Occludin Monoclonal Antibody (OC-3F10)

Catalog Number 33-1500

### Details
- **Size**: 100 µg
- **Host/Isotope**: Mouse / IgG1, kappa
- **Class**: Monoclonal
- **Type**: Antibody
- **Clone**: OC-3F10
- **Immunogen**: GST fusion protein consisting of the C-terminal region (~150aa) of human occludin.
- **Conjugate**: Unconjugated
- **Form**: Liquid
- **Concentration**: 0.5 mg/mL
- **Purification**: Protein A
- **Storage buffer**: PBS, pH 7.4
- **Contains**: 0.1% sodium azide
- **Storage Conditions**: -20°C

### Species Reactivity
- **Species reactivity**: Dog, Human, Mouse, Rat
- **Published species**: Dog, Cynomolgus monkey, Pig, Rat, Sheep, Human, Mouse, Not Applicable, Rhesus monkey, Guinea pig

### Tested Applications
- **ELISA (ELISA)**: 0.1-1.0 µg/mL
- **Western Blot (WB)**: 0.1-1.0 µg/mL
- **Immunocytochemistry (ICC/IF)**: 2-3 µg/mL

### Published Applications
- **Immunohistochemistry (IHC)**: See 52 publications below
- **Western Blot (WB)**: See 117 publications below
- **Immunohistochemistry (Frozen) (IHC (F))**: See 14 publications below
- **Immunocytochemistry (ICC/IF)**: See 107 publications below
- **in situ PLA (PLA)**: See 1 publications below
- **Immunohistochemistry (Paraffin) (IHC (P))**: See 9 publications below
- **ELISA (ELISA)**: See 2 publications below
- **Miscellaneous PubMed (Misc)**: See 41 publications below
- **Flow Cytometry (Flow)**: See 2 publications below
- **Immunoprecipitation (IP)**: See 2 publications below

### Dilution *
- ELISA (ELISA): 0.1-1.0 µg/mL
- Western Blot (WB): 0.1-1.0 µg/mL
- Immunocytochemistry (ICC/IF): 2-3 µg/mL

### Background/Target Information
Occludin is a 65 kDa protein that can exist in a variety of phosphorylated forms, ranging up to approximately 82 kDa. Occludin is thought to be involved in regulating both the localization and the function of occludin. Polyunsaturated fatty acids are known to up-regulate occludin expression, increasing the transendothelial cell resistance and reducing the cellular permeability to large molecules. The level of occludin varies greatly depending on tissue; in brain tissue, occludin is highly and continuously expressed at cell-cell contact sites, whereas non-neural tissues show lower expression and discontinuous distribution. Overall structural features of the occludin protein are highly conserved in all the species examined. Under-expression of tight junction proteins, including occludin, is a key molecular abnormality responsible for the increased permeability of tumor endothelial tight junctions, which contributes to brain tumor edemas.


* Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.
Occludin Antibody (33-1500) in ICC/IF

Immunofluorescent analysis of Occludin was done on 70% confluent log phase MDCK cells. The cells were fixed with 4% paraformaldehyde for 15 minutes; permeabilized with 0.25% Triton™ X-100 for 10 minutes followed by blocking with 5% BSA for 1 hour at room temperature. The cells were incubated with Occludin Mouse Monoclonal Antibody (Product # 33-1500) at 1 µg/mL in 1% BSA and incubated for 3 hours at room temperature and then labeled with Alexa Fluor® 488 Rabbit Anti-Mouse IgG Secondary Antibody (Product # A-11059) at a dilution of 1:400 for 30 minutes at room temperature (Panel a: green). Nuclei (Panel b: blue) were stained with SlowFade® Gold Antifade Mountant with DAPI (Product # S36938). F-actin (Panel c: red) was stained with Alexa Fluor 594 Phalloidin (Product # A12381). Panel d is a merged image showing junctional localization of Occludin and panel e is a no primary antibody control. The images were captured at 20X magnification.

Occludin Antibody (33-1500)

Antibody specificity was demonstrated by CRISPR-Cas9 mediated knockout of target protein. A loss of signal was observed for target protein in Occludin KO cell line compared to control cell line using Anti-Occludin Monoclonal Antibody (OC-3F10) (Product # 33-1500). (KO)

Detection of altered expression of the target protein by cell treatment demonstrates antibody specificity. Immunofluorescence analysis of Occludin using Occludin Monoclonal Antibody (OC-3F10) (Product # 33-1500), shows decreased expression of Occludin in Caco-2 cell line upon IL-1beta treatment. (TM)

Occludin Antibody (33-1500) in ICC/IF

Immunofluorescent analysis of Occludin was performed using 90% confluent log phase Caco-2 cells. The cells were fixed with 4% paraformaldehyde for 10 minutes, permeabilized with 0.1% Triton™ X-100 for 15 minutes, and blocked with 2% BSA for 45 minutes at room temperature. The cells were labeled with Occludin Monoclonal Antibody (OC-3F10) (Product # 33-1500) at 2.5 µg/mL in 0.1% BSA, incubated at 4 degree celsius overnight and then labeled with Goat anti-Mouse IgG (H+L) Highly Cross-Adsorbed Secondary Antibody, Alexa Fluor Plus 488 (Product # A32732), (1:2000 dilution), for 45 minutes at room temperature (Panel a: Green). Nuclei (Panel b: Blue) were stained with ProLong™ Diamond Antifade Mountant with DAPI (Product # P36962). F-actin (Panel c: Red) was stained with Rhodamine Phalloidin (Product # R415, 1:300 dilution). Panel d represents the merged image showing cell junction localization. Panel e represents cells treated with IL-1b (10 ng/mL for 48 hours) having reduced expression of Occludin. Panel f represents control cells with no primary antibody to assess background. The images were captured at 60X magnification.
Occludin Antibody (33-1500) in WB
Knockout of Occludin was achieved by CRISPR-Cas9 genome editing using LentiArray™ Lentiviral sgRNA (Product # A32042, Assay ID CRISPR777079_LV) and LentiArray Cas9 Lentivirus (Product # A32064). Western blot analysis of Occludin was performed by loading 30 µg of Caco-2 wild type (Lane 1), Caco-2 Cas9 (Lane 2) and Caco-2 Occludin KO (Lane 3) membrane enriched extracts. The samples were electrophoresed using NuPAGE™ Novex™ 4-12% Bis-Tris Protein Gel (Product # NP0322BOX). Resolved proteins were then transferred onto a nitrocellulose membrane (Product # IB23001) by iBlot® 2 Dry Blotting System (Product # IB21001). The blot was probed with Anti-Occludin Monoclonal Antibody (OC-3F10) (Product # 33-1500, 1:500 dilution) and Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A28177, 1:5000 dilution) using the iBright FL 1000 (Product # A32752). Chemiluminescence detection was performed using SuperSignal™ West Dura Extended Duration Substrate (Product # 34076). Loss of signal upon CRISPR mediated knockout (KO) using the LentiArray™ CRISPR product line confirms that antibody is specific to Occludin. An uncharacterized band was observed at ~40 kDa in Caco-2 wild type sample.

Occludin Antibody (33-1500) in WB
Western blot analysis of Occludin was performed by loading 20 µg of Hep G2 (lane 1), COLO 205 (lane 2), HeLa (lane 3), PC-3 (lane 4) and HEK-293 (lane 5) cell lysates using NuPAGE® Novex® 4-12 % Bis-Tris gel (Product # NP0321BOX), XCell SureLock Electrophoresis System (Product # EI0002), NuPAGE® Sharp Pre-Stained Protein Standard (LC5800), and iBlot® Dry Blotting System (IB21001). Proteins were transferred to a nitrocellulose membrane and blocked with 5 % skim milk for 1 hour at room temperature. Occludin was detected at ~52 kDa using Occludin Mouse Monoclonal Antibody (Product # 33-1500) at 1-3 µg/mL in 2.5 % skim milk at 4°C overnight on a rocking platform. Goat Anti-Mouse IgG - HRP Secondary Antibody (Product # 62-6520) at 1:4000 dilution was used and chemiluminescence detection was performed using Pierce™ ECL Western Blotting Substrate (Product # 32106).
### 52 Immunohistochemistry References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse / 1:50</td>
<td>33-1500 was used in Immunohistochemistry to provide a unique perspective of BBB TJs and open new directions for understanding TJ functionality in biological barriers, ultimately enabling restoration in disease or modulation for drug delivery. eLife (Dec 2021; 10: ) &quot;Nano-scale architecture of blood-brain barrier tight-junctions.&quot; Author(s): Sasson E, Anzi S, Bell B, Yakovian O, Zorsky M, Deutsch U, Engelhardt B, Sherman E, Vatine G, Dzikowski R, Ben-Zvi A PubMed Article URL: <a href="http://dx.doi.org/10.7554/elife.63253">http://dx.doi.org/10.7554/elife.63253</a></td>
</tr>
<tr>
<td>Human / 1:25</td>
<td>33-1500 was used in Immunohistochemistry to investigate whether osmolytes can modify tight junctions. The British journal of dermatology (Mar 2021; 184: 482) &quot;Organic osmolytes increase expression of specific tight junction proteins in skin and alter barrier function in keratinocytes.&quot; Author(s): El-Chami C, Foster AR, Johnson C, Clausen RP, Cornwell P, Haslam IS, Steward MC, Watson REB, Young HS, O’Neill CA PubMed Article URL: <a href="http://dx.doi.org/10.1111/bjd.19162">http://dx.doi.org/10.1111/bjd.19162</a></td>
</tr>
<tr>
<td>Human / 1:200</td>
<td>33-1500 was used in Immunohistochemistry and immunohistochemistry to study disruption of retinal pigment epithelial structure and function with features of age-related macular degeneration caused by hyperhomocysteinemia Oncotarget (Feb 2016; 7: 8532) &quot;Hyperhomocysteinemia disrupts retinal pigment epithelial structure and function with features of age-related macular degeneration.&quot; Author(s): Ibrahim AS, Mander S, Hussein KA, Elsherbiny NM, Smith SB, Al-Shabrawey M, Tawfik A PubMed Article URL: <a href="http://dx.doi.org/10.18632/oncotarget.7384">http://dx.doi.org/10.18632/oncotarget.7384</a></td>
</tr>
<tr>
<td>Mouse / 1:200</td>
<td>33-1500 was used in immunohistochemistry to evaluate the cystathionine-beta-synthase heterozygous mice as a model of mild to moderate hyperhomocysteinemia The American journal of pathology (Sep 2014; 184: 2573) &quot;Alterations of retinal vasculature in cystathionine–beta-synthase heterozygous mice: a model of mild to moderate hyperhomocysteinemia.&quot; Author(s): Tawfik A, Markand S, Al-Shabrawey M, Mayo JN, Reynolds J, Bearden SE, Ganapathy V, Smith SB PubMed Article URL: <a href="http://dx.doi.org/10.1016/j.ajpath.2014.05.018">http://dx.doi.org/10.1016/j.ajpath.2014.05.018</a></td>
</tr>
</tbody>
</table>

**Mouse / 1:100**

**33-1500 was used in Immunohistochemistry to test the hypothesis that anxiogenic and depressive-like behaviors driven by consuming a HFD involve compromised duodenal barrier integrity and subsequent phenotypic changes to glia and neurons along the gut-brain axis.**

Journal of neuroinflammation (May 2021; 18: )

"High-fat diet impairs duodenal barrier function and elicits glia-dependent changes along the gut-brain axis that are required for anxiogenic and depressive-like behaviors."


**Human / 1:100**

**33-1500 was used in Immunohistochemistry-immunofluorescence to characterize in vitro models of human RPE SLOS pathology utilizing two SLOS patient-derived induced pluripotent stem cell-derived RPE (iPSC-RPE) cell lines—"mild" SLOS (CWI) and "severe" SLOS (A2)—versus a normal human iPSC-RPE cell line (DYS) and performed comparative transcriptomic, morphological, and biochemical analyses.**

**33-1500 was used in Immunohistochemistry to suggest that internal vascular endothelial cell transplantation can be used to treat demyelination and brain dysfunction caused by white matter infarct.**

**Not Applicable / 2 µg/ml**

**33-1500 was used in immunohistochemistry to determine the distribution of claudins-7 and -8 in rabbit Henle's loops and collect ducts.**

**Rat / 1:100**

**33-1500 was used in Immunohistochemistry to suggest that internal vascular endothelial cell transplantation can be used to treat demyelination and brain dysfunction caused by white matter infarct.**

Journal of neurochemistry (Jun 2020; 153: 759)

"Transplantation of iPSC-derived vascular endothelial cells improves white matter ischemic damage."

Author(s): Xu B, Kurachi M, Shimauchi-Ohtaki H, Yoshimoto Y, Ishizaki Y

PubMed Article URL: http://dx.doi.org/10.1111/jnc.14949

**Mouse / Not Cited**

**33-1500 was used in Immunohistochemistry to study the pathophysiological mechanisms of Zika virus-mediated ocular and neuronal pathology.**

The American journal of pathology (Apr 2020; 190: 844)

"Hippoc Signaling Pathway Has a Critical Role in Zika Virus Replication and in the Pathogenesis of Neuroinflammation."


PubMed Article URL: http://dx.doi.org/10.1016/j.ajpath.2019.12.005

**Mouse / 1:250**

**33-1500 was used in Immunohistochemistry to explore the toxic effects of DON on intestinal barrier functions and stem cells after DON microinjection (luminal exposure) or addition to a culture medium (basolateral exposure) using three-dimensional mouse intestinal organoids (enteroids).**

Toxins (Sep 2020; 12: )

"Mycoctoxin Deoxyxynivalenol Has Different Impacts on Intestinal Barrier and Stem Cells by Its Route of Exposure."


PubMed Article URL: http://dx.doi.org/10.3390/toxins12100610

**Dog / Not Cited**

**33-1500 was used in immunohistochemistry to assess the effect of 50-Hz magnetic field exposures on the subcellular distribution of proteins found in adherens and tight junctions.**

TheScientificWorldJournal (Oct 2004; 4 Suppl 2: 75)

"Alteration of tight and adherens junctions on 50-Hz magnetic field exposure in Madin Darby canine kidney (MDCK) cells."

Author(s): Somosy Z, Forgács Z, Bognár G, Horváth K, Horváth G

PubMed Article URL: http://dx.doi.org/10.1100/tsw.2004.181
33-1500 was used in Western Blot, Immunohistochemistry to investigate how neonatal hyperoxia affected the expression of key tight junction proteins and inflammatory factors (IL-6 and TNF-) in the developing rat kidneys and elucidated their correlation with renal injury.

Rat / 1:200

Oxidative medicine and cellular longevity (Sep 2021; 2020;)

"Neonatal Hyperoxia Downregulates Claudin-4, Occludin, and ZO-1 Expression in Rat Kidney Accompanied by Impaired Proximal Tubular Development."

Author(s): Xu X, Zhang X, Gao L, Liu C, You K
PubMed Article URL:http://dx.doi.org/10.1155/2020/2641461

33-1500 was used in Immunohistochemistry to examine the effects of food additives on gut barrier function.

Human / 1:100

Disease models & mechanisms (Nov 2018; 11:)

"Effect of dietary additives on intestinal permeability in both <i>Drosophila</i> and a human cell co-culture."

Author(s): Pereira MT, Malik M, Nostro JA, Mahler GJ, Musselman LP
PubMed Article URL:http://dx.doi.org/10.1242/dmm.034520

33-1500 was used in Immunohistochemistry to show that, compared to APOE3, APOE4 accelerates blood-brain barrier (BBB) breakdown, loss of cerebral blood flow, neuronal loss and behavioral deficits independently of amyloid-β.

Mouse / 1:100

Nature aging (Jun 2021; 1: 506)

"<i>APoE4</i> accelerates advanced-stage vascular and neurodegenerative disorder in old Alzheimer's mice via cyclophilin A independently of amyloid-β."

PubMed Article URL:http://dx.doi.org/10.1098/s43987-021-00073-z

33-1500 was used in Immunohistochemistry-immunofluorescence to show that skin inflammation may contribute to pathogenic conditions in the gut via immunologic and microbiological changes.

Mouse / 1:100

Cellular and molecular gastroenterology and health (Apr 2019; 7: 135)

"Toll-Like Receptor 7 Agonist-Induced Dermatitis Causes Severe Dextran Sulfate Sodium Colitis by Altering the Gut Microbiome and Immune Cells."

PubMed Article URL:http://dx.doi.org/10.1016/j.jcmgh.2018.09.010

33-1500 was used in Immunohistochemistry-immunofluorescence to study the role played by Protein Kinase R-like Endoplasmic Reticulum Kinase in transmitting mechanosensory signals to the alveolar epithelium.

Mouse / 1:200

Respiratory research (Aug 2018; 19:)

"Protein kinase R-like endoplasmatic reticulum kinase is a mediator of stretch in ventilator-induced lung injury."

Author(s): Dolinay T, Aonbangkhen C, Zacharias W, Cantu E, Pogoriler J, Stablow A, Lawrence GG, Suzuki Y, Chenoweth DM, Morrissey E, Christie JD, Beers MF, Margulies SS

33-1500 was used in Immunohistochemistry to demonstrate paracellular migration of bacteria across BBB and a critical role for HIF-1/VEGF therein and hence propose targeting this pathway to prevent BBB dysfunction and ensuing brain damage in infections.

Mouse / 1:200

Acta neuropathologica (Aug 2020; 140: 183)

"HIF-1 is involved in blood-brain barrier dysfunction and paracellular migration of bacteria in pneumococcal meningitis."

PubMed Article URL:http://dx.doi.org/10.1007/s00401-020-02174-2

33-1500 was used in Immunohistochemistry to investigate the role of CAR in pluripotency and tight junctions of human embryonic stem cells.

Human / 1:100

"CAR expression in human embryos and hESC illustrates its role in pluripotency and tight junctions."

Author(s): Krivega M, Geens M, Van de Velde H
PubMed Article URL:http://dx.doi.org/10.1530/REP-14-0253


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33-1500 was used in immunohistochemistry to test if the expression of tight junction proteins increases in vessels of germinal matrix and cortex with gestational age.

Mouse / Not Cited

33-1500 was used in immunohistochemistry to suggest that increased expression of Pgp after rmC1I may reduce the brain accumulation of therapeutic drugs that are Pgp substrates.

Mouse / 1:800

33-1500 was used in Immunohistochemistry to investigate the role of phytoestrogens on mammary structure development and milk production in mammary epithelial cells.

Human / 1:50

33-1500 was used in Immunohistochemistry to investigate the role of opioid receptor delta in skin differentiation and barrier function repair.

Human / 1:100

33-1500 was used in Immunohistochemistry to enable research into the dynamics of cell-cell interactions in human synucleinopathies and serve as a testing platform for target identification and validation of novel therapeutics.

