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N-cadherin Monoclonal Antibody (3B9)

Catalog Number 33-3900

Product data sheet

Details	
Size	100 µg
Host/Isotope	Mouse / IgG1, kappa
Class	Monoclonal
Type	Antibody
Clone	3B9
Immunogen	Recombinant domain corresponding to the intracellular domain of chicken N-Cadherin
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	Chicken, Human, Mouse, Pig, Rat
Published species	Tag, Avian, Pig, Rat, Non-human primate, Hamster, Zebrafish, Human, Mouse, Rhesus monkey, Not Applicable, Horse, Dog, Rabbit

Tested Applications	Dilution *
Immunohistochemistry (Paraffin) (IHC (P))	1-5 µg/mL
Immunoprecipitation (IP)	3-5 µg
Western Blot (WB)	1:500-1:1,000
Immunocytochemistry (ICC/IF)	1-3 µg/mL

Published Applications	
Western Blot (WB)	See 58 publications below
Immunohistochemistry (IHC)	See 42 publications below
Immunocytochemistry (ICC/IF)	See 24 publications below
Immunohistochemistry (Paraffin) (IHC (P))	See 26 publications below
Immunohistochemistry (Frozen) (IHC (F))	See 8 publications below
Flow Cytometry (Flow)	See 2 publications below
Miscellaneous PubMed (Misc)	See 18 publications below
Immunoprecipitation (IP)	See 1 publications below

* 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.

Product specific information

This antibody is specific for N-cadherin and does not cross-react with other cadherin family members including P- and E-cadherins. For IHC with this antibody use formalin-fixed, paraffin-embedded tissue and heat-induced epitope retrieval.

Background/Target Information

N-cadherin is a 140 kDa protein belonging to a family of transmembrane molecules that mediate calcium-dependent intercellular adhesion. Cadherins are involved in controlling morphogenetic movements during development and regulate cell surface adhesion through homotypic adhesion with the same cadherin species. N-cadherin's function is dependent on its association with the actin-cytoskeleton and is mediated through interactions between the C-terminal region of N-cadherin and the cytoplasmic catenin proteins. The stability of this association is regulated by phosphorylation and dephosphorylation of beta-catenin. Further, N-cadherin is a calcium dependent cell-cell adhesion glycoprotein comprised of five extracellular cadherin repeats, a transmembrane region and a highly conserved cytoplasmic tail. The protein functions during gastrulation and is required for establishment of left-right asymmetry.

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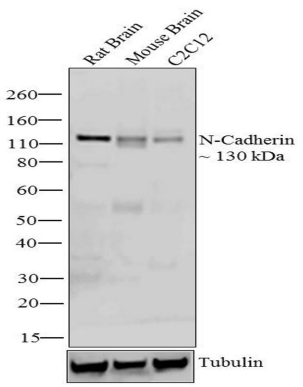
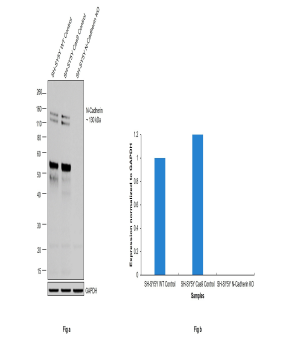
Product Images For N-cadherin Monoclonal Antibody (3B9)



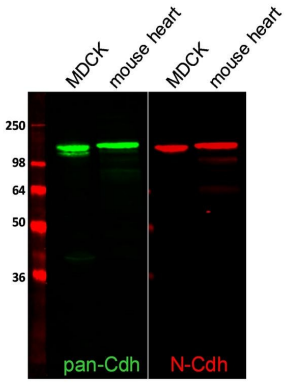
N-cadherin Antibody (33-3900) in WB

Western blot analysis of N-Cadherin was performed by loading 20 µg of Rat Brain (lane1), Mouse Brain (lane2) and C2C12 (lane3) lysates using Novex® NuPAGE® 4-12 % Bis-Tris gel (Product # NP0321BOX), XCell SureLock™ Electrophoresis System (Product # EI0002), Novex® Sharp Pre-Stained Protein Standard (LC5800). Proteins were transferred to a PVDF membrane and blocked with 5 % skim milk for 1 hour at room temperature. N-Cadherin was detected at ~130 kDa using N-Cadherin Mouse Monoclonal Antibody (Product # 33-3900) at 1 µg - 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 chemiluminescent detection was performed using Pierce™ ECL Western Blotting Substrate (Product # 32106).



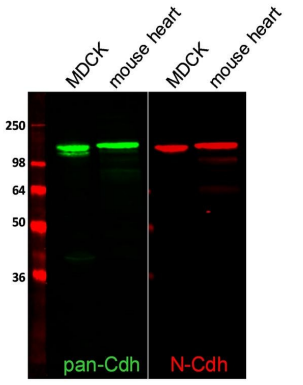
N-cadherin Antibody (33-3900)

Antibody specificity was demonstrated by CRISPR-Cas9 mediated knockout of target protein. A loss of signal was observed for target protein inN-Cadherin KO cell line compared to control cell line using N-cadherin Monoclonal Antibody (3B9) (Product # 33-3900). {KO}



N-cadherin Antibody (33-3900)

Antibody specificity was demonstrated using two independent antibodies against the target protein. Western blot of N-Cadherin using N-cadherin Monoclonal Antibody (Product # 33-3900), tested in parallel with Pan-cadherin Polyclonal Antibody (Product # 71-7100), showing a similar expression pattern for N- cadherin across different test samples. {IAV}



N-cadherin Antibody (33-3900) in WB

Western blot analysis of total Cadherin and N-Cadherin was performed by loading 2 µL SeeBlue® Plus2 Prestained Protein Ladder (Product # LC5925), 50 µg of MDCK cell lysates and 10 µg mouse heart lysate per well onto a 4-20% Tris-HCl polyacrylamide gel. Proteins were transferred to a nitrocellulose membrane and blocked with 1% BSA/TBST for at least 1 hour at room temperature. Total cadherin was detected using a rabbit antibody (Product # 71-7100) and N-Cadherin was detected using a mouse antibody (Product # 33-3900), both at a concentration of 1 µg/mL in blocking buffer overnight at 4°C on a rocking platform. The blot was then incubated with goat anti-rabbit IgG-Alexa Fluor 790 secondary antibody (Product # A11369) and goat anti-mouse IgG-Alexa Fluor 680 secondary antibody (Product # A-21058) at a dilution of 1:10,000 for at least 1 hour. Fluorescent detection was performed using the Odyssey® CLx imaging system (Li-cor Biosciences). Image is generated by Joell Solan in Paul Lampe Lab at Fred Hutchinson Cancer Research Center.

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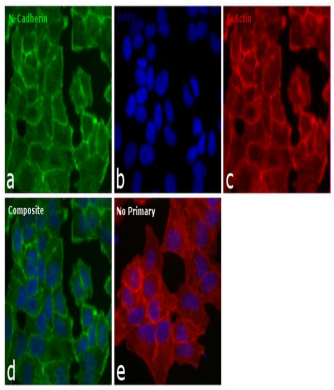
