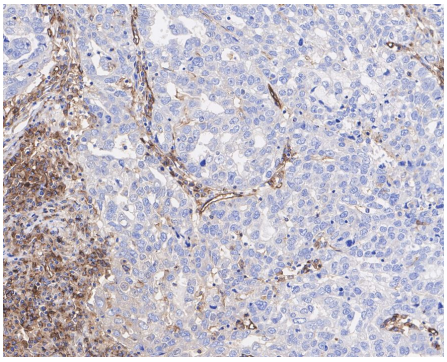

Fig16: Immunohistochemical analysis of paraffin-embedded human stomach cancer tissue with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

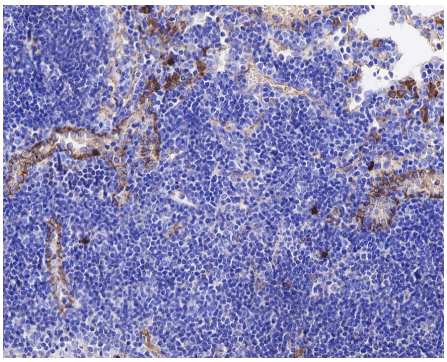

Fig17: Immunohistochemical analysis of paraffin-embedded mouse lymph node tissue with Mouse anti-CD31 antibody (M1511-8) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (M1511-8) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

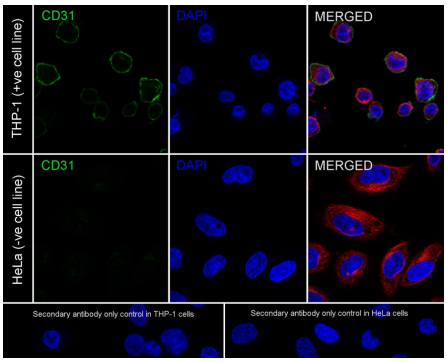

Fig18: Immunocytochemistry analysis of THP-1 (positive) and HeLa (negative) labeling CD31 with Mouse anti-CD31 antibody (M1511-8) at 1/100 dilution.

Cells were fixed in 4% paraformaldehyde for 20 minutes at room temperature, permeabilized with 0.1% Triton X-100 in PBS for 5 minutes at room temperature, then blocked with 1% BSA in 10% negative goat serum for 1 hour at room temperature. Cells were then incubated with Mouse anti-CD31 antibody (M1511-8) at 1/100 dilution in 1% BSA in PBST overnight at 4 ℃. Goat Anti-Mouse IgG H&L (iFluor™ 488, HA1125) was used as the secondary antibody at 1/1,000 dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Nuclear DNA was labelled in blue with DAPI.

beta Tubulin (ET1602-4, red) was stained at 1/100 dilution overnight at +4℃. Goat Anti-Rabbit IgG H&L (iFluor™ 594, HA1122) were used as the secondary antibody at 1/1,000 dilution.

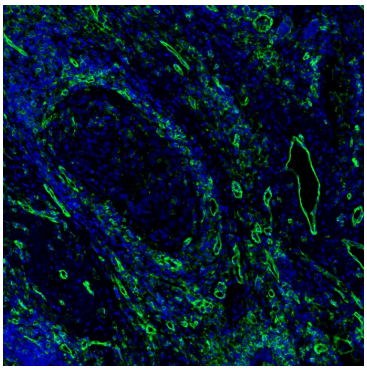

Fig19: mIHC analysis of human lung squamous cell carcinoma tissue (Formalin/PFA-fixed paraffin-embedded sections) with Mouse anti-CD31 antibody (M1511-8) at 1/2,000 dilution. The immunostaining was performed with the IRISKit® HyperView mTSA Kit (MH900206). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Olympus VS200 Slide Scanner.

Background References

1. Doi H et al. Potency of umbilical cord blood- and Wharton's jelly-derived mesenchymal stem cells for scarless wound healing. Sci Rep 6:18844 (2016).
2. Yang Y et al. The Increased Expression of Connexin and VEGF in Mouse Ovarian Tissue Vitrification by Follicle Stimulating Hormone. Biomed Res Int 2015:397264 (2015).