Human / Not Cited

33-1500 was used in Immunohistochemistry to investigate the potential effect of DL-3-n-butylphthalide on the tight junction proteins claudin-5, zonula occludens-1, and occludin during brain ischemia.

Rat / 1:200

33-1500 was used in Western Blot, Immunohistochemistry to demonstrate that the desmosome-IF network is a critical contributor to the cytoskeletal-adhesive machinery that supports the polarized function of the epidermis.

Human / Not Cited

33-1500 was used in immunohistochemistry to investigate the role of opioid receptor delta in skin differentiation and barrier function repair.

Human / 1:150

33-1500 was used in immunohistochemistry to investigate the efficacy of deep-brain stimulation on microvascular integrity in the subthalamic nucleus in Parkinson disease.

Neurotrauma reports (Nov 2021; 1: 207)
"P-glycoprotein Expression Is Upregulated in a Pre-Clinical Model of Traumatic Brain Injury."
Author(s): Vita SM, Redell JB, Maynard ME, Zhao J, Grill RJ, Dash PK, Grayson BE
PubMed Article URL: http://dx.doi.org/10.1089/neur.2020.0034

Advanced biosystems (Apr 2020; 4: )
"Adverse Effects of Coumestrol and Genistein on Mammary Morphogenesis and Future Milk Production Ability of Mammary Epithelial Cells."
PubMed Article URL: http://dx.doi.org/10.1002/adbi.201900187

Nature communications (Oct 2021; 12: )
"Modeling alpha-synuclein pathology in a human brain-chip to assess blood-brain barrier disruption."
PubMed Article URL: http://dx.doi.org/10.1038/s41467-021-26066-5

Current biology : CB (Aug 2021; 31: 3275)
"Desmosomes polarize and integrate chemical and mechanical signaling to govern epidermal tissue form and function."
Author(s): Broussard JA, Koetsier JL, Hegazy M, Green KJ
PubMed Article URL: http://dx.doi.org/10.1016/j.cub.2021.05.021

Neurobiology of disease (Feb 2015; 74: 392)
"Deep-brain stimulation associates with improved microvascular integrity in the subthalamic nucleus in Parkinson's disease."
Author(s): Pienaar IS, Lee CH, Elson JL, McGuinness L, Gentleman SM, Kalaria RN, Dexter DT
PubMed Article URL: http://dx.doi.org/10.1016/j.nbd.2014.12.006
Human / Not Cited

"Development of tight junction formation in blood vessels of germlinal matrix, cerebral cortex, and white matter."

Author(s):Ballabh P,Hu F,Kumarasiri M,Braun A,Nedergaard M
PubMed Article URL:http://dx.doi.org/10.1203/01.PDR.0000180535.14093.FB

33-1500 was used in Immunohistochemistry to find that claudin-5, occludin, and JAM-1 were expressed as early as 16 wk in GM, cortex, and white matter.

Human / Not Cited

"The impact of lactoferrin with different levels of metal saturation on the intestinal epithelial barrier function and mucosal inflammation."

PubMed Article URL:http://dx.doi.org/10.1007/s10534-016-9973-x

33-1500 was used in Immunohistochemistry to investigate whether lactoferrin govern intestinal barrier function.

Mouse / 1:800

Toxicology in vitro : an international journal published in association with BIBRA (Mar 2020; 63: )

"Nicotine directly affects milk production in lactating mammary epithelial cells concurrently with inactivation of STAT5 and glucocorticoid receptor in vitro."

Author(s):Kobayashi K,Tsunagui Y,Suzuki N,Suzuki T,Nishimura T
PubMed Article URL:http://dx.doi.org/10.1016/j.tiv.2019.104741

33-1500 was used in Immunohistochemistry to visualize whether nicotine directly affects milk production in lactating mammary epithelial cells.

Mouse / 1:100

Acta pharmacologica Sinica (Nov 2017; 38: 1445)

"Sesamin alleviates blood-brain barrier disruption in mice with experimental traumatic brain injury."

Author(s):Liu Y,Xu ZM,Yang GY,Yang DX,Ding J,Chen H,Yuan F,Tian HL
PubMed Article URL:http://dx.doi.org/10.1038/aps.2017.103

33-1500 was used in Immunohistochemistry-imunofluorescence to study the effects of intravenous administration of DNSase I on NET activity and how this impacts gut epithelial barrier function in acute colitis.

Mouse / 1:200

Biomedicines (Aug 2020; 8: )

"Neutrophil Extracellular Traps Impair Intestinal Barrier Function during Experimental Colitis."

Author(s):Lin EY,Lai HJ,Cheng YK,Leong KQ,Cheng LC,Chou YC,Peng YC,Hsu YH,Chiang HS
PubMed Article URL:http://dx.doi.org/10.3390/biomedicines8080275

33-1500 was used in Western Blot, Immunohistochemistry to reveal a novel role for ASM in the control of neurovascular function in aging, suggesting that ASM may represent a new therapeutic target for anti-aging.

Mouse / 1:100

Neuron (Oct 2018; 100: 167)

"Vascular and Neurogenic Rejuvenation in Aging Mice by Modulation of ASM."

PubMed Article URL:http://dx.doi.org/10.1016/j.neuron.2018.09.010

33-1500 was used in Immunohistochemistry to investigate whether Sema3E-Plexin-D1 signaling was involved in cerebrovascular remodeling after ischemic injury.

Mouse / 1:200

Translational stroke research (Feb 2022; 13: 142)

"Vascular Sema3E-Plexin-D1 Signaling Reactivation Promotes Post-stroke Recovery through VEGF Downregulation in Mice."

Author(s):Yu R,Kim NS,Li Y,Jeong JY,Park SJ,Zhou B,Oh WJ
PubMed Article URL:http://dx.doi.org/10.1007/s12975-021-00914-4

33-1500 was used in Immunohistochemistry to investigate whether Sema3E-Plexin-D1 signaling was involved in cerebrovascular remodeling after ischemic injury.

Human / Not Cited

Nature cell biology (Apr 2015; 17: 409)

"Control of cell-cell forces and collective cell dynamics by the intercellular adhesome."

PubMed Article URL:http://dx.doi.org/10.1038/ncb3135

33-1500 was used in immunohistochemistry to determine the expression and localization of tricellulin

Mouse / 0.5 µg/ml

Not Applicable / 1:100

"Expression and localization of tricellulin in human nasal epithelial cells in vivo and in vitro."
Author(s): Ohashi T, Kojima T, Ogasawara N, Masaki T, Ninomiya T, Kikuchi S, Go M, Takano K, Himi T, Sawada N.
PubMed Article URL: http://dx.doi.org/10.1007/s00795-009-0470-y

"Enteropathogenic E. coli disrupts tight junction barrier function and structure in vivo."
Author(s): Shifflett DE, Clayburgh DR, Koutsouris A, Turner JR, Hecht GA.
PubMed Article URL: http://dx.doi.org/10.1038/labinvest.3700330

Rat / 1:100

"DL-3n-Butylphthalide Improves Blood-Brain Barrier Integrity in Rat After Middle Cerebral Artery Occlusion."
PubMed Article URL: http://dx.doi.org/10.3389/fncel.2020.610714

Mouse / 1:200

"Proteomics analysis reveals novel insights into the mechanism of hepatotoxicity induced by <i>Tripterygium wilfordii</i> multiglycoside in mice."
PubMed Article URL: http://dx.doi.org/10.1038/sj.tpjr.2012.1032741

Human / Not Cited

The Journal of allergy and clinical immunology (Mar 2011; 127: 773)
"Tight junction defects in patients with atopic dermatitis."
PubMed Article URL: http://dx.doi.org/10.1016/j.jaci.2010.10.018

Human / Not Cited

Journal of cerebral blood flow and metabolism : official journal of the International Society of Cerebral Blood Flow and Metabolism (Jan 2021; 41: 132)
"Tight junctions in the blood-brain barrier promote edema formation and infarct size in stroke - Ambivalent effects of sealing proteins."
PubMed Article URL: http://dx.doi.org/10.1177/0271678X20904687

Human / 1:100

Experimental dermatology (Sep 2015; 24: 686)
"Modulation of transepithelial electric resistance (TEER) in reconstructed human epithemis by excipients known to permeate intestinal tight junctions."
Author(s): Abdayem R, Callejon S, Portes P, Kiriol P, Demarne F, Pirot F, Jannin V, Haftek M.
PubMed Article URL: http://dx.doi.org/10.1111/j.1600-0528.2012.01563.x

Human / 1:200

"Effects of supplemental calcium and vitamin D on tight-junction proteins and mucin-12 expression in the normal rectal mucosa of colorectal adenoma patients."
Author(s): Mandle HB, Jahan FA, Bostick RM, Baron JA, Barry EL, Yacoub R, Merrill J, Rutherford RE, Seabrook ME, Fedirko V.
PubMed Article URL: http://dx.doi.org/10.1002/mc.23010
33-1500 was used in Western Blot, Immunohistochemistry to analyze functional, molecular and regulatory effects of Tumor necrosis factor alpha (TNF) in a newly established non-transformed jejunal enterocyte model, namely IPEC-J2 monolayers.

**Pig / Not Cited**

International journal of molecular sciences (Aug 2021; 22:)

"Tumor Necrosis Factor Alpha Effects on the Porcine Intestinal Epithelial Barrier Include Enhanced Expression of TNF Receptor 1."

Author(s): Droessler L, Cornelius V, Markov AG, Amasheh S

PubMed Article URL: http://dx.doi.org/10.3390/ijms22168746

33-1500 was used in Immunohistochemistry-immunofluorescence to investigate the role of IL-22 in the neonatal intestine under homeostatic and inflammatory conditions by using a mouse model of NEC.

**Mouse / Not Cited**

Cell reports. Medicine (Jun 2021; 2:)

"Interleukin-22 signaling attenuates necrotizing enterocolitis by promoting epithelial cell regeneration."


PubMed Article URL: http://dx.doi.org/10.1016/j.xcrm.2021.100320

33-1500 was used in Immunohistochemistry to support the use of the Tir4IEC line in future models investigating health and disease, confirming no confounding effects of genetic manipulation.

**Mouse / 1:200**

Inflammatory intestinal diseases (Dec 2021; 6: 199)

"Epithelial-Specific TLR4 Knockout Challenges Current Evidence of TLR4 Homeostatic Control of Gut Permeability."

Author(s): Crame EE, Bowen JM, Secombe KR, Collier JK, François M, Leifert W, Wardill HR

PubMed Article URL: http://dx.doi.org/10.1159/000519200

33-1500 was used in immunohistochemistry to assess purinergic receptor P2RY12-dependent microglial closure to blood-brain barrier injuries

**Not Applicable / 1:50**

Proceedings of the National Academy of Sciences of the United States of America (Jan 2016; 113: 1074)

"Purinergic receptor P2RY12-dependent microglial closure of the injured blood-brain barrier."

Author(s): Lou N, Takanoto T, Pei Y, Xavier AL, Goldman SA, Nedergaard M

PubMed Article URL: http://dx.doi.org/10.1073/pnas.1520398113

33-1500 was used in immunohistochemistry to characterize transcription factor AP-2gamma in early embryonic development of porcine parthenotes

**Guinea pig / Not Cited**

Reproduction, fertility, and development (Jan 2015; 3:)

"Expression and function of transcription factor AP-2? in early embryonic development of porcine parthenotes."

Author(s): Lee SH, Kwon JW, Choi I, Kim NH

PubMed Article URL: http://dx.doi.org/10.1073/rd14198

33-1500 was used in immunohistochemistry to investigate if the expression pattern of tight junction proteins in mice, rabbits, and cats resemble those of humans

**Not Applicable / 1:50**

Biotechnic & histochemistry : official publication of the Biological Stain Commission (Jun 2011; 86: 161)

"Comparison of tight junction protein expression in the ciliary epithelia of mouse, rabbit, and cat human eyes."

Author(s): Karim MJ, Biswas S, Bhatnagar P, Paterson CA

PubMed Article URL: http://dx.doi.org/10.3390/ijms22168746

117 Western Blot References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
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<tbody>
<tr>
<td><strong>Human / 1:1000</strong></td>
<td>33-1500 was used in Western Blotting to show that in diabetic rat retinas, the leakage of iBRB and the expression of inflammatory factors (VEGF, TNF-, IL-1, ICAM-1, and MMP9) increased dramatically, while the expression of tight junction proteins (ZO-1, occludin, JAM-A, and claudin-5) decreased significantly.</td>
</tr>
</tbody>
</table>
| **Rat / 1:1000** | Journal of cellular physiology (Aug 2021; 236: 5848)

"Melatonin maintains inner blood-retinal barrier via inhibition of p38/TXNP/NF-B pathway in diabetic retinopathy."


PubMed Article URL: http://dx.doi.org/10.1002/jcp.30269 |


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33-1500 was used in Western Blotting to identify a mechanism integrating receptor tyrosine kinase signalling and N-glycosylation for the regulation of claudin-3 levels in colorectal cancer.

Oncology reports (Oct 2020; 44: 1649)
"N-glycosylation and receptor tyrosine kinase signaling affect claudin3 levels in colorectal cancer cells."
PubMed Article URL: http://dx.doi.org/10.3892/or.2020.7727

33-1500 was used in Western Blotting to suggest the significance of dapsone in protecting brain microvessels under lipid metabolic disorders.

Cell death & disease (Jun 2018; 9: )
"Dapsone protects brain microvascular integrity from high-fat diet induced LDL oxidation."
PubMed Article URL: http://dx.doi.org/10.1038/s41419-018-0739-y

33-1500 was used in Western Blot to investigate the therapeutic mechanism of hypertonic saline (HS) in brain edema in terms of aquaporins and inflammatory factors.

Experiential and therapeutic medicine (Nov 2020; 20: )
"Hypertonic saline improves brain edema resulting from traumatic brain injury by suppressing the NF-B/IL-1 signaling pathway and AQP4."
PubMed Article URL: http://dx.doi.org/10.3892/etm.2020.9199

33-1500 was used in Western Blot to explore the role of A&P and Bifidobacterium combination treatment in regulation of inflammatory response of macrophage in kidney and intestine of CKD mouse, as well as the potential molecular mechanism.

Frontiers in physiology (Dec 2020; 11: )
"<i>-Astragalus mongholicus</i> Bunge and Panax Notoginseng Formula (A&P) Combined With Bifidobacterium Contribute a Renoprotective Effect in Chronic Kidney Disease Through Inhibiting Macrophage Inflammatory Response in Kidney and Intestine."
Author(s): Rui-Zhi T, Hui D, Jian-Chun L, Xia Z, Xiao-Jia W, Dan W, Jun-Ming F, Li W
PubMed Article URL: http://dx.doi.org/10.3389/fphys.2020.583668

33-1500 was used in Western Blotting to explore the role of A&P and Bifidobacterium in protecting brain microvessels from lipid metabolic disorders.

Journal of cell science (Nov 2012; 125: 5005)
"Cingulin is dispensable for epithelial barrier function and tight junction structure, and plays a role in the control of claudin-2 expression and response to duodenal mucosa injury."
Author(s): Guillemot L, Schneider Y, Brun P, Castaglione L, Pizzuti D, Martines D, Jond L, Bongiovanni M, Citi S
PubMed Article URL: http://dx.doi.org/10.1242/jcs.101261

33-1500 was used in Western Blotting to conclude that cingulin is dispensable for tight junction structure and barrier function, and is embedded in signalling networks controlling claudin-2 expression.

The American journal of pathology (Sep 2018; 188: 2025)
"High MUC2 Mucin Biosynthesis in Goblet Cells Impedes Restitution and Wound Healing by Elevating Endoplasmic Reticulum Stress and Altered Production of Growth Factors."
Author(s): Tawiah A, Moreau F, Kumar M, Tiwari S, Falguera J, Chadee K
PubMed Article URL: http://dx.doi.org/10.1016/j.ajpath.2018.05.013
"Bryostatin-1 enhances barrier function in T84 epithelia through PKC-dependent regulation of tight junction proteins."
Author(s): Yoo J, Nichols A, Mammen J, Calvo I, Song JC, Worrell RT, Matlin K, Matthews JB
PubMed Article URL:http://dx.doi.org/10.1152/ajpcell.00267.2002

The Journal of biological chemistry (Sep 2005; 280: 31936)
"Mast cell tryptase controls paracellular permeability of the intestine. Role of protease-activated receptor 2 and beta-arrestins."
Author(s): Jacob C, Yang PC, Darmoul D, Amadesi S, Saito T, cottrell GS, Coelho AM, Singh P, Grady EF, Perdue M, Bunnett NW
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M506338200

33-1500 was used in Western Blotting to reveal that reciprocal regulation between ZO-1 and cell mechanics controls tight junction assembly and epithelial morphogenesis, and that, in a second, tension-independent step, ZO-1 is required to assemble morphologically and structurally fully assembled and functionally normal tight junctions.

Mouse / Not Cited
33-1500 was used in Western Blot to identify that intestinal vitamin D receptor knockout protected against oxazolone-induced colitis in mice by blocking Th2 cell response and reducing the function of intestinal invariant natural killer T cells.

Cell death & disease (Jun 2020; 11: )
"Intestinal vitamin D receptor knockout protects from oxazolone-induced colitis."
Author(s): Shi Y, Liu Z, Cui X, Zhao Q, Liu T
PubMed Article URL:http://dx.doi.org/10.1038/s41449-020-2653-3

33-1500 was used in Western Blot to test the hypothesis that endothelial-specific thioredoxin-interacting protein knock-out mice will be more resistant to the neurovascular damage associated with hyperglycemia in embolic stroke.

Endothelial Thioredoxin-Interacting Protein Depletion Reduces Hemorrhagic Transformation in Hyperglycemic Mice after Embolic Stroke and Thrombolytic Therapy.
Author(s): Salman M, Ismael S, Li L, Ahmed HA, Puchowicz MA, Ishrat T
PubMed Article URL:http://dx.doi.org/10.1161/JAHA.118.009244

Endothelial Thioredoxin-Interacting Protein Depletion Reduces Hemorrhagic Transformation in Hyperglycemic Mice after Embolic Stroke and Thrombolytic Therapy.
Author(s): Pena-Philippides JC, Gardiner AS, Caballero-Garrido E, Pan R, Zhu Y, Roitbak T

33-1500 was used in Western Blot to test the hypothesis that endothelial-specific thioredoxin-interacting protein knock-out mice will be more resistant to the neurovascular damage associated with hyperglycemia in embolic stroke.

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33-1500 was used in Western Blot to test the hypothesis that endothelial-specific thioredoxin-interacting protein knock-out mice will be more resistant to the neurovascular damage associated with hyperglycemia in embolic stroke.

Gut microbes (Feb 2020; 10: 696)
"<i>Lactobacillus fermentum</i> species ameliorate dextran sulfate sodium-induced colitis by regulating the immune response and altering gut microbiota."
Author(s): Jang YJ, Kim WK, Han DH, Lee K, Ko G
PubMed Article URL:http://dx.doi.org/10.1080/19490976.2019.1589281

331500 was used in western blot to explore the responses of occludin to stimulation by TNFalpha, IL-1beta and LPS in an immortalized human cerebral endothelial cell line

PloS one (Aug 2017; 12: )
"TNF alters occludin and cerebral endothelial permeability: Role of p38MAPK."
Author(s): Ni Y, Teng T, Li R, Simony A, Sun GY, Lee JC
PubMed Article URL:http://dx.doi.org/10.1371/journal.pone.0170346


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33-1500 was used in western blot to demonstrate that emodin attenuates LPS- and hypoxia/reoxygenation-induced intestinal epithelial barrier dysfunction by inhibiting the HIF-1alpha and NF-kappaB signaling pathways, which regulate tight junctions.

**Human / 1:1000**
International journal of molecular medicine (Dec 2014; 34: 1629)
"Ameioration of hypoxia and LPS-induced intestinal epithelial barrier dysfunction by emodin through the suppression of the NF-B and HIF-1 signaling pathways."
Author(s): Lei Q, Qiang F, Chao D, Di W, Guoqian Z, Bo Y, Lina Y
PubMed Article URL: http://dx.doi.org/10.3892/ijmm.2014.1965

33-1500 was used in western blot to investigate the deficiency of intestine and microbiome in an amyotrophic lateral sclerosis mouse model

**Mouse / Not Cited**
Physiological reports (Apr 2015; 3: )
"Leaky intestine and impaired microbiome in an amyotrophic lateral sclerosis mouse model."
Author(s): Wu S, Yi J, Zhang YG, Zhou J, Sun J
PubMed Article URL: http://dx.doi.org/10.14814/phy2.12356

33-1500 was used in Western Blot to investigate the deficiency of intestine and microbiome in an amyotrophic lateral sclerosis mouse model

**Human / 1:200**
Nutrients (Apr 2021; 13: )
"Transport of Dietary Anti-Inflammatory Peptide, -Glutamyl Valine (-EV), across the Intestinal Caco-2 Monolayer."
Author(s): Guha S, Alvarez S, Majumder K
PubMed Article URL: http://dx.doi.org/10.3390/nu13051448

33-1500 was used in western blot to measure tight junction mRNA and protein levels in patients with edema, venous leg ulcers, and healthy controls

**Human / Not Cited**
International journal of molecular medicine (Jul 2006; 18: 215)
"tight junctions and compression therapy in chronic venous insufficiency."
Author(s): Herouy Y, Kahle B, Izikso M, Eberth I, Norgauer J, Pannier F, Rabe Y, Jünger M, Bruckner-Tuderman L

33-1500 was used in Western Blotting to report the expression and contribution of TRPV4 in the pathology of scarring and endothelial and secondary damage after SCI.

**Rat / 1:500**
"Elevated TRPV4 Levels Contribute to Endothelial Damage and Scarring in Experimental Spinal Cord Injury."
Author(s): Kumar H, Lim CS, Choi H, Joshi HP, Kim KT, Kim YH, Park CK, Kim HM, Han IB
PubMed Article URL: http://dx.doi.org/10.1523/JNEUROSCI.2035-19.2020

33-1500 was used in Western Blot to test the hypothesis that Annexin A2 (ANXA2) might be a candidate for the development of cerebrovascular therapy in targeting early blood-brain barrier integrity disruption from post-traumatic brain injury, as well as subacute/delayed cerebrovascular remodeling.

**Rat / 1:1000**
Oxidative medicine and cellular longevity (Sep 2021; 2020: )
"Neonatal Hyperoxia Downregulates Claudin-4, Occludin, and ZO-1 Expression in Rat Kidney Accompanied by Impaired Proximal Tubular Development."
Author(s): Xu X, Zhang X, Gao L, Liu C, You K
PubMed Article URL: http://dx.doi.org/10.1155/2020/2641461

33-1500 was used in Western Blot to investigate how neonatal hyperoxia affected the expression of tight junction proteins and inflammatory factors (IL-6 and TNF-) in the developing rat kidneys and elucidated their correlation with renal injury.

**Mouse / 1:1000**
"Recombinant Annexin A2 Administration Improves Neurological Outcomes After Traumatic Brain Injury in Mice."
PubMed Article URL: http://dx.doi.org/10.3389/ffphar.2021.708469

American journal of physiology. Cell physiology (Nov 2004; 287: C1453)
" Trafficking of cholera toxin-ganglioside GM1 complex into Golgi and induction of toxicity depend on actin cytoskeleton." 
Author(s): Badizadegan K, Wheeler HE, Fujinaga Y, Lencer WI
PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00189.2004

33-1500 was used in Western blot to report the hypothesis that Annexin A2 (ANXA2) might be a candidate for the development of cerebrovascular therapy in targeting early blood-brain barrier integrity disruption from post-traumatic brain injury, as well as subacute/delayed cerebrovascular remodeling.

**Human / Not Cited**
Japanese journal of infectious diseases (Dec 2015; 68: 81)
"Isolation and characterization of an Huh.7.5.1-derived cell clone highly permissive to hepatitis C virus."
PubMed Article URL: http://dx.doi.org/10.7883/yoken.JJID.2014.231
331500 was used in immunocytochemistry and western blot to report the presence of PIWI-like proteins in somatic cells and the possible role of HIWI2 in preserving the functional integrity of epithelial cells

Human / 1:1000
Molecular and cellular biochemistry (Mar 2017; 427: 145)
"Possible role of HIWI2 in modulating tight junction proteins in retinal pigment epithelial cells through Akt signaling pathway."
Author(s):Sivagurunathan S,Palanisamy K,Arunchalam JP,Chidambaram S
PubMed Article URL:http://dx.doi.org/10.1007/s11010-016-2906-8

Not Applicable / 1:500
33-1500 was used in western blot to discuss the impact of corticosteroid treatment on hepatitis C virus recurrence after liver transplantation

Not Applicable / Not Cited
Gastroenterology (May 2010; 138: 1875)
"Glucocorticosteroids increase cell entry by hepatitis C virus."
Author(s):Ciesek S,Steinmann E,Iken M,Ott M,Helfritz FA,Warpper I,Manns MP,Wedemeyer H,Pietschmann T
PubMed Article URL:http://dx.doi.org/10.1053/j.gastro.2010.02.004

Not Applicable / Not Cited
The Journal of cell biology (Oct 2008; 183: 19)
"The keratin-binding protein Albatross regulates polarization of epithelial cells."
PubMed Article URL:http://dx.doi.org/10.1083/jcb.200803133

Not Applicable / Not Cited
FASEB journal : official publication of the Federation of American Societies for Experimental Biology (Dec 2020; 34: 16319)
"Occludin, caveolin-1, and Alix form a multi-protein complex and regulate HIV-1 infection of brain pericytes."
Author(s):Torices S,Roberts SA,Park M,Malhotra A,Toborek M
PubMed Article URL:http://dx.doi.org/10.1096/fj.202001562R

Dog / 1:200
Proceedings of the National Academy of Sciences of the United States of America (Jul 2012; 109: 10855)
"The occludin and ZO-1 complex, defined by small angle X-ray scattering and NMR, has implications for modulating tight junction permeability."
Author(s):Tash BR,Bewley MC,Russo M,Kell JM,Griffin KA,Sundstrom JM,Antonetti DA,Tian F,Flanagan JM
PubMed Article URL:http://dx.doi.org/10.1073/pnas.1121390109

Human / 1:1000
33-1500 was used in Western Blotting to identify a novel mechanism involved in HIV-1 infection contributing to a better understanding of the HIV-1 pathology and the associated neuroinflammatory responses.

Human / Not Cited
Current biology : CB (Aug 2021; 31: 3275)
"Desmosomes polarize and integrate chemical and mechanical signaling to govern epidermal tissue form and function."
Author(s):Broussard JA,Koetsier JL,Hegazy M,Green KJ
PubMed Article URL:http://dx.doi.org/10.1016/j.cub.2021.05.021

Human / 1:1000
33-1500 was used in western blot to study the efficacy of (-)-Epicatechin in the prevention of tumor necrosis alpha-induced loss of Caco-2 cell barrier integrity.

Human / Not Cited
Archives of biochemistry and biophysics (May 2015; 573: 84)
"(-)-Epicatechin in the prevention of tumor necrosis alpha-induced loss of Caco-2 cell barrier integrity."
Author(s):Contreras TC,Ricciardi E,Cremonini E,Oteiza PI
PubMed Article URL:http://dx.doi.org/10.1016/j.abb.2015.01.024

Human / Not Cited
Virulence (Dec 2018; 9: 879)
"Secreted Giardia intestinalis cysteine proteases disrupt intestinal epithelial cell junctional complexes and degrade chemokines."
Author(s):Liu J,Ma'ayeh S,Peirasmaki D,Lundström-Stadelmann B,Hellman L,Svärd SG
PubMed Article URL:http://dx.doi.org/10.1083/jcb.200803133
33-1500 was used in Western Blot to explore the effects of AIM2 on the BBB integrity in mice with middle cerebral artery occlusion induced injury and in oxygen-glucose deprivation/reoxygenation induced human brain microvascular endothelial cells.

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**Mouse / 1:1000**

CNS neuroscience & therapeutics (Oct 2021; 27: 1224)

"AIM2 deletion enhances blood-brain barrier integrity in experimental ischemic stroke."

Author(s): Xu SY, Bian HJ, Shu S, Xia SN, Gu Y, Zhang MJ, Xu Y, Cao X

PubMed Article URL: http://dx.doi.org/10.1111/cns.13699

Not Applicable / 0.5 µg/ml

Reproductive sciences (Thousand Oaks, Calif.) (Nov 2016; 23: 1580)

"Nectin-3 Is Increased in the Cell Junctions of the Uterine Epithelium at Implantation."

Author(s): Poon CE, Madawala RJ, Dowland SN, Murphy CR

PubMed Article URL: http://dx.doi.org/10.1177/1933719116648216

**Human / Not Cited**

Endocrinology (Jan 2007; 148: 218)

"Estrogen decrease in tight junctional resistance involves matrix-metalloproteinase-7-mediated remodeling of occludin."

Author(s): Gorodeski GI

PubMed Article URL: http://dx.doi.org/10.1210/en.2006-1120

**Human / 1:1000**

33-1500 was used in Western Blotting to identify how primary tumor cell EMT could trigger tumor axonogenesis and metastasis and validate the correlation between the EMT program and axonogenesis in the context of human breast carcinomas.

**Mouse / 1:1000**

Life science alliance (Feb 2022; 5: )

"TGF-induced expression of long noncoding lincRNA Platr18 controls breast cancer axonogenesis."

Author(s): Grelet S, Fréreux C, Obellianne C, Noguchi K, Howley BV, Dalton AC, Howe PH

PubMed Article URL: http://dx.doi.org/10.26508/isa.202101261

**Dog / Not Cited**

American journal of physiology. Renal physiology (Dec 2011; 301: F1270)

"FXYD5 (dysadherin) regulates the paracellular permeability in cultured kidney collecting duct cells."

Author(s): Lubarski I, Asher C, Garty H

PubMed Article URL: http://dx.doi.org/10.1152/ajpregl.00142.2011

**Pig / 1:5000**

PLoS pathogens (Aug 2022; 18: )

"Streptococcal autolysin promotes dysfunction of swine tracheal epithelium by interacting with vimentin."


PubMed Article URL: http://dx.doi.org/10.1371/journal.ppat.1010765

Not Applicable / 1:500

American journal of physiology. Gastrointestinal and liver physiology (Feb 2005; 288: G705)

"Cultured monolayers of the dog jejunum with the structural and functional properties resembling the normal epithelium."

Author(s): Weng XH, Beyerbach KW, Quaroni A

PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00518.2003

33-1500 was used in western blot to determine the effects of FXYD5 on the paracellular permeability using a mouse kidney collecting duct cell line.

**Not Applicable / Not Cited**

American journal of physiology. Gastrointestinal and liver physiology (Feb 2009; 296: G348)

"Dietary glutamine and oral antibiotics each improve indexes of gut barrier function in a rat model of short bowel syndrome."

Author(s): Tian J, Hao L, Chandra P, Jones DP, Williams IR, Gewirtz AT, Ziegler TR

PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00952.2008

33-1500 was used in Western Blotting to investigate the mechanism through which Streptococcus suis serotype 2 penetrates the respiratory barrier.

**Not Applicable / Not Cited**

American journal of physiology. Renal physiology (Jan 2005; 288: G705)

"Dietary glutamine and oral antibiotics each improve indexes of gut barrier function in a rat model of short bowel syndrome."

Author(s): Tian J, Hao L, Chandra P, Jones DP, Williams IR, Gewirtz AT, Ziegler TR

PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00952.2008

33-1500 was used in Western Blotting to determine the impact of Porcine Reproductive and Respiratory Syndrome virus (PRRSV) and feed intake on parameters of jejunal function and integrity in growing pigs.

**Not Applicable / Not Cited**

PLoS one (Apr 2020; 15: )

"Impact of viral disease hypophagia on pig jejunal function and integrity."

Author(s): Helm ET, Curry SM, De Mille CM, Schweer WP, Burrough ER, Gabler NK

PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0227265


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33-1500 was used in western blot to compare the tight junction proteins in the choroid plexus of ewes exposed to short or long days.

Sheep / 1:5000

Brain research (Jun 2011; 1393: 44)
"Tight junction proteins vary in the choroid plexus of ewes according to photoperiod."
Author(s):Lagaratine C, Skipor J, Szczepowska A, Dufourny L, Thierry JC
PubMed Article URL:http://dx.doi.org/10.1016/j.brainres.2011.04.009

33-1500 was used in Western Blot to study responses to disease-relevant stimuli in proliferating vs. more quiescent endothelial cell states.

Human / 1:50

Fluids and barriers of the CNS (Feb 2022; 19)
"Prolonged culturing of iPSC-derived brain endothelial-like cells is associated with quiescence, downregulation of glycolysis, and resistance to disruption by an Alzheimer's brain milieu."
Author(s):Williams LM, Fujimoto T, Weaver RR, Logsdon AF, Evitts KM, Young JE, Banks WA, Erickson MA
PubMed Article URL:http://dx.doi.org/10.1186/s12987-022-00307-1

33-1500 was used in Immunohistochemistry to show that sesamin may be a promising potential therapeutic intervention for preventing disruption of the blood-brain barrier (BBB) after traumatic brain injury (TBI).

Mouse / 1:500

Acta pharmacologica Sinica (Nov 2017; 38: 1445)
"Sesamin alleviates blood-brain barrier disruption in mice with experimental traumatic brain injury."
Author(s):Liu YL, Xu ZM, Yang GY, Yang DX, Ding J, Chen H, Yuan F, Tian HL
PubMed Article URL:http://dx.doi.org/10.1038/aps.2017.103

33-1500 was used in western blot to assess the effect of 9-cis-retinoic acid and all-trans retinoic acid on the formation and degradation of gap junctions and junctional communication in cancer cells

Not Applicable / Not Cited

33-1500 was used in western blot to study human breast cancer cell lines and here Herregulin-HER3-HER2 signaling promotes matrix metalloproteinase-dependent blood-brain-barrier transendothelial migration

Mouse / 1:100

Neuron (Oct 2018; 100: 167)
"Vascular and Neurogenic Rejuvenation in Aging Mice by Modulation of ASM."
PubMed Article URL:http://dx.doi.org/10.1016/j.neuron.2018.09.010

33-1500 was used in Western Blot, Immunohistochemistry to reveal a novel role for ASM in the control of neurovascular function in aging, suggesting that ASM may represent a new therapeutic target for anti-aging.

Human / Not Cited

Oncotarget (Feb 2015; 6: 3932)
"Heregulin-HER3-HER2 signaling promotes matrix metalloproteinase-dependent blood-brain-barrier transendothelial migration of human breast cancer cell lines."
Author(s):Momery M, Saunus JM, Marturana F, McCart Reed AE, Black D, Sala G, Jacobelli S, Holland JD, Yu D, Da Silva L, Simpson PT, Khanna KK, Chenex-Trench G, Lakhani SR
PubMed Article URL:http://dx.doi.org/10.18632/oncotarget.2846

33-1500 was used in Western Blot to study human breast cancer cell lines and how Heregulin-HER3-HER2 signaling promotes matrix metalloproteinase-dependent blood-brain-barrier transendothelial migration

American journal of physiology. Heart and circulatory physiology (Dec 2003; 285: H2820)
"Effects of hypoxia-reoxygenation on rat blood-brain barrier permeability and tight junctional protein expression."
Author(s):Witt KA, Mark KS, Hom S, Davis TP
PubMed Article URL:http://dx.doi.org/10.1152/ajpheart.00589.2003

33-1500 was used in western blot to assess the effect of 9-cis-retinoic acid and all-trans retinoic acid on the formation and degradation of gap junctions and junctional communication in cancer cells

Pig / 1:1000

Journal of cellular physiology (Jun 2019; 234: 9515)
"Parasympathectomy increases resting secretion of the submandibular gland in piglets in the long term."
Author(s):Zhang XM, Huang Y, Cong X, Qu LH, Zhang K, Wu LL, Zhang Y, Yu GY
PubMed Article URL:http://dx.doi.org/10.1002/jcp.27640


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**Mouse / 1:250**

Frontiers in immunology (Aug 2022; 13: )

"FYN regulates cell adhesion at the blood-testis barrier and the apical ectoplasmic specialization via Arp3 in the mouse testis."

Author(s): Yang Y, Yao M, Zeng J, Zheng D, Li Q, Ni Y, Xiao X

PubMed Article URL: http://dx.doi.org/10.3389/fimmu.2022.915274

33-1500 was used in Western Blot to show that it is also possible for viruses to break through the BTB and enter the immunoprivileged testicular microenvironment via this mechanism.

**Rat / 1:1,000**

Frontiers in cellular neuroscience (Oct 2020; 12: )

"Activated Microglia Disrupt the Blood-Brain Barrier and Induce Chemokines and Cytokines in a Rat in vitro Model."

Author(s): Shigemoto-Mogami Y, Hoshikawa K, Sato K

PubMed Article URL: http://dx.doi.org/10.3389/fncel.2018.00494

33-1500 was used in Western Blotting to investigate the interaction of microglia with blood-brain barrier cells.

**Human / Not Cited**

Journal of Crohn’s & colitis (Dec 2019; 13: 1558)

"Faecal Proteases from Pouchitis Patients Activate Protease Activating Receptor-2 to Disrupt the Epithelial Barrier."

Author(s): Hoffman S, Aviv Cohen N, Carroll IM, Tulchinsky H, Borovok I, Dotan I, Maharshak N

PubMed Article URL: http://dx.doi.org/10.1093/ecco-jcc/jjz086

33-1500 was used in Western Blotting to study the relationship between faecal proteolytic activity and protease activating receptor activation in epithelial barrier dysfunction and determine the source of proteases.

**Rat / Not Cited**

Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery (Jan 2016; 11: 45)

"Expression of tight-junction proteins in human proximal small intestinal mucosa before and after Roux-en-Y gastric bypass surgery."

Author(s): Casselbrant A, Elias E, Fändriks L, Wallenius V

PubMed Article URL: http://dx.doi.org/10.1016/j.soard.2014.05.009

33-1500 was used in Western Blot to study tight-junction proteins in human proximal small intestinal mucosa before and after Roux-en-Y gastric bypass surgery.

**Human / 1:500**

Fluids and barriers of the CNS (Jun 2021; 18: )

"Comparative assessment of in vitro BBB tight junction integrity following exposure to cigarette smoke and e-cigarette vapor: a quantitative evaluation of the protective effects of metformin using small-molecular-weight paracellular markers."

Author(s): Kadry H, Noorani B, Bickel U, Abbruscato TJ, Cucullo L

PubMed Article URL: http://dx.doi.org/10.1186/s12987-021-00261-4

33-1500 was used in Western Blot to quantitatively assess the damaging effects of tobacco smoke and electronic cigarettes and the protective effects of metformin on blood-brain barrier integrity.

**Mouse / Not Cited**

Glia (Jul 2019; 67: 1359)

"Knockdown of circulating C1 inhibitor induces neurovascular impairment, glial cell activation, neuroinflammation, and behavioral deficits."

Author(s): Farfara D, Feierman E, Richards A, Revenko AS, MacLeod RA, Norris EH, Strickland S

PubMed Article URL: http://dx.doi.org/10.1002/glia.23611

33-1500 was used in Western Blotting to highlight the important role of regulated plasma C1INH as it acts as a gatekeeper to the brain via the neurovascular system.

**Rat / Not Cited**

Pain (Sep 2018; 159: 1777)

"Chronic stress-associated visceral hyperalgesia correlates with severity of intestinal barrier dysfunction."

Author(s): Creekmore AL, Hong S, Zhu S, Xue J, Wiley JW

PubMed Article URL: http://dx.doi.org/10.1097/j.pain.0000000000001271

33-1500 was used in Western Blotting to demonstrate that visceral pain and increased colon permeability positively correlate (0.6008, P = 0.0084).

**Mouse / Not Cited**

Glia (Jan 2014; 62: 1800)

"Circulating Ouabain Modulates Expression of Claudins in Rat Intestine and Cerebral Blood Vessels."

Author(s): Markov AG, Fedorova AA, Kravtsova VV, Bikmurzina AE, Okorokova LS, Matchkov VV, Cornelius V, Amasheh S, Krivoi VV

PubMed Article URL: http://dx.doi.org/10.3390/jms21145067

33-1500 was used in Western Blotting to study the relationship between faecal proteolytic activity and protease activating receptor activation in epithelial barrier dysfunction and determine the source of proteases.

**Human / Not Cited**

Circulating Ouabain Modulates Expression of Claudins in Rat Intestine and Cerebral Blood Vessels.

Author(s): Markov AG, Fedorova AA, Kravtsova VV, Bikmurzina AE, Okorokova LS, Matchkov VV, Cornelius V, Amasheh S, Krivoi VV

PubMed Article URL: http://dx.doi.org/10.3390/jms21145067

33-1500 was used in Western Blotting to confirm that circulating ouabain can functionally and tissue-specifically affect barrier properties of epithelial and endothelial tissues via Na,K-ATPase-mediated modulation of claudins expression.

**Rat / 1:100**


"Faecal Proteases from Pouchitis Patients Activate Protease Activating Receptor-2 to Disrupt the Epithelial Barrier."

Author(s): Hoffman S, Aviv Cohen N, Carroll IM, Tulchinsky H, Borovok I, Dotan I, Maharshak N

PubMed Article URL: http://dx.doi.org/10.1093/ecco-jcc/jjz086

33-1500 was used in Western Blotting to investigate the interaction of microglia with blood-brain barrier cells.
33-1500 was used in Western Blotting to study the capacity of curcumin to inhibit tumor necrosis alpha (TNF)-induced inflammation, oxidative stress, and loss of intestinal barrier integrity, characterizing the underlying mechanisms. Caco-2 cell monolayers are incubated with TNF (10 ng mL⁻¹), in the absence or presence of curcumin.

**Human / 1:1000**

Molecular nutrition & food research (Nov 2022; 66: )
"Curcumin Mitigates TNF-Induced Caco-2 Cell Monolayer Permeabilization Through Modulation of NF-B, ERK1/2, and JNK Pathways."
Author(s): Iglesias DE, Cremonini E, Oteiza PI, Fraga CG
PubMed Article URL: http://dx.doi.org/10.1002/mnfr.2020101033

33-1500 was used in Western Blot to investigate the role of lipolysis stimulated lipoprotein receptor in aggressive breast cancer behavior

**Human / Not Cited**

PloS one (Jan 2015; 9: )
"The role of lipolysis stimulated lipoprotein receptor in breast cancer and directing breast cancer cell behavior."
Author(s): Reaves DK, Fagan-Solis KD, Dunphy K, Oliver SD, Scott DW, Fleming JM
PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0091747

33-1500 was used in Western Blot to determine the contribution of occludin to hepatitis C virus infection

**Human / Not Cited**

Biological & pharmaceutical bulletin (May 2016; 39: 839)
"Occludin-Knockout Human Hepatic HuH7.5.1-B-Derived Cells Are Completely Resistant to Hepatitis C Virus Infection."
PubMed Article URL: http://dx.doi.org/10.1080/19490976.2020.1782156

33-1500 was used in Western Blotting to evaluate the precise effects of B. longum on IBS via regulation of Paneth cell function.

**Rat / 1:500**

Gut microbes (Nov 2020; 12: )
""<<Bifidobacterium longue<< alleviates irritable bowel syndrome-related visceral hypersensitivity and microbiota dysbiosis via Paneth cell regulation."
PubMed Article URL: http://dx.doi.org/10.1080/19490976.2020.1782156

33-1500 was used in Western Blotting to find that the combination of BBR and Sta is more effective than BBR alone in blood glucose control, improvement of insulin resistance and islet functions, inflammatory mediators decrease, and maintenance of intestinal barrier integrity.

**Mouse / Not Cited**

Frontiers in pharmacology (Nov 2020; 11: )
"Stachyoside Improves the Effects of Berberine on Glucose Metabolism by Regulating Intestinal Microbiota and Short-Chain Fatty Acids in Spontaneous Type 2 Diabetic KKAY Mice."
PubMed Article URL: http://dx.doi.org/10.3389/fphar.2020.578943

33-1500 was used in Western Blotting to determine whether the expression of tight junction proteins (TJPs) differs depending on the subtype of functional dyspepsia (FD) and sex.

**Human / 1:1000**

Journal of neurogastroenterology and motility (Apr 2020; 26: 248)
"Expression of Tight Junction Proteins According to Functional Dyspepsia Subtype and Sex."
Author(s): Lee JY, Kim N, Choi YJ, Park JH, Ashktorab H, Smoot DT, Lee DH
PubMed Article URL: http://dx.doi.org/10.1152/jnem.012020

33-1500 was used in Western Blotting to test the hypothesis that the obesity-associated enhanced intestinal paracellular permeability contributes to obesity-associated hyperoxaluria by increasing passive paracellular intestinal oxalate absorption.

**Human / 1:500**

American journal of physiology. Cell physiology (Jun 2003; 284: C1346)
"Claudin extracellular domains determine paracellular charge selectivity and resistance but not tight junction fibril architecture."
Author(s): Colegio OR, Van Itallie C, Rahner C, Anderson JM
PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00547.2002

33-1500 was used in Western Blotting to determine whether the expression of tight junction proteins (TJPs) differs depending on the subtype of functional dyspepsia (FD) and sex.

33-1500 was used in Western Blotting to test the hypothesis that the obesity-associated enhanced intestinal paracellular permeability contributes to obesity-associated hyperoxaluria by increasing passive paracellular intestinal oxalate absorption.

**Human / 1:500**

American journal of physiology. Gastrointestinal and liver physiology (Jan 2019; 316: G1)
"Enhanced gastrointestinal passive paracellular permeability contributes to the obesity-associated hyperoxaluria."
PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00266.2018
Human / Not Cited

Cancer research (Sep 2005; 65: 7691)
"Membrane-type 1 matrix metalloproteinase expression is regulated by zonula occludens-1 in human breast cancer cells."
Author(s): Polette M, Gilles C, Nawrocki-Raby B, Lohi J, Hunziker W, Foidart JM, Birembaut P
PubMed Article URL: http://dx.doi.org/10.1158/0008-5472.CAN-04-4230

Human / 1:1,000

33-1500 was used in Western Blot to evaluate the role of caveolin-1 in HIV-1 Tat-induced dysfunction of tight junction and amyloid -peptide- transferring proteins.

Human / 1:1000

Oxidative medicine and cellular longevity (Dec 2019; 2019: )
"Role of Cav-1 in HIV-1 Tat-Induced Dysfunction of Tight Junctions and A<sub>b</sub>/b-Transferring Proteins."
Author(s): Zou M, Huang W, Jiang W, Wu Y, Chen Q
PubMed Article URL: http://dx.doi.org/10.1155/2019/3403206

Human / 1:1000

33-1500 was used in Western Blot to reveal that DUSP3 is an important TJ regulatory protein and its decrease may be involved in progression of epithelial cancers.

Mouse / Not Cited

Journal of biomedical science (Jun 2022; 29: )
"DUSP3 regulates phosphorylation-mediated degradation of occludin and is required for maintaining epithelial tight junction."
Author(s): Chou HC, Cheng CM, Yang CH, Lin TY, Liu YW, Tan TH, Chen YR
PubMed Article URL: http://dx.doi.org/10.1186/s12892-022-00826-x

Mouse / 1:1000

Molecular biology of the cell (Sep 2020; 31: 2249)
"The HIF target ATG9A is essential for epithelial barrier function and tight junction biogenesis."
Author(s): Dowdell AS, Cartwright IM, Goldberg MS, Kosteleycky R, Ross T, Welch N, Glover LE, Colgan SP
PubMed Article URL: http://dx.doi.org/10.1091/mbc.E20-05-0291

Mouse / 1:1000

33-1500 was used in Western Blot to identify Netrin-1-Unc5B signaling as a ligand-receptor pathway that regulates BBB integrity.

Mouse / 1:500

Cells (Jan 2019; 8: )
"Preventive Effect of Spontaneous Physical Activity on the Gut-Adipose tissue in a mouse model that mimics Crohn's disease susceptibility.

Mouse / Not Cited

Cellular and molecular life sciences : CMLS (Jan 2012; 69: 115)
"HIF-1 is involved in high glucose-induced paracellular permeability of brain endothelial cells."
Author(s): Yan J, Zhang Z, Shi H
PubMed Article URL: http://dx.doi.org/10.1007/s00018-011-0731-5

Mouse / 1:1000

The Journal of biological chemistry (Dec 2016; 291: 26837)
"Salmonella enteritidis Effector AvrA Stabilizes Intestinal Tight Junctions via the JNK Pathway."
Author(s): Xia Y, Zhang YG, Xu X, Xiao J, Sun J
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M116.757393

Mouse / 1:1000

331500 was used in Western blot to examine the role of Salmonella AvrA during infection.

Mouse / Not Cited

The Journal of biomedical science (Jun 2022; 29: )
"Role of Hypoxia Inducible Factor 1 in Hyperglycemia-Exacerbated Blood-Brain Barrier Disruption in Ischemic Stroke."
Author(s): Zhang Z, Yan J, Shi H
PubMed Article URL: http://dx.doi.org/10.1016/j.nbd.2016.07.012


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33-1500 was used in Western Blot, Immunocytochemistry to indicate that highly specific aptamers can be isolated with a SELEX strategy that utilizes isogenic cell lines.

Human / Not Cited

“CRISPR-Mediated Isogenic Cell-SELEX Approach for Generating Highly Specific Aptamers Against Native Membrane Proteins.”
Author(s): Rosch JC, Neal EH, Balikov DA, Rahim M, Lippmann ES
PubMed Article URL: http://dx.doi.org/10.1007/s12195-020-00651-y

33-1500 was used in Western Blotting to demonstrate that enteropathogenic Escherichia coli displaces Crb3 and Pals1 from the apical membrane to the cytoplasm of cultured intestinal epithelial cells and colonocytes of infected mice.

Mouse / Not Cited

Cellular microbiology (Nov 2017; 19: )
“EPEC effector EspF promotes Crumbs3 endocytosis and disrupts epithelial cell polarity.”
Author(s): Tapia R, Kralicek SE, Hecht GA
PubMed Article URL: http://dx.doi.org/10.1111/cmi.12757

33-1500 was used in Western Blotting to show that cumulative effects of repeated low-level BOP may increase the vulnerability to injury of the brain by disrupting neurovascular architecture, which may lead to downstream deleterious effects on behavior and cognition.

Dog / Not Cited

The Journal of biological chemistry (May 2003; 278: 17350)
“Claudin-8 expression in Madin-Darby canine kidney cells augments the paracellular barrier to cation permeation.”
Author(s): Yu AS, Enck AH, Lencer WI, Schneeberger EE
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M213286200


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Thermo Fisher Scientific
3747 N. Meridian Road
Rockford, IL 61105 USA

thermofisher.com/contactus
33-1500 was used in Western Blotting to demonstrate that metformin maintained the barrier functions of RPE cells both in vivo and in vitro.

**Human / 1:500**

Oxidative medicine and cellular longevity (Dec 2020; 2020; )

"Metformin Protects ARPE-19 Cells from Glyoxal-Induced Oxidative Stress."


PubMed Article URL:http://dx.doi.org/10.1155/2020/1740943

33-1500 was used in Western Blot to investigate the tight junction-modulating effects of processed Aloe vera gel.

**Human / Not Cited**

International journal of molecular sciences (Jun 2021; 22; )

"The Role of Processed «b-Aloe vera» Gel in Intestinal Tight Junction: An In Vivo and In Vitro Study."

Author(s): Le Phan TH, Park SY, Jung HJ, Kim MW, Cho E, Shim KS, Shin E, Yoon JH, Maeng HJ, Kang JH, Oh SH

PubMed Article URL:http://dx.doi.org/10.3390/jim22126515

33-1500 was used in Immunocytochemistry-immunofluorescence to study the role of Occludin in macromolecule passage at single cell-cell junctions.

**Human / Not Cited**

Tissue barriers (Jul 2020; 7; )

"Occludin knockdown is not sufficient to induce transepithelial macromolecule passage."

Author(s): Richter JF, Hildner M, Schmauder R, Turner JR, Schumann M, Reiche J

PubMed Article URL:http://dx.doi.org/10.1080/21688370.2019.1608759

33-1500 was used in Western Blotting to investigate the role of rosiglitazone in smoking/e-cigarette-induced blood-brain barrier impairment.

**Mouse / Not Cited**

BMC neurosciences (Apr 2019; 20; )

"Assessing the protective effect of rosiglitazone against electronic cigarette/tobacco smoke-induced blood-brain barrier impairment."

Author(s): Sivandzade F, Cucullo L


33-1500 was used in Western Blotting to compare the effects of moderate-intensity continuous training and high-intensity interval training on the gut-adipose tissue cross-talk in obese Zucker rats.

**Rat / 1:500**

PloS one (Dec 2019; 14; )

"High intensity interval training promotes total and visceral fat mass loss in obese Zucker rats without modulating gut microbiota."


PubMed Article URL:http://dx.doi.org/10.1371/journal.pone.0214660

33-1500 was used in Western Blotting to investigate the mechanisms underlying the exacerbation of TBI injury by TS using a weight drop model.

**Mouse / 1:1000**

Journal of neuroinflammation (Apr 2020; 17; )

"The cerebrovascular and neurological impact of chronic smoking on post-traumatic brain injury outcome and recovery: an in vivo study."

Author(s): Sivandzade F, Alqahtani F, Sifat A, Cucullo L

PubMed Article URL:http://dx.doi.org/10.1186/s12974-020-01818-0

33-1500 was used in Western Blotting to study factors that regulate recovery from major depressive disorder.

**Mouse / Not Cited**

Brain, behavior, and immunity (Mar 2018; 69: 556)

"TNF disrupts blood brain barrier integrity to maintain prolonged depressive-like behavior in mice."

Author(s): Cheng Y, Desse S, Martinez A, Worthen RJ, Jope RS, Beurel E

PubMed Article URL:http://dx.doi.org/10.1016/j.bbi.2018.02.003

33-1500 was used in Western Blotting to study the role of processed Aloe vera gel.

**Mouse / Not Cited**

Journal of virology (Sep 2009; 83: 9398)

"Mouse adenovirus type 1-induced breakdown of the blood-brain barrier."

Author(s): Garlinski LE, Ashley SL, Dixon SD, Spindler KR

PubMed Article URL:http://dx.doi.org/10.1128/JVI.00954-09

33-1500 was used in Western Blotting to study factors that regulate recovery from major depressive disorder.
33-1500 was used in Western Blot to suggest that butyrate is the main component of SCFAs to alleviate barrier dysfunction and that Claudin-2 is the major target of this SCFA.

**Human / Not Cited**

**Biology** (Mar 2021; 10: )

"Butyrate Alleviates Cytokine-Induced Barrier Dysfunction by Modifying Claudin-2 Levels."

Author(s): Huang X, Oshima T, Tomita T, Fukui H, Miwa H

PubMed Article URL: http://dx.doi.org/10.3390/biology10030205

33-1500 was used in Western Blot to show that YWHAZ-mediated Rac1 nuclear translocation plays central roles in RIARE, and TNF-/p38 MAPK/Rac1 axis can be employed as a therapeutical target against RIARE for young male patients receiving hypofractionated radiotherapy.

**Mouse / Not Cited**

Theranostics (Jul 2021; 11: 5742)

"Radiation-induced abscopal reproductive effect is driven by TNF-/p38 MAPK/Rac1 axis in Sertoli cells."

Author(s): Su Z, Zhu L, Song Y, Zhao X, Chen Q, Pan Y, Zhang J, Bai Y, Zhang H, Shao C

PubMed Article URL: http://dx.doi.org/10.7150/thno.56853

33-1500 was used in Western Blot to conclude that NBP protected blood-brain barrier integrity and attenuated brain injury in the acute phase of ischemic stroke by decreasing AQP4 expression and MMP-9 enzyme activity.

**Rat / 1:1000**

Frontiers in cellular neuroscience (Jan 2021; 14: )

"DL-3n-Butylphthalide Improves Blood-Brain Barrier Integrity in Rat After Middle Cerebral Artery Occlusion."


PubMed Article URL: http://dx.doi.org/10.3389/fncel.2020.510714

33-1500 was used in Immunohistochemistry-immunofluorescence to demonstrate that gut-liver axis plays a vital part in the progression of GTW-induced hepatotoxicity.

**Mouse / Not Cited**

Frontiers in pharmacology (Dec 2022; 13: )

"Proteomics analysis reveals novel insights into the mechanism of hepatotoxicity induced by \(<i>\)Tripterygium wilfordii</i> multiglycoside in mice."*


PubMed Article URL: http://dx.doi.org/10.3389/fphar.2022.1032741

33-1500 was used in Western Blot to link CX3CL1 to the necrosome complex in pulmonary inflammation and demonstrate a pivotal role of the necrosome complex in human PMNs.

**Mouse / Not Cited**

Frontiers in medicine (Apr 2021; 8: )

"Fratcltkine Is Linked to the Necrosome Pathway in Acute Pulmonary Inflammation."

Author(s): Ngamsri KC, Gamper-Tsigaras J, Reutershan J, Konrad FM

PubMed Article URL: http://dx.doi.org/10.3389/fmed.2021.519790

33-1500 was used in Immunohistochemistry-immunofluorescence to evaluate the expression/function of the tight junction protein claudin-1 in epithelium from atopic dermatitis and nonatopic subjects.

**Human / Not Cited**

The Journal of allergy and clinical immunology (Mar 2011; 127: 773)

"Tight junction defects in patients with atopic dermatitis."*


PubMed Article URL: http://dx.doi.org/10.1016/j.jaci.2010.10.018

**Human / Not Cited**

American journal of physiology. Cell physiology (Nov 2004; 287: C1412)

"Ochratoxin A increases permeability through tight junctions by removal of specific claudin isoforms."*

Author(s): McLaughlin J, Padfield PJ, Burt JP, O’Neill CA

PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00007.2004

**Human / Not Cited**

The Journal of clinical investigation (May 2001; 107: 1319)

"Regulated expression of claudin-4 decreases paracellular conductance through a selective decrease in sodium permeability."

Author(s): Van Itallie C, Rahner C, Anderson JM

PubMed Article URL: http://dx.doi.org/10.1172/JCI12464


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33-1500 was used in western blot to investigate neoplastic transformation of telomerase in immortalized human fibroblasts.

Human / Not Cited

**International journal of oncology (Nov 2011; 39: 1199)***

"Relocalization of cell adhesion molecules during neoplastic transformation of human fibroblasts."

Author(s):Belgiovine C,Chiodi I,Mondello C

PubMed Article URL:http://dx.doi.org/10.3892/ijo.2011.1119

Not Applicable / 1:1000

33-1500 was used in western blot to test if pre-treatment with nitric oxide before ischemia and reperfusion injury affects cell junction proteins and vascular endothelial growth factor

**American journal of physiology. Lung cellular and molecular physiology (Apr 2011; 300: L569)***

"Hypoxia increases transepithelial electrical conductance and reduces occludin at the plasma membrane in alveolar epithelial cells via PKC- and PP2A pathway."

Author(s):Caraballo JC,Yshii C,Butti ML,Westphal W,Borcherdjing JA,Allamargot C,Cornellas AP

PubMed Article URL:http://dx.doi.org/10.1152/ajplung.00109.2010

Rat / Not Cited

33-1500 was used in Western Blotting to identify -catenin binding to ZO-1 as a new mechanism for coupling the assembly of the epithelial barrier to cell-to-cell adhesion.

**Journal of cell science (Sep 2013; 126: 3904)***

"ZO-1 recruitment to -catenin--a novel mechanism for coupling the assembly of tight junctions to adherens junctions."

Author(s):Maires JL,Peng X,Fanning AS,DeMali KA

PubMed Article URL:http://dx.doi.org/10.1242/jcs.126565

Dog / 1:500

33-1500 was used in western blot to measure tyrosine-phosphorylated proteins abundance in T cell, B cells, and nonlymphoid cells

**Proteomics (Jul 2009; 9: 3549)***

"Large-scale proteomic analysis of tyrosine-phosphorylation induced by T-cell receptor or B-cell receptor activation reveals new signaling pathways."

Author(s):Matsumoto M,Oyamada K,Takahashi H,Sato T,Hatakeyama S,Nakayama KI

PubMed Article URL:http://dx.doi.org/10.1002/pmic.200900011

Not Applicable / Not Cited

33-1500 was used in Western Blotting to demonstrate the ability of cortical spreading depression (CSD) events to produce transient, time-dependent changes in blood-brain barrier (BBB) permeability when alloydina is present and to mediate access of clinically relevant therapeutics (i.e., sumatriptan) to the CNS.

**The Journal of surgical research (Nov 2009; 157: 30)***

"Cell-cell junctions and vascular endothelial growth factor in rat lung as affected by ischemia/reperfusion and preconditioning with inhalated nitric oxide."

Author(s):Waldow T,Witt W,Janke A,Ulmer A,Buzin A,Matschke K

PubMed Article URL:http://dx.doi.org/10.1016/j.jss.2008.07.042

Not Applicable / 1:1000

33-1500 was used in Western Blot to show that urokinase-type plasminogen activator receptor (uPAR) expression is essential for maintaining the epithelial phenotype in Neuro2a cells and that uPAR silencing promotes epithelial-mesenchymal transition (EMT) and increased cell migration.

**Journal of cell physiology (Sep 2020; 235: 6268)***

"Downregulation of uPAR promotes urokinase translocation into the nucleus and epithelial to mesenchymal transition in neuroblastoma."

Author(s):Semina EV,Rubina KA,Shmakova AA,Rysenkova KD,Klimovich PS,Aleksanrushkina N,Sysoeva VY,Karagyaur MN,Tkachuk VA

PubMed Article URL:http://dx.doi.org/10.1002/jcp.29555

**eNeuro (Feb 2019; 5: )***

"Loss of Blood-Brain Barrier Integrity in a KCl-Induced Model of Episodic Headache Enhances CNS Drug Delivery."

Author(s):Cottier KE,Galloway EA,Calabrese EC,Tome ME,Liktor-Busa E,Kim J,Davis TP,Vanderah TW,Largent-Milnes TM

PubMed Article URL:http://dx.doi.org/10.1523/ENEURO.0116-18.2018

**Biology of reproduction (Mar 2009; 80: 590)**

"RAB13 participates in ectoplasmic specialization dynamics in the rat testis."

Author(s):Mruk DD,Lau AS

PubMed Article URL:http://dx.doi.org/10.1095/biolreprod.108.071647

**American journal of physiology. Lung cellular and molecular physiology**

"Hypoxia increases transepithelial electrical conductance and reduces occludin at the plasma membrane in alveolar epithelial cells via PKC- and PP2A pathway."

Author(s):Caraballo JC,Yshii C,Butti ML,Westphal W,Borcherdjing JA,Allamargot C,Cornellas AP

PubMed Article URL:http://dx.doi.org/10.1152/ajplung.00109.2010

**Proteomics**

"Large-scale proteomic analysis of tyrosine-phosphorylation induced by T-cell receptor or B-cell receptor activation reveals new signaling pathways."

Author(s):Matsumoto M,Oyamada K,Takahashi H,Sato T,Hatakeyama S,Nakayama KI

PubMed Article URL:http://dx.doi.org/10.1002/pmic.200900011

**Journal of cell science**

"ZO-1 recruitment to -catenin--a novel mechanism for coupling the assembly of tight junctions to adherens junctions."

Author(s):Maires JL,Peng X,Fanning AS,DeMali KA

PubMed Article URL:http://dx.doi.org/10.1242/jcs.126565

**The Journal of surgical research**

"Cell-cell junctions and vascular endothelial growth factor in rat lung as affected by ischemia/reperfusion and preconditioning with inhalated nitric oxide."

Author(s):Waldow T,Witt W,Janke A,Ulmer A,Buzin A,Matschke K

PubMed Article URL:http://dx.doi.org/10.1016/j.jss.2008.07.042

**Journal of cell physiology**

"Downregulation of uPAR promotes urokinase translocation into the nucleus and epithelial to mesenchymal transition in neuroblastoma."

Author(s):Semina EV,Rubina KA,Shmakova AA,Rysenkova KD,Klimovich PS,Aleksanrushkina N,Sysoeva VY,Karagyaur MN,Tkachuk VA

PubMed Article URL:http://dx.doi.org/10.1002/jcp.29555
Human / Not Cited

PloS one (Apr 2011; 6:)
"Differential expressions of adhesive molecules and proteases define mechanisms of ovarian tumor cell matrix penetration/invasion."
Author(s):Kwon Y,Cukierman E,Godwin AK
PubMed Article URL:http://dx.doi.org/10.1371/journal.pone.0018872

Human / Not Cited

Investigative ophthalmology & visual science (Jul 2012; 53: 5016)
"Effects of proinflammatory cytokines on the claudin-19 rich tight junctions of human retinal pigment epithelium."
Author(s):Peng S,Gan G,Rao VS,Adelman RA,Rizzolo LJ
PubMed Article URL:http://dx.doi.org/10.1167/iovs.11-8311

Pig / Not Cited

International journal of molecular sciences (Aug 2021; 22:)
"Tumor Necrosis Factor Alpha Effects on the Porcine Intestinal Epithelial Barrier Include Enhanced Expression of TNF Receptor 1."
Author(s):Droessler L,CorneUis V,Markel AG,Amasheh S
PubMed Article URL:http://dx.doi.org/10.3390/jims22168746

Mouse / Not Cited

Tissue barriers (Apr 2019; 6: 1)
"Vitamin D Receptor Deletion Leads to the Destruction of Tight and Adherens Junctions in Lungs."
Author(s):Chen H,Lu R,Zhang YG,Sun J
PubMed Article URL:http://dx.doi.org/10.1080/21688370.2018.1540904

Human / Not Cited

Fluids and barriers of the CNS (Jul 2015; 12:)
"Impact of cigarette smoke extract and hyperglycemic conditions on blood–brain barrier endothelial cells."
Author(s):Prasad S,Saja RK,Park JH,Naik P,Kaisar MA,Cucullo L
PubMed Article URL:http://dx.doi.org/10.1186/s12987-015-0014-x

Guinea pig / 1:500

International journal of molecular medicine (Apr 2014; 33: 825)
"Effect of retinoic acid on the tight junctions of the retinal pigment epithelium-choroid complex of guinea pigs with lens-induced myopia in vivo."
Author(s):Wang S,Liu S,Mao J,Wen D
PubMed Article URL:http://dx.doi.org/10.3892/ijmm.2014.1651

Rat / 1/500

Scientific reports (Jul 2018; 8: )
"Cerebrovascular Injury After Serial Exposure to Chronic Stress and Abstinence from Methamphetamine Self-Administration."
Author(s):Natarajan R,Mitchell CM,Harless N,Yamamoto BK
PubMed Article URL:http://dx.doi.org/10.1080/21688370.2018.1540904

14 Immunohistochemistry (Frozen) References

Species / Dilution
Summary

Mouse / 1:100

Aging and disease (Jun 2022; 13: 943)
"Blocking C3c/sup/>++/sup>/GFAP/sup/>++/sup>
33-1500 was used in Western Blot, Immunohistochemistry (Frozen) to show that it is also possible for viruses to break through the BTB and enter the immunoprivileged testicular microenvironment via this mechanism.

Mouse / 1:100

Frontiers in immunology (Aug 2022; 13: )

"FYN regulates cell adhesion at the blood-testis barrier and the apical ectoplasmic specialization via its effect on Arp3 in the mouse testis."

Author(s): Yang Y, Yao M, Zeng J, Zheng D, Li Q, Ni Y, Xiao X

PubMed Article URL: http://dx.doi.org/10.3389/fimmu.2022.915274

33-1500 was used in Immunofluorescence in immunohistochemistry on frozen tissues to investigate the interaction of high temperature requirement protein A with the host protein occludin, a tight junction strand component.

Human / 1:100

Gut pathogens (Oct 2020; 11: )

"Campylobacter jejuni enters gut epithelial cells and impairs intestinal barrier function through cleavage of occludin by serine protease HtrA." 

Author(s): Harrar A, Bücker R, Boehm M, Zarzecka U, Tegtmeyer N, Sticht H, Schulzke JD, Backert S

PubMed Article URL: http://dx.doi.org/10.1186/s13099-019-0283-z

33-1500 was used in Immunohistochemistry-immunofluorescence to reveal that the initial passage of T. gondii to the central nervous system occurs principally across cortical capillaries and that the integrity of the microvascular BBB restricts parasite transit, which conversely is exacerbated by the inflammatory response.

Mouse / 1:100

eLife (Dec 2021; 10: )

"Blood-brain barrier-restricted translocation of Toxoplasma gondii from cortical capillaries."

Author(s): Oliveira GC, Ross EC, Peuckert C, Barragan A

PubMed Article URL: http://dx.doi.org/10.7554/eLife.69182

33-1500 was used in immunohistochemistry - frozen section to study the role of TH9 cells in ulcerative colitis

Mouse / 1:50

Nature immunology (Jul 2014; 15: 676)

"TH9 cells that express the transcription factor PU.1 drive T cell-mediated colitis via IL-9 receptor signaling in intestinal epithelial cells."


PubMed Article URL: http://dx.doi.org/10.1038/nature13518

33-1500 was used in immunohistochemistry - frozen section to isolate and characterize a human breast epithelial cell line with stem cell properties.

Human / Not Cited

Genes & development (Mar 2002; 16: 693)

"Isolation, immortalization, and characterization of a human breast epithelial cell line with stem cell properties."

Author(s): Gudjonsson T, Villadsen R, Nielsen H, Rønnov-Jessen L, Bissell MJ, Petersen OW

PubMed Article URL: http://dx.doi.org/10.1016/S0890-9528(02)00067-2

33-1500 was used in immunohistochemistry - frozen section and western blot to examine the cellular distributions of tight junction components during early pregnancy and under various hormonal regimens

Not Applicable / 2 µg/ml

Acta histochemica (Mar 2010; 112: 42)

"Ovarian hormones control the changing expression of claudins and occludin in rat uterine epithelial cells during early pregnancy."

Author(s): Nicholson MD, Lindsay LA, Murphy CR

PubMed Article URL: http://dx.doi.org/10.1046/j.1432-0120.2000.00700.x

33-1500 was used in immunohistochemistry - frozen section to propose that IL-17-producing gammadelta T cells help to maintain and protect the intestinal mucosa.

Mouse / Not Cited

Immunity (Oct 2015; 43: 727)

"Interleukin-23-Independent IL-17 Production Regulates Intestinal Epithelial Permeability."

Author(s): Lee JS, Tato CM, Joyce-Shaikh B, Gulen MF, Gulen F, Cayatte C, Chen Y, Blumenschein WM, Judo M, Ayanoglu G, McClanahan TK, Li X, Cua DJ

PubMed Article URL: http://dx.doi.org/10.1038/immunol.2015.09.003

33-1500 was used in Immunohistochemistry - frozen section to study M cells in the epithelial barrier of the human adenoid

Mouse / Not Cited

Journal of molecular histology (Jun 2008; 39: 265)

"Expression of tight junction proteins in epithelium including Ck20-positive M-like cells of human adenoids in vivo and in vitro."


PubMed Article URL: http://dx.doi.org/10.1007/s10735-008-9162-5
33-1500 was used in immunohistochemistry - frozen section to study the role of tight junction alterations in cavernous malformations

Human / 1:250

Journal of neurosurgery (Sep 2014; 121: 613)
"Bleeding propensity of cavernous malformations: impact of tight junction alterations on the occurrence of overt hematoma."
Author(s):Jakimovski D,Schneider H,Frei K,Kennes LN,Bertalanffy H
PubMed Article URL:http://dx.doi.org/10.3171/2014.6.JNS132775

Not Applicable / 1:100

"Inflammation and dephosphorylation of the tight junction protein occludin in an experimental model of multiple sclerosis."
PubMed Article URL:http://dx.doi.org/10.1016/j.neuroscience.2007.04.051

33-1500 was used in immunohistochemistry - frozen section to examine the expression and function of tight junctions in the epithelium of human palatine tonsils from patients with tonsillar hypertrophy or recurrent tonsillitis

Not Applicable / 1:100

"Expression and function of tight junctions in the crypt epithelium of human palatine tonsils."
Author(s):Go M,Kojima T,Takanaka K,Murata M,Ichiyama S,Tsuhota H,Himi T,Sawada N
PubMed Article URL:http://dx.doi.org/10.1369/jhc.A6339.2004

33-1500 was used in immunohistochemistry - frozen section and western blot to test if di(2-ethylhexyl) phthalate alters the expression of testicular gap and tight junction proteins

Not Applicable / 1:5

"Effects of di(2-ethylhexyl) phthalate on gap and tight junction protein expression in the testis of prepubertal rats."
Author(s):Sobarzo CM,Lustig L,Ponzio R,Suescun MO,Denduchis B
PubMed Article URL:http://dx.doi.org/10.1002/jemt.20741

33-1500 was used in immunohistochemistry - frozen section to observe the barrier function of cultivated limbal and oral mucosal epithelial sheets

Not Applicable / 1:50

"Barrier function of cultivated limbal and oral mucosal epithelial cell sheets."
Author(s):Shimazaki J,Higa K,Kato N,Satake Y
PubMed Article URL:http://dx.doi.org/10.1167/iovs.09-3820

107 Immunocytochemistry References

Species / Dilution Summary

Not Applicable / 1:100

33-1500 was used in immunohistochemistry to ascertain the role of ZO-2 in epithelial cells

Experimental cell research (May 2007; 313: 1533)
"ZO-2 silencing in epithelial cells perturbs the gate and fence function of tight junctions and leads to an atypical monolayer architecture."
Author(s):Hernandez S,Chavez Munguia B,Gonzalez-Mariscal L
PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2007.01.026

33-1500 was used in Immunocytochemistry to demonstrate that Roseburia spp. improve the gut ecosystem and prevent leaky gut, leading to ameliorated ALDs.

Mouse / Not Cited

Cell host & microbe (Jan 2020; 27: 25)
"Roseburia spp. Abundance Associates with Alcohol Consumption in Humans and Its Administration Ameliorates Alcoholic Fatty Liver in Mice."
PubMed Article URL:http://dx.doi.org/10.1016/j.chom.2019.11.001

33-1500 was used in Immunocytochemistry to study the stromal cell types that contribute to aggressive tumour cell behaviour.

Human / 1:100

Oncotarget (Apr 2018; 9: 19490)
"Macrophages induce "budding" in aggressive human colon cancer subtypes by protease-mediated disruption of tight junctions."
Author(s):Trumpi K,Frenkel N,Peters T,Korthagen IHM,Kranenburg O
PubMed Article URL:http://dx.doi.org/10.18632/oncotarget.24626


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33-1500 was used in immunocytochemistry to characterize two cell lines to study the blood-brain barrier.

Journal of pharmaceutical sciences (Dec 2008; 97: 5158)
"Validation of in vitro cell culture models of the blood-brain barrier: tightness characterization of two promising cell lines."
Author(s): Neuhaus W, Plattner VE, Wirth M, Germann B, Lachmann B, Gabor F, Noe CR
PubMed Article URL: http://dx.doi.org/10.1002/jps.21371

33-1500 was used in Immunocytochemistry to investigate if tight junctions carry a mechanical load by using a tension sensor based on ZO-1.

Cell reports (Jul 2020; 32: )
"Interplay between Extracellular Matrix Stiffness and JAM-A Regulates Mechanical Load on ZO-1 and Tight Junction Assembly."
Author(s): Haas AJ, Zihni C, Ruppel A, Hartmann C, Ebnet K, Tada M, Balda MS, Matter K
PubMed Article URL: http://dx.doi.org/10.1016/j.celrep.2020.107924

33-1500 was used in Immunocytochemistry-immunofluorescence to suggest that L. casei and EGF ameliorate osmotic stress-induced disruption of apical junctional complexes and barrier dysfunction in the intestinal epithelium by distinct signaling mechanisms.

Human / Not Cited

Cells (Dec 2021; 10: )
"Lactobacillus casei and Epidermal Growth Factor Prevent Osmotic Stress-Induced Tight Junction Disruption in Caco-2 Cell Monolayers."
Author(s): Samak G, Rao R, Rao R
PubMed Article URL: http://dx.doi.org/10.3390/cells10123578

33-1500 was used in Western Blot, Immunocytochemistry to elucidate the mechanism of transport of -EV across Caco-2 cells.

Human / 1:50

Nutrients (Apr 2021; 13: )
"Transport of Dietary Anti-Inflammatory Peptide, -Glutamyl Valine (-EV), across the Intestinal Caco-2 Monolayer."
Author(s): Guha S, Alvarez S, Majumder K
PubMed Article URL: http://dx.doi.org/10.1039/n1305144

33-1500 was used in immunocytochemistry to develop a solid model of polarized epithelium for human pancreatic ducts to study ion transport.

Human / Not Cited

Pancreas (Apr 2013; 42: 452)
"Ion transport in human pancreatic duct epithelium, Capan-1 cells, is regulated by secretin, VIP, acetylcholine, and purinergic receptors."
Author(s): Wang J, Novak I
PubMed Article URL: http://dx.doi.org/10.1097/MPA.0b013e318264c302

33-1500 was used in Immunocytochemistry-immunofluorescence to create a neurovascular unit that recapitulates complex BBB functions.

Human / Not Cited

The Journal of biological chemistry (Apr 2010; 285: 10761)
"E-cadherin differentially regulates the assembly of Connexin43 and Connexin32 into gap junctions in human squamous carcinoma cells."
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M109.053348

33-1500 was used in Immunocytochemistry-immunofluorescence to develop a mesenchymal-epithelial coculture system to identify transcriptional regulators of intestinal epithelial cell differentiation.

Human / 1:100

Cell stem cell (Jun 2019; 24: 995)
"Human iPSC-Derived Blood-Brain Barrier Chips Enable Disease Modeling and Personalized Medicine Applications."
PubMed Article URL: http://dx.doi.org/10.1016/j.stem.2019.05.011

33-1500 was used in immunocytochemistry to develop and characterize a mesenchymal-epithelial coculture system to identify transcriptional regulators of intestinal epithelial cell differentiation.

American journal of physiology. Gastrointestinal and liver physiology (Feb 2008; 294: G418)
"Hepatocyte nuclear factor-4alpha promotes differentiation of intestinal epithelial cells in a coculture system."
Author(s): Lussier CR, Babau JP, Auclair BA, Perreault N, Boudreau F
PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00418.2007
Human / Not Cited

33-1500 was used in Immunocytochemistry-immunofluorescence to investigate the potential of elastin to generate elastin hybrid nano-fibres that have favourable physical and biochemical properties for regeneration of the salivary glands.

Human / Not Cited

33-1500 was used in Immunocytochemistry to investigate the localization, distribution, and impact of CLAMP knock-down in migrating SKCO-15 cells using scratch-wound assays, and in and human intestinal enteroids established from biopsies of a single donor.

Human / Not Cited

Gastroenterology (Dec 2019; 157: 1544)

"Sperm Flagellar 1 Binds Actin in Intestinal Epithelial Cells and Contributes to Formation of Filopodia and Lamellipodia."

Author(s): Tapia R,Perez-Yepez EA,Carlino MJ,Karandikar UC,Kralicek SE,Estes MK,Hecht GA
PubMed Article URL:http://dx.doi.org/10.1053/j.gastro.2019.08.031

Human / 1:100

33-1500 was used in Immunocytochemistry to describe an in vitro model of the gastric barrier using moderately differentiated adenocarcinoma stomach cells.

Human / Not Cited

33-1500 was used in Immunocytochemistry to investigate the potential of elastin to generate elastin hybrid nano-fibres that have favourable physical and biochemical properties for regeneration of the salivary glands.

Human / Not Cited

33-1500 was used in Immunocytochemistry-immunofluorescence to compare the brain-blood barrier features of NHP transciptome of isolated brain microcapillaries and in vitro-selected brain endothelial cells.

Human / Not Cited

33-1500 was used in Immunocytochemistry-immunofluorescence to investigate the distribution, localization and impact of CLAMP knock-down in migrating SKCO-15 cells using scratch-wound assays, and in and human intestinal enteroids established from biopsies of a single donor.

Human / Not Cited

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Human / Not Cited

33-1500 was used in Immunocytochemistry-immunofluorescence to investigate the potential of elastin to generate elastin hybrid nano-fibres that have favourable physical and biochemical properties for regeneration of the salivary glands.
33-1500 was used in immunocytochemistry to study the role of claudin-2 in bile canalicular formation

Histochemistry and cell biology (Mar 2009; 131: 411)
"Knockdown of tight junction protein claudin-2 prevents bile canalicular formation in WIF-B9 cells."
PubMed Article URL:http://dx.doi.org/10.1007/s00418-008-0546-0

33-1500 was used in immunocytochemistry, immunoprecipitation, and western blot to investigate the effects of estrogen on transcellular-tight-junctional resistance

The Journal of clinical endocrinology and metabolism (Oct 2004; 89: 5145)
"Estrogens abrogate transcellular tight junctional resistance by acceleration of occludin modulation."
Author(s):Zeng R,Li X,Gorodeski GI
PubMed Article URL:http://dx.doi.org/10.1210/jc.2004-0823

"Acetaldehyde disrupts tight junctions and adherens junctions in human colonic mucosa: protection by EGF and L-glutamine."
Author(s):Basuroy S,Sheth P,Mansbach CM,Rao RK
PubMed Article URL:http://dx.doi.org/10.1152/ajpgi.00464.2004

American journal of physiology. Gastrointestinal and liver physiology (Apr 2005; 288: G705)
"Cultured monolayers of the dog jejunum with the structural and functional properties resembling the normal epithelium."
Author(s):Weng XH,Beyenbach KW,Quaroni A
PubMed Article URL:http://dx.doi.org/10.1152/ajpgi.00518.2003

33-1500 was used in Immunochemistry-immunofluorescence to show Crumbs 3, an apical polarity determinant, also influences the ability of virions to bind and enter the cells.

"A CRISPR Screen Identifies the Cell Polarity Determinant Crumbs 3 as an Adeno-associated Virus Restriction Factor in Hepatocytes."
Author(s):Madigan VJ,Tyson TO,Yuziuk JA,Pillai M,Moller-Tank S,Asokan A
PubMed Article URL:http://dx.doi.org/10.1128/JVI.00943-19

Molecular endocrinology (Baltimore, Md.) (Dec 2007; 21: 2907)
"The transcription factor snail mediates epithelial to mesenchymal transitions by repression of estrogen receptor-alpha."
Author(s):Dhasarathy A,Kajita M,Wade PA
PubMed Article URL:http://dx.doi.org/10.1210/me.2007-0293

Molecular endocrinology (Baltimore, Md.) (Oct 2020; 34: 13494)
"Intestinal vitamin D receptor signaling ameliorates dextran sulfate sodium-induced colitis by suppressing necroptosis of intestinal epithelial cells."
Author(s):Shi Y,Cui X,Sun Y,Zhao Q,Liu T
PubMed Article URL:http://dx.doi.org/10.1096/fj.202000143RRR

Experimental cell research (Mar 2017; 352: 113)
"Chloride channel CIC-2 enhances intestinal epithelial tight junction barrier function via regulation of caveolin-1 and caveolar trafficking of occludin."
Author(s):Nighot PK,Leung L,Ma TY
PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2017.01.024

33-1500 was used in Immunochemistry-immunofluorescence to study the mechanism of CIC-2-mediated tight junction barrier function and intracellular trafficking of occludin.

"Intestinal vitamin D receptor signaling ameliorates dextran sulfate sodium-induced colitis by suppressing necroptosis of intestinal epithelial cells."
Author(s):Shi Y,Cui X,Sun Y,Zhao Q,Liu T
PubMed Article URL:http://dx.doi.org/10.1096/fj.202000143RRR

"Knockdown of tight junction protein claudin-2 prevents bile canalicular formation in WIF-B9 cells."
PubMed Article URL:http://dx.doi.org/10.1007/s00418-008-0546-0

33-1500 was used in immunocytochemistry to examine trafficking of cancer-targeting alkylphosphocholine analogues across the blood brain barrier

Molecular pharmaceutics (Sep 2016; 13: 3341)
"Analysis of Cancer-Targeting Alkylphosphocholine Analogue Permeability Characteristics Using a Human Induced Pluripotent Stem Cell Blood-Brain Barrier Model."
Author(s):Clark PA,Al-Ahmad AJ,Qian T,Zhang RR,Wilson HK,Weichert JP,Palecek SP,Kuo JS,Shusta EV
PubMed Article URL:http://dx.doi.org/10.1021/acs.molpharmaceut.6b00441


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Proceedings of the National Academy of Sciences of the United States of America (Feb 2010; 107: 3141) "Persistent hepatitis C virus infection in microscale primary human hepatocyte cultures."

Author(s): Ploss A, Khetani SR, Jones CT, Syder AJ, Trehan K, Gaykowskaya VA, Mu K, Ritola K, Rice CM, Bhatia SN

PubMed Article URL: http://dx.doi.org/10.1073/pnas.0915130107

33-1500 was used in immunocytochemistry and western blot to propose that claudin-4 is required for mACHR-modulated paracellular permeability of epithelial cells and investigate the mechanism.

Journal of cell science (Jun 2015; 128: 2271) "Claudin-4 is required for modulation of paracellular permeability by muscarinic acetylcholine receptor in epithelial cells."

Author(s): Cong X, Zhang Y, Li J, Mei M, Ding C, Xiang R, Zhang L, Wang Y, Wu L, Yu GY

PubMed Article URL: http://dx.doi.org/10.1242/jcs.165878

33-1500 was used in Immunocytochemistry to suggest that GKA on chip is very useful for simultaneous observation of O157 infections and Stx2 poisoning in gut and kidney cells, making it suitable for studying the effects of antibiotics on the risk of HUS.


Author(s): Lee Y, Kim MH, Alves DR, Kim S, Lee LP, Sung JH, Park S

PubMed Article URL: http://dx.doi.org/10.3390/toxins13110775

33-1500 was used in Immunocytochemistry to study the mechanisms underlying the expression of Cldn-2.


Author(s): Amoozadeh Y, Anwer S, Dan Q, Venugopalan S, Shi Y, Branchard E, Liedtke E, Allenberg M, Rotstein OD, Kapus A, Szászi K

PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00234.2017

33-1500 was used in Immunocytochemistry to study the use of microfluidics in temporal monitoring of differentiated human airway epithelial cells.

Plos one (Jun 2016; 10: ) "Temporal Monitoring of Differentiated Human Airway Epithelial Cells Using Microfluidics."


PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0139872

33-1500 was used in Immunocytochemistry to demonstrate measurable changes in barrier integrity in cells grown under conditions known to perturb epithelial cell function.


Author(s): Pell TJ, Gray MB, Hopkins SJ, Kasprowicz R, Porter JD, Reeves T, Rowan WC, Singh K, Tvermosegaard KB, Yaqub N, Wayne GJ

PubMed Article URL: http://dx.doi.org/10.1177/24725552211013077

33-1500 was used in Immunocytochemistry-immunofluorescence to find that treatment of K38 3D culture with HX531 improves cellular morphology by reducing intercellular spaces, increasing desmosomal and tight junction proteins as well as transepithelial electrical resistance.

Microscopy (Oxford, England) (Jun 2022; 71: 152) "Inhibition of retinoid X receptor improved the morphology, localization of desmosomal proteins and paracellular permeability in three-dimensional cultures of mouse keratinocytes."

Author(s): Ishikawa S, Naka M, Otani T, Ogata K, Iida H, Inai Y, Tamaoki S, Inai T

PubMed Article URL: http://dx.doi.org/10.1093/jmicro/dfac007

33-1500 was used in Immunocytochemistry to study the use of microfluidics in temporal monitoring of differentiated human airway epithelial cells.

American journal of physiology. Gastrointestinal and liver physiology (Feb 2005; 288: G327) "Role of microtubules in estradiol-17beta-D-glucuronide-induced alteration of canalicular Mrp2 localization and activity."

Author(s): Mottino AD, Crocenzi FA, Pozzi EJ, Veggi LM, Roma MG, Vore M

PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00227.2004
33-1500 was used in Immunofluorescence to show that expression of extracellular matrix-related genes changes dramatically over outer blood-retina barrier establishment.

Human / 1:100

Nature communications (May 2017; 8:)

"Concerted regulation of retinal pigment epithelium basement membrane and barrier function by angiocrine factors."
PubMed Article URL: http://dx.doi.org/10.1038/ncomms15374

33-1500 was used in Immunocytochemistry-immunofluorescence to investigate the effects of miRNA-9-5p on brain function in traumatic brain injury using rat models.

Rat / 1:500

Journal of neurochemistry (Jun 2020; 153: 710)

"microRNA-9-5p alleviates blood-brain barrier damage and neuroInflammation after traumatic brain injury."
PubMed Article URL: http://dx.doi.org/10.1111/jnc.14963

33-1500 was used in Immunocytochemistry to uncover important differences in retinal pigment epithelium homeostasis associated with geographic atrophy.

Human / Not Cited

Nature communications (Jul 2022; 13:)

"Transcriptional and proteomic retinal pigment epithelium signatures of age-related macular degeneration."
PubMed Article URL: http://dx.doi.org/10.1038/s41467-022-31707-4

33-1500 was used in Immunocytochemistry-immunofluorescence to determine the role of the toll-like receptor 4 (TLR4) / protein kinase C (PKC)/occludin signaling pathway in blood-brain barrier dysfunction.

Rat / Not Cited

Molecular medicine reports (Jul 2018; 18: 1051)

"TLR4/PKC/occludin signaling pathway may be related to bloodbrain barrier damage."
PubMed Article URL: http://dx.doi.org/10.3892/mmr.2018.9025

33-1500 was used in Immunocytochemistry to elucidate the localization of CEACAM1 isoforms.

Not Applicable / Not Cited

Journal of cell science (Mar 2004; 117: 1091)

"The cytoplasmic domain of CEACAM1-L controls its lateral localization and the organization of desmosomes in polarized epithelial cells."
Author(s): Sundberg U, Beauchemin N, Obrink B
PubMed Article URL: http://dx.doi.org/10.1242/jcs.00944

33-1500 was used in Immunocytochemistry to study regulatory mechanisms that modulate Snail and claudin-1 via a PKCalpha during the epithelial-mesenchymal transition of pancreatic cancer cells.

Human / Not Cited

Carcinogenesis (Jun 2013; 34: 1232)

"Protein kinase C inhibitor protects against downregulation of claudin-1 during epithelial-mesenchymal transition of pancreatic cancer."
PubMed Article URL: http://dx.doi.org/10.1093/carcin/bgt057

33-1500 was used in Immunocytochemistry to conclude that bidirectional communication between T cells and epithelium mediates a biphasic response in barrier integrity that is facilitated by the balance between structural proteins partitioning in the mobile lateral phase vs the tight junction complex and cell morphology.

Human / Not Cited

CELLular and molecular gastroenterology and hepatology (Dec 2021; 11: 55)

"Regulation of Intestinal Epithelial Barrier and Immune Function by Activated T Cells."
Author(s): Le N, Mazahery C, Nguyen K, Levine AD
PubMed Article URL: http://dx.doi.org/10.1016/j.jcmgh.2020.07.004

33-1500 was used in Immunocytochemistry to study regulatory mechanisms that modulate Snail and claudin-1 via a PKCalpha during the epithelial-mesenchymal transition of pancreatic cancer cells.

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Human / Not Cited

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PubMed Article URL: http://dx.doi.org/10.3892/mmr.2018.9025

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Human / Not Cited

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PubMed Article URL: http://dx.doi.org/10.1016/j.jcmgh.2020.07.004

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Human / Not Cited

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PubMed Article URL: http://dx.doi.org/10.3892/mmr.2018.9025

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Human / Not Cited

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PubMed Article URL: http://dx.doi.org/10.1093/carcin/bgt057

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33-1500 was used in immunocytochemistry to characterize a permanent porcine intestinal epithelial cell line to use as an in vitro infection model

Not Applicable / 1:100

Histocompatibility and cell biology (Mar 2006; 125: 293)
"Characterization of a porcine intestinal epithelial cell line for in vitro studies of microbial pathogenesis in swine."
PubMed Article URL: http://dx.doi.org/10.1074/s0041-005-0067-z

33-1500 was used in immunocytochemistry to demonstrate a novel mechanism by which HIV-1 invades ocular tissues and promotes translocation or invasion by additional pathogens

Human / 2.5 µg/ml

The Journal of biological chemistry (Oct 2016; 291: 22977)
"HIV-1 gp120 Glycoprotein Interacting with Dendritic Cell-specific Intercellular Adhesion Molecule 3-grabbing Non-integrin (DC-SIGN) Down-Regulates Tight Junction Proteins to Disrupt the Blood Retinal Barrier and Increase Its Permeability."
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M116.744615

33-1500 was used in immunocytochemistry to review applications of epithelial cell culture in studies of drug transport

Not Applicable / Not Cited

Methods in molecular biology (Clifton, N.J.) (Nov 2002; 188: 233)
"Applications of epithelial cell culture in studies of drug transport."
Author(s): Tavelin S, Gräsön J, Taipalensuu J, Ockling G, Artursson P
PubMed Article URL: http://dx.doi.org/10.1385/1-59259-185-X:233

33-1500 was used in immunocytochemistry to characterize cell junction assembly in early porcine embryo development by ADAM10

Not Applicable / 1:100

PloS one (Aug 2016; 11: )
"ADAM10 Is Involved in Cell Junction Assembly in Early Porcine Embryo Development."
Author(s): Kwon J, Jeong SM, Choi I, Kim NH
PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0152921

33-1500 was used in immunocytochemistry to show that adenosine receptor signaling modulates blood brain barrier permeability in vivo.

Mouse / Not Cited

The Journal of neuroscience : the official journal of the Society for Neuroscience (Sep 2011; 31: 13272)
"Adenosine receptor signaling modulates permeability of the blood-brain barrier."
Author(s): Carman AJ, Mills JH, Krenz A, Kim DG, Bynoe MS
PubMed Article URL: http://dx.doi.org/10.1523/JNEUROSCI.00165-11.2011

33-1500 was used in immunocytochemistry, immunohistochemistry - frozen section, and western blot to determine the fate of tight junction proteins in the skin during bacterial colonization and infection

Human / Not Cited

The Journal of investigative dermatology (Apr 2008; 128: 906)
"Regulation of epidermal tight-junctions (TJ) during infection with exfoliative toxin-negative Staphylococcus strains."
PubMed Article URL: http://dx.doi.org/10.1038/sj.jid.5701070

Dog / Not Cited

Journal of cell science (Dec 2002; 115: 4969)
"Claudin-2 expression induces cation-selective channels in tight junctions of epithelial cells."
Author(s): Amasheh S, Meini N, Gitter AH, Schönberger T, Mankertz J, Schulzke JD, Fromm M
PubMed Article URL: http://dx.doi.org/10.1242/jcs.00165

"Deletion of claudin-10 (Cldn10) in the thick ascending limb impairs paracellular sodium permeability and leads to hypermagnesemia and nephrocalcinosis."
Author(s): Breiderhoff T, Himmerkus N, Stüver M, Mutig K, Will C, Meij IC, Bachmann S, Bleich M, Willnow TE, Mühle D
PubMed Article URL: http://dx.doi.org/10.1073/pnas.1203834109

Mouse / Not Cited

33-1500 was used in immunocytochemistry, immunohistochemistry - frozen section, and western blot to determine the fate of tight junction proteins in the skin during bacterial colonization and infection

ADAM10

33-1500 was used in immunocytochemistry to demonstrate a novel mechanism by which HIV-1 invades ocular tissues and promotes translocation or invasion by additional pathogens

Human / Not Cited

Cancer research (Sep 2005; 65: 7691)
"Membrane-type 1 matrix metalloproteinase expression is regulated by zona occludens-1 in human breast cancer cells."
Author(s): Polette M, Gilles C, Nawrocki-Raby B, Lohi J, Hunziker W, Foidart JM, Birembaut P
PubMed Article URL: http://dx.doi.org/10.1158/0008-5472.CAN-04-4230


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Molecular biology of the cell (Sep 2020; 31: 2249) "The HIF target ATG9A is essential for epithelial barrier function and tight junction biogenesis."
Author(s): Dowdell AS, Cartwright IM, Goldberg MS, Kostelevsky R, Ross T, Welch N, Glover LE, Colgan SP
PubMed Article URL:http://dx.doi.org/10.1091/mbc.E20-05-0291

Toxins (Nov 2019; 11: ) "Citrus Fusarium Mycotoxins Disrupt the Barrier and Induce IL-6 Release in a Human Placental Epithelial Cell Line."
PubMed Article URL:http://dx.doi.org/10.3390/toxins1110665

Author(s): Moonwiriyakit A, Koval M, Muanprasat C
PubMed Article URL:http://dx.doi.org/10.1016/j.intimp.2019.05.026

Nature communications (Aug 2022; 13: ) "Nanoscale segregation of channel and barrier claudins enables paracellular ion flux."
PubMed Article URL:http://dx.doi.org/10.1038/s41467-022-32533-4

Biophysical journal (Oct 2012; 103: 1594) "3D single molecule tracking with multifocal plane microscopy reveals rapid intercellular transferrin transport at epithelial cell barriers."
Author(s): Ram S, Kim D, Ober RJ, Ward ES
PubMed Article URL:http://dx.doi.org/10.1016/j.bpj.2012.08.054

PLoS pathogens (Jul 2018; 14: ) "Hepatitis C virus enters liver cells using the CD81 receptor complex proteins calpain-5 and CBLB."
Author(s): Bruening J, Lasswitz L, Banse P, Kahle S, Marinach C, Vondran FW, Kaderali L, Silvie O, Pietschmann T, Meissner F, Gerald G
PubMed Article URL:http://dx.doi.org/10.1371/journal.ppat.1007111

Biomaterials (Jun 2015; 54: 9) "Mode of action of claudin peptidomimetics in the transient opening of cellular tight junction barriers."
PubMed Article URL:http://dx.doi.org/10.1016/j.biomaterials.2015.03.007
33-1500 was used in Immunocytochemistry to demonstrate that shedding of the alveolar epithelial glycocalyx aggravates the epithelial barrier and damages epithelial TJ proteins in ARDS, with the underlying mechanism involving the effect of HPA on ZO-1.

**Mouse / 1:200**

**Biomedicine & pharmacotherapy = Biomedecine & pharmacotherapie (Jan 2021; 133: )**

"Alveolar epithelial glycocalyx shedding aggravates the epithelial barrier and disrupts epithelial tight junctions in acute respiratory distress syndrome."

Author(s): Li, J; Qi, Z; Li, D; Huang, X; Qi, B; Feng, J; Qu, J; Wang X

PubMed Article URL: http://dx.doi.org/10.1016/j.biopharma.2020.111026

**Human / Not Cited**

33-1500 was used in Western Blot, Immunocytochemistry to indicate that highly specific aptamers can be isolated with a SELEX strategy that utilizes isogenic cell lines.

**Cellular and molecular bioengineering (Oct 2020; 13: 559)**

"CRISPR-Mediated Isogenic Cell-SELEX Approach for Generating Highly Specific Apatmers Against Native Membrane Proteins."

Author(s): Rosch JC, Neal EH, Ballikov DA, Rahim M, Lippmann ES

PubMed Article URL: http://dx.doi.org/10.1077/s12195-020-00651-y

331500 was used in immunocytochemistry and western blot to investigate how serine proteases increase transepithelial electrical resistance

**American journal of physiology. Gastrointestinal and liver physiology (Sep 2016; 311: G466)**

"The serine protease-mediated increase in intestinal epithelial barrier function is dependent on occludin and requires an intact tight junction."

Author(s): Ronaghan NJ, Shang J, Jablakov V, Zaheer R, Colaruso P, Dion S, Desilets A, Leduc R, Turner JR, MacNaughton WK

PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00441.2015

33-1500 was used in Immunocytochemistry-immunoflorescence to examine the contribution of junctional adhesion molecule-A to the regulation of planar spindle orientation during mitosis.


"JAM-A regulates cortical dynein localization through Cdc42 to control planar spindle orientation during mitosis."

Author(s): Tuncay H, Brinkmann BF, Steinbacher T, Schürmann A, Gerke V, Iden S, Ebenet K

PubMed Article URL: http://dx.doi.org/10.1038/ncomms9128

33-1500 was used in Immunocytochemistry-immunoflorescence to suggest that the accumulation of defects in brain microvascular endothelial cells may ultimately lead to impairment of the BBB and that accumulated defects that result in positive feedback may lead to unrelated central nervous system diseases.

**Fluids and barriers of the CNS (Jul 2019; 16: )**

"The role of mutations associated with familial neurodegenerative disorders on blood-brain barrier function in an iPSC model."

Author(s): Katt ME, Mayo LN, Ellis SE, Mahairaki V, Rothstein JD, Cheng L, Searson PC

PubMed Article URL: http://dx.doi.org/10.1152/ajpgi.00441.2015

33-1500 was used in Immunocytochemistry to demonstrate a method for differentiating human pluripotent stem cells into brain microvascular endothelial cell-like cells.

**STAR protocols (Jun 2021; 2: )**

"Differentiation of human pluripotent stem cells to brain microvascular endothelial cell-like cells suitable to study immune cell interactions."

Author(s): Nishihara H, Gastfriend BD, Kasap P, Palecek SP, Shusta EV, Engelhardt B

PubMed Article URL: http://dx.doi.org/10.1038/s12987-019-0139-4

33-1500 was used in Immunocytochemistry to investigate the mechanisms behind the efficacy of bariatric surgery (BS) in treating obesity and type 2 diabetes, particularly with respect to the influence of the small bowel.

**Molecular metabolism (Feb 2021; 44: )**

"Intestinal stem cell-derived enteroids from morbidly obese patients preserve obesity-related phenotypes: Elevated glucose absorption and gluconeogenesis."

Author(s): Hasan NM, Johnson KF, Yin J, Baetz NW, Fayad L, Sherman V, Blutt SE, Estes MK, Kumbhari V, Zachos NC, Kovbasnjuk O

PubMed Article URL: http://dx.doi.org/10.1016/j.molmet.2020.101129
Human / 1:100

Gut microbes (Nov 2020; 12: 1) "Quantitative analysis and virulence phenotypes of atypical enteropathogenic <i>Escherichia coli</i> (EPEC) acquired from diarrheal stool samples from a Midwest US hospital."
Author(s):Carlino MJ,Kralicek SE,Santiago SA,Sitaraman LM,Harrington AT,Hecht GA
PubMed Article URL:http://dx.doi.org/10.1080/19490976.2020.1824562

33-1500 was used in Immunocytochemistry to isolate and characterize EPEC from diarrhea samples identified as EPEC positive by BioFire Gastrointestinal Panel (GIP).

Rat / 1:100

PubMed Article URL:http://dx.doi.org/10.1002/jat.3360

33-1500 was used in immunocytochemistry to propose using an integrated insert in a dynamic microfluidic platform for toxicological testing

Not Applicable / 1:25

Oncogene (Feb 2010; 29: 1203) "Fhit regulates invasion of lung tumor cells."
Author(s):Joannes A,Bonnomet A,Bindels S,Polette M,Gilles C,Burlet H,Cutrona J,Zahm JM,Birembaut P,Nawrocki-Raby B
PubMed Article URL:http://dx.doi.org/10.1038/onc.2009.418

33-1500 was used in immunocytochemistry and western blot to examine the role of Fhit during tumor cell invasion

Human / Not Cited

Cellular microbiology (Jun 2015; 17: 876) "Host endoplasmic reticulum COPII proteins control cell-to-cell spread of the bacterial pathogen Listeria monocytogenes."
Author(s):Gianfelice A,Le PH,Rigano LA,Salis A,Dowd GC,McDivitt T,Bhattacharya N,Hong W,Stagg SM,Iron K
PubMed Article URL:http://dx.doi.org/10.1111/cmi.12409

33-1500 was used in immunocytochemistry to identify a cell line that supports the entire life cycle of hepatitis B and hepatitis C viruses

Human / Not Cited

Proceedings of the National Academy of Sciences of the United States of America (Apr 2014; 111: E1264) "Complete replication of hepatitis B virus and hepatitis C virus in a newly developed hepatoma cell line."
PubMed Article URL:http://dx.doi.org/10.1073/pnas.1320071111

33-1500 was used in immunocytochemistry to study how DLC2 regulates cell junction maintenance and planar spindle positioning.

Human / Not Cited

The Journal of biological chemistry (May 2003; 278: 17350) "Claudin-8 expression in Madin-Darby canine kidney cells augments the paracellular barrier to cation permeation."
Author(s):Yu AS,Enck AH,Lencer WI,Schneeberger EE
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M213286200

33-1500 was used in immunocytochemistry to identify a cell line that supports the entire life cycle of hepatitis B and hepatitis C viruses

Human / 1:1,000

Nature communications (Dec 2014; 5: ) "The tumour suppressor DLC2 ensures mitotic fidelity by coordinating spindle positioning and cell-cell adhesion."
Author(s):Vitiello E,Ferreira JG,Maiato H,Balda MS,Matter K
PubMed Article URL:http://dx.doi.org/10.1038/ncomms6826

33-1500 was used in Immunocytochemistry-immunofluorescence to study the role of Occludin in macromolecule passage at single cell-cell junctions.

Human / Not Cited

Tissue barriers (Jul 2020; 7: ) "Occludin knockdown is not sufficient to induce transepithelial macromolecule passage."
Author(s):Richter JF,Hildner M,Schmauder R,Turner JR,Schumann M,Reiche J
PubMed Article URL:http://dx.doi.org/10.1080/19490976.2019.1608759

33-1500 was used in Immunocytochemistry to identify a cell line that supports the entire life cycle of hepatitis B and hepatitis C viruses

Human / Not Cited

Author(s):Gianfelice A,Le PH,Rigano LA,Salis A,Dowd GC,McDivitt T,Bhattacharya N,Hong W,Stagg SM,Iron K
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Human / Not Cited

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Author(s):Richter JF,Hildner M,Schmauder R,Turner JR,Schumann M,Reiche J
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Author(s):Gianfelice A,Le PH,Rigano LA,Salis A,Dowd GC,McDivitt T,Bhattacharya N,Hong W,Stagg SM,Iron K
PubMed Article URL:http://dx.doi.org/10.1111/cmi.12409

33-1500 was used in immunocytochemistry to study how DLC2 regulates cell junction maintenance and planar spindle positioning.

Human / Not Cited

The Journal of biological chemistry (May 2003; 278: 17350) "Claudin-8 expression in Madin-Darby canine kidney cells augments the paracellular barrier to cation permeation."
Author(s):Yu AS,Enck AH,Lencer WI,Schneeberger EE
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M213286200

33-1500 was used in Immunocytochemistry-immunofluorescence to study the role of Occludin in macromolecule passage at single cell-cell junctions.

Human / Not Cited

Tissue barriers (Jul 2020; 7: ) "Occludin knockdown is not sufficient to induce transepithelial macromolecule passage."
Author(s):Richter JF,Hildner M,Schmauder R,Turner JR,Schumann M,Reiche J
PubMed Article URL:http://dx.doi.org/10.1080/19490976.2019.1608759

33-1500 was used in Immunocytochemistry to identify a cell line that supports the entire life cycle of hepatitis B and hepatitis C viruses
33-1500 was used in immunocytochemistry to establish and characterize a primary canine duodenal epithelial cell culture.
33-1500 was used in Immunocytochemistry-immunofluorescence to show that hNatB subunits are upregulated in hepatocellular carcinoma tumours compared to non-tumour tissue and that this upregulation is associated with microscopic vascular invasion.

Human / Not Cited

OncoTarget (Jun 2017; 8: 40967)

"NatB-mediated protein N-terminal acetylation is a potential therapeutic target in hepatocellular carcinoma."


PubMed Article URL: http://dx.doi.org/10.18632/oncotarget.17332

33-1500 was used in Immunocytochemistry to quantify junctional adhesion molecule-A expression in human corneal endothelium and retinal pigment epithelium and examine the impact of a junctional adhesion molecule-A function-blocking antibody on the permeability.

Human / Not Cited

Investigative ophthalmology & visual science (Sep 2007; 48: 3928)

"Expression of JAM-A in the human corneal endothelium and retinal pigment epithelium: localization and evidence for role in barrier function."

Author(s): Mandell K J, Berglin L, Severson EA, Edelhauser HF, Parkos CA

PubMed Article URL: http://dx.doi.org/10.1167/iovs.06-1536

33-1500 was used in Immunocytochemistry to characterize distinct, flat and island-forming Caco-2 cells.

Human / Not Cited

Journal of pharmaceutical sciences (Sep 2011; 100: 3751)

"GM1 expression in caco-2 cells: characterisation of a fundamental passage-dependent transformation of a cell line."

Author(s): Jahn KA, Blazik JM, Braet F

PubMed Article URL: http://dx.doi.org/10.1002/jps.22418

33-1500 was used in Immunocytochemistry to examine the expression of tight junction proteins in normal human pancreatic duct epithelial cells.

Human / 1:100

The American journal of pathology (Aug 2010; 177: 698)

"Transcriptional control of tight junction proteins via a protein kinase C signal pathway in human telomerase reverse transcriptase-transfected human pancreatic duct epithelial cells."


PubMed Article URL: http://dx.doi.org/10.2353/ajpath.2010.091226

33-1500 was used in Immunocytochemistry-immunofluorescence to identify MLKL trafficking and plasma membrane accumulation as crucial necroptosis checkpoints.

Human / 1:200

Nature communications (Jun 2020; 11: )

"MLKL trafficking and accumulation at the plasma membrane control the kinetics and threshold for necroptosis."


PubMed Article URL: http://dx.doi.org/10.1038/s41467-020-16887-1

33-1500 was used in Immunocytochemistry-immunofluorescence to show that egulating the SFO vessel barrier may influence neuronal function in the context of water homeostasis.

Human / Not Cited

eLife (Apr 2019; B: )

"Low wnt/-catenin signaling determines leaky vessels in the subforminal organ and affects water homeostasis in mice."


PubMed Article URL: http://dx.doi.org/10.7554/eLife.43818

33-1500 was used in Immunocytochemistry-immunofluorescence to quantify the effect of diesel exhaust exposure on airway epithelial barrier function and composition using in vitro and in vivo model systems.

Mouse / 1:100

Particle and fibre toxicology (Oct 2020; 17: )

"Diesel exhaust particle exposure reduces expression of the epithelial tight junction protein Tricellulin."

Author(s): Smyth T, Veazey J, Eliseeva S, Chalupa D, Elder A, Georas SN

PubMed Article URL: http://dx.doi.org/10.1186/s12989-020-00383-x


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33-1500 was used in immunocytochemistry and western blot to test if HDAC inhibitors affect the expression of tight junction proteins

Molecular cancer research : MCR (Dec 2004; 2: 692)
"Histone deacetylase inhibitors up-regulate the expression of tight junction proteins."
Author(s):Bordin M,D’Atri F,Guilemotel L,Citi S

Human / Not Cited
Investigative ophthalmology & visual science (Jul 2012; 53: 5016)
"Effects of proinflammatory cytokines on the claudin-19 rich tight junctions of human retinal pigment epithelia."
Author(s):Peng S,Gan G,Rao VS,Adelman RA,Rizzolo LJ
PubMed Article URL:http://dx.doi.org/10.1167/iovs.11-8311

33-1500 was used in Immunocytochemistry-immunofluorescence to conclude that doxorubicin increases paracellular transit of macromolecules through intestinal epithelium.

1 in situ PLA References

Species / Dilution Summary
33-1500 was used in Proximity Ligation Assay to demonstrate if dual-specificity phosphatase 6 (Dusp6) knockout enhances baseline colon barrier integrity and ameliorates dextran sulfate sodium (DSS)-induced colonic injury.

Human / Not Cited
Scientific reports (Dec 2020; 10: )
"Doxorubicin increases permeability of murine small intestinal epithelium and cultured T84 monolayers."
Author(s):Cray P,Sheahan BJ,Cortes JE,Dekeyn CM
PubMed Article URL:http://dx.doi.org/10.1038/s41598-020-78473-1

33-1500 was used in immunocytochemistry to determine whether transforming growth factor-beta down-regulates claudin-1 expression to induce epithelial to mesenchymal transition.

Not Applicable / 1:100
Liver international : official journal of the International Association for the Study of the Liver (Apr 2008; 28: 534)
"Transforming growth factor-beta induces epithelial to mesenchymal transition by down-regulation of claudin-1 expression and the fence function in adult rat hepatocytes."
Author(s):Kojima T,Takano K,Yamamoto T,Murata M,Sonis S,Imamura M,Yamaguchi H,Osanai M,Chiba H,Himi T,Sawada N
PubMed Article URL:http://dx.doi.org/10.1111/j.1478-3231.2007.01631.x

9 Immunohistochemistry (Paraffin) References

Species / Dilution Summary
33-1500 was used in immunohistochemistry - paraffin section to study translocation of HIV across the vaginal pluristratified epithelium.

Human / Not Cited
"Early events in HIV transmission through a human reconstructed vaginal mucosa."
Author(s):Bouschbacher M,Bomsel M,Verronèse E,Gofflo S,Ganor Y,Dezutter-Dambuyant C,Valladeau J
PubMed Article URL:http://dx.doi.org/10.1097/QAD.0b013e3282f736f4

33-1500 was used in Immunohistochemistry (Paraffin) to investigate the effects of diammonium glycyrrhizinate lipid ligand (DGLL) treatment on acute lung injury (ALI) and pulmonary edema induced by lipopolysaccharide (LPS) in Sprague-Dawley rats.

Rat / 1:50
Experimental and therapeutic medicine (Apr 2021; 21: )
"Diammonium glycyrrhizinate lipid ligand ameliorates lipopolysaccharide-induced acute lung injury by modulating vascular endothelial barrier function."
Author(s):Liu MM,Zhou J,Ji D,Yang J,Huang YP,Wang Q
PubMed Article URL:http://dx.doi.org/10.1038/s41598-020-78473-1

33-1500 was used in immunohistochemistry - paraffin section to assess the effects of opioids on tight junction proteins

Anesthesiology (Jun 2012; 116: 1323)
"Modulation of tight junction proteins in the perineurium to facilitate peripheral opioid analgesia."
Author(s):Rittner HL,Amasheh S,Moshourab R,Hackel D,Yamdeu RS,Mousa SA,Fromm M,Stein C,Brack A
PubMed Article URL:http://dx.doi.org/10.1097/ALN.0b013e318256eeeb


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"Can Monitoring Fetal Intestinal Inflammation Using Heart Rate Variability Analysis Signal Incipient Necrotizing Enterocolitis of the Neonate?"


PubMed Article URL:http://dx.doi.org/10.1097/PCC.0000000000000643

33-1500 was used in immunohistochemistry - paraffin section to determine if monitoring of fetal intestinal inflammation by heart rate variability analysis can signal incipient necrotizing enterocolitis of the neonate
33-1500 was used in ELISA, immunocytochemistry, and western blot to analyze control of HIV transcription in brain pericytes by occludin via regulation of SIRT-1 activation

Not Applicable / 1:50

FASEB journal : official publication of the Federation of American Societies for Experimental Biology (Mar 2016; 30: 1234)
“Occludin controls HIV transcription in brain pericytes via regulation of SIRT-1 activation.”
PubMed Article URL: http://dx.doi.org/10.1002/je.23628

41 Miscellaneous PubMed References

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**Human / Not Cited**  
33-1500 was used in immunocytochemistry to investigate the regulatory mechanisms of the PAR complex

*Current biology : CB (Aug 2010; 20: 1408)*  
"ASPP2 regulates epithelial cell polarity through the PAR complex."

Author(s):Cong W,Hirose T,Harita Y,Yamashita A,Mizuno K,Hirano H,Ohno S  
PubMed Article URL:http://dx.doi.org/10.1016/j.cub.2010.06.024

**Human / 1:100**  
33-1500 was used in immunocytochemistry and immunohistochemistry to report that tight junctions are physiological regulated by sex hormones during the menstrual cycle.

*Cell and tissue research (Nov 2013; 354: 481)*  
"Regulation of tight junctions by sex hormones in normal human endometrial epithelial cells and uterus cancer cell line Sawano."

Author(s):Someya M,Kojima T,Ogawa M,Ninomiya T,Nomura K,Takasawa A,Murata M,Tanaka S,Saito T,Sawada N  

**Human / 1:100**  
33-1500 was used in immunocytochemistry and western blot to elucidate the role and regulation of marvelD3 in normal epithelial cells and cancer cells.

*Experimental cell research (Oct 2011; 317: 2288)*  
"Downregulation of tight junction-associated MARVEL protein marvelD3 during epithelial-mesenchymal transition in human pancreatic cancer cells."

PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2011.06.020

**Human / Not Cited**  
33-1500 was used in western blot to study the roles of MAPK-related kinase and MKNK1 in HCV replication and cellular entry.

*Journal of virology (Apr 2013; 87: 4214)*  
"Contrasting roles of mitogen-activated protein kinases in cellular entry and replication of hepatitis C virus: MKNK1 facilitates cell entry."

Author(s):Kim S,Ishida H,Yamanote D,YI M,Swinnen DC,FOung S,Lemon SM  
PubMed Article URL:http://dx.doi.org/10.1128/JVI.00954-12

**Human / Not Cited**  
33-1500 was used in immunohistochemistry - paraffin section and western blot to test if tight junction antigens are present in adult and developing human epidermis.

*The Journal of investigative dermatology (Nov 2001; 117: 1050)*  
"Epidermal tight junctions: ZO-1 and occludin are expressed in mature, developing, and affected skin and in vitro differentiating keratinocytes."

Author(s):Pummi K,Malminen M,Aho H,Karvonen SL,Peltonen J,Peltonen S  
PubMed Article URL:http://dx.doi.org/10.1046/j.0222-202x.2001.01493.x

**Human / 1:100**  
33-1500 was used in immunocytochemistry and western blot to test if the c-Jun N-terminal kinase pathway regulates tricellulin

*Journal of cellular physiology (Nov 2010; 225: 720)*  
"c-Jun N-terminal kinase is largely involved in the regulation of tricellular tight junctions via tricellulin in human pancreatic duct epithelial cells."

Author(s):Kojima T,Fuchimoto J,Yamaguchi H,Ito T,Takasawa A,Ninomiya T,Kikuchi S,Ogasawara N,Ohkuni T,Masaki T,Hirata K,Himi T,Tawada N  
PubMed Article URL:http://dx.doi.org/10.1002/jcp.22273

**Human / Not Cited**  
33-1500 was used in immunohistochemistry (frozen) to test if foreskin tissue samples from asymptomatic HSV-2 seropositive men had signs of inflammation at the molecular level.

*BMJ open (Feb 2015; 5: )*  
"Comparable mRNA expression of inflammatory markers but lower claudin-1 mRNA levels in foreskin tissue of HSV-2 seropositive versus seronegative asymptomatic Kenyan young men."

Author(s):Röhl M,Tjernlund A,Mehta SD,Pettersson P,Bailey RC,Broliden K  
PubMed Article URL:http://dx.doi.org/10.1136/bmjopen-2014-006627

**Human / Not Cited**  
33-1500 was used in western blot to elucidate the anti-viral effect of amiodarone on HCV life cycle.

"Amiodarone inhibits the entry and assembly steps of hepatitis C virus life cycle."

Author(s):Cheng YL,Lan KH,Lee WP,Tseng SH,Hung LR,Lin HC,Lee FY,Le SD,Lan KH  
PubMed Article URL:http://dx.doi.org/10.1042/CS20120594

---

33-1500 was used in immunohistochemistry to elucidate role of bile acids in fat-induced barrier dysfunction.


Rhesus monkey / 1:500
33-1500 was used in western blot to identify cellular determinants of interspecies hepatitis C virus transmission and establish an immunocompetent model system


Human / Not Cited
33-1500 was used in immunohistochemistry to discuss methods to study tight junctions.


Human / 1:100
33-1500 was used in immunohistochemistry to study CEACAM1 in prostate cancer samples.


Human / Not Cited
33-1500 was used in western blot to test if cells originating from the brain or central nervous system are permissive for HCV cell entry, RNA replication, and virus assembly.


Human / 1:100
33-1500 was used in immunohistochemistry (frozen) to examine innate responses to Entamoeba histolytica in wild-type and MUC-2-deficient mice.


Mouse / Not Cited
33-1500 was used in immunohistochemistry to examine the expression of tricellulin in normal human pancreas, and in primary exocrine and endocrine pancreatic tumors.


Human / 1:100
33-1500 was used in immunocytochemistry to describe methods to differentiate and characterize hPSC-derived brain microvascular endothelial cells

Methods (San Diego, Calif.) (May 2016; 101: 93) "Differentiation and characterization of human pluripotent stem cell-derived brain microvascular endothelial cells." Author(s): Stebbins MJ, Wilson HK, Canfield SG, Qian T, Palecek SP, Shusta EV PubMed Article URL: http://dx.doi.org/10.1016/j.ymeth.2015.10.016


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**American Journal of Physiology. Lung cellular and molecular physiology** (Jan 2012; 302: L226)

"Dendritic cell functional properties in a three-dimensional tissue model of human lung mucosa."

Author(s):Nguyen Hoang AT, Chen P, Juarez J, Sachamir P, Billing B, Bosnjak L, Dahlén B, Coles M, Svensson M

PubMed Article URL: http://dx.doi.org/10.1152/ajplung.00059.2011

---

**Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer** (Apr 2016; 24: 1779)

"Tight junction defects are seen in the buccal mucosa of patients receiving standard dose chemotherapy for cancer."

Author(s): Wardill HR, Logan RM, Bowen JM, Van Sebille YZ, Gibson RJ

PubMed Article URL: http://dx.doi.org/10.1007/s00520-015-2964-6

---

**American Journal of Physiology. Heart and circulatory physiology** (Dec 2012; 303: H1374)

"Effect of cellular senescence on the albumin permeability of blood-derived endothelial cells."

Author(s): Cheung TM, Ganatra MP, Peters EB, Truskey GA

PubMed Article URL: http://dx.doi.org/10.1152/ajpheart.00182.2012

---

**American Journal of Physiology. Lung cellular and molecular physiology** (Oct 2002; 27: 446)

"Decreased distribution of lung epithelial junction proteins after intratracheal antigen or lipopolysaccharide challenge. correlation with neutrophil influx and levels of BALF sE-cadherin."

Author(s): Evans SM, Blyth DI, Wong T, Sanjar S, West MR

PubMed Article URL: http://dx.doi.org/10.1152/ajplung.00098.2010

---

**Chemico-biological interactions** (Jul 2020; 325: )

"Interaction of alcohol with markers of circadian dyssynchony and colon tissue injury."

Author(s): Bishehsari F, Preuss F, Mirbagheri SS, Zhang LS, Akhsh K, Keshavarzian A

PubMed Article URL: http://dx.doi.org/10.1016/j.cbi.2020.109132

---


"Vectorial TGFbeta signaling in polarized intestinal epithelial cells."

Author(s): Yakovich AJ, Huang Q, Du J, Jiang B, Barnard JA

PubMed Article URL: http://dx.doi.org/10.1002/jcp.22135

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33-1500 was used in western blot to examine the photoperiodically different concentration of polychlorinated biphenyls in the cerebrospinal fluid in sheep.

Sheep / 1:5000

Neurotoxicology and teratology (Dec 2013; 37: 63)
"Effect of a two-week treatment with a low dose of 2,2’4,4’,5,5’-hexachlorobiphenyl (PCB153) on tight junction protein expression in ovine choroid plexus during long and short photoperiods."
Author(s): Szczepkowska A, Lagaraine C, Robert V, Dufourny L, Thiery JC, Skipor J
PubMed Article URL: http://dx.doi.org/10.1016/j.ntt.2013.03.061

33-1500 was used in immunocytochemistry and western blot to examine the contribution of various tight junction proteins in keratinocytes.

Human / 1:3000

The Journal of investigative dermatology (May 2013; 133: 1161)
"Contribution of tight junction proteins to ion, macromolecule, and water barrier in keratinocytes."
Author(s): Kirschner N, Rosenthal R, Furuse M, Moll I, Fromm M, Brandner JM
PubMed Article URL: http://dx.doi.org/10.1038/jid.2012.507

33-1500 was used in western blot to investigate how the differences between human and murine occludin contribute to hepatitis C virus spread.

Human / Not Cited

Journal of virology (Aug 2011; 85: 7613)
"Impact of intra- and interspecies variation of occludin on its function as coreceptor for authentic hepatitis C virus particles."
PubMed Article URL: http://dx.doi.org/10.1128/JVI.00212-11

33-1500 was used in western blot to study non-small cell lung carcinoma cell lines treated with cisplatin, doxorubicin, and gemcitabine.

Human / Not Cited

Cancer letters (Aug 2012; 321: 36)
"Acquisition of an enhanced aggressive phenotype in human lung cancer cells selected by suboptimal doses of cisplatin following cell deattachment and reattachment."
Author(s): Hsieh JL, Lu CS, Huang CL, Shieh GS, Su BH, Su YC, Lee CH, Chang MY, Wu CL, Shiau AL
PubMed Article URL: http://dx.doi.org/10.1160/j.cnle.2012.03.019

33-1500 was used in western blot to report that Honokiol inhibits hepatitis C virus infection in vitro.

Human / Not Cited

Liver international : official journal of the International Association for the Study of the Liver (Jul 2012; 32: 989)
"Multiple effects of Honokiol on the life cycle of hepatitis C virus."
Author(s): Lan KH, Wang YW, Lee WP, Lan KL, Tseng SH, Hung LR, Yen SH, Lin HC, Lee SD
PubMed Article URL: http://dx.doi.org/10.1111/j.1478-3231.2011.02621.x

33-1500 was used in western blot to test the effect of lambda-carrageenan-induced peripheral inflammatory pain on occludin.

Human / Not Cited

Journal of neurochemistry (Sep 2008; 106: 2395)
"Occludin oligomeric assembly at tight junctions of the blood-brain barrier is disrupted by peripheral inflammatory hyperalgesia."
Author(s): McCaffrey G, Seelbach MJ, Staatz WD, Nametz N, Quigley C, Campos CR, Brooks TA, Davis TP
PubMed Article URL: http://dx.doi.org/10.1111/j.1471-4159.2008.05582.x

33-1500 was used in immunohistochemistry to study the effects of A on the functionality of the blood-CSF barrier.

Mouse / 1:100

The Journal of neuroscience : the official journal of the Society for Neuroscience (Sep 2015; 35: 12766)
"Amyloid Oligomers Disrupt Blood-CSF Barrier Integrity by Activating Matrix Metalloproteinases."
PubMed Article URL: http://dx.doi.org/10.1523/JNEUROSCI.0006-15.2015

33-1500 was used in immunohistochemistry (frozen) to investigate the expression of the tight junction proteins occludin, Claudin-1 and ZO-2 in the epidermis of female mice.

Mouse / 1:100

Experimental cell research (Oct 2013; 319: 2588)
"Papillomavirus E6 oncoprotein up-regulates occludin and ZO-2 expression in ovariectomized mice epidermis."
Author(s): Hernández-Monge J, Garay E, Raya-Sandino A, Vargas-Sierra O, Diaz-Chávez J, Popoca-Cuaya M, Lambert PF, González-Mariscal L, Gariglio P
PubMed Article URL: http://dx.doi.org/10.1016/j.yexcr.2013.07.028
Human / Not Cited

33-1500 was used in western blot to assess the changes in claudins function via PKC activation in pancreatic cancer cells.

Cell and tissue research (Dec 2011; 346: 369)
"Protein kinase C inhibitor enhances the sensitivity of human pancreatic cancer HPAC cells to Clostridium perfringens enterotoxin via claudin-4."

PubMed Article URL: http://dx.doi.org/10.1007/s00441-011-1287-2

Human / Not Cited

33-1500 was used in immunocytochemistry and western blot to elucidate the role of PDZK1 in scavenger receptor class B type I-mediated hepatitis C virus entry

2 Flow Cytometry References

Species / Dilution

Summary

Human / Not Cited

33-1500 was used in Flow cytometry/Cell sorting to elucidate the roles of RA signaling in iPSC-derived BMEC differentiation, and identifies directed agonist approaches that can improve BMEC fidelity for drug screening studies while also distinguishing potential nuclear receptor targets to explore in BBB dysfunction and therapy.

Biotechnology journal (Feb 2018; 13:)
"Activation of RAR, RAR, or RXR Increases Barrier Tightness in Human Induced Pluripotent Stem Cell-Derived Brain Endothelial Cells."

Author(s): Stebbins MJ, Lippmann ES, Faubion MG, Daneman R, Palecek SP, Shusta EV
PubMed Article URL: http://dx.doi.org/10.1002/biot.201700093

Human / Not Cited

33-1500 was used in Flow cytometry/Cell sorting to examine the entire hepatitis C life cycle, and the relevant host factors restricting infection to hepatocytes.

Journal of virology (Nov 2012; 86: 11919)
"Reconstitution of the entire hepatitis C virus life cycle in nonhepatic cells."

PubMed Article URL: http://dx.doi.org/10.1128/JVI.01066-12

2 Immunoprecipitation References

Species / Dilution

Summary

Rat / Not Cited

33-1500 was used in Immunoprecipitation to demonstrate the participation of RAB-13 in the dynamics of ectoplasmic specialisation in the testis.

Biology of reproduction (Mar 2009; 80: 590)
"RAB13 participates in ectoplasmic specialization dynamics in the rat testis."

Author(s): Mruk DD, Lau AS
PubMed Article URL: http://dx.doi.org/10.1095/biolreprod.108.071647

Human / Not Cited

"Bryostatin-1 enhances barrier function in T84 epithelia through PKC-dependent regulation of tight junction proteins."

Author(s): Yoo J, Nichols A, Mammen J, Calvo I, Song JC, Worrell RT, Matlin K, Matthews JB
PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00267.2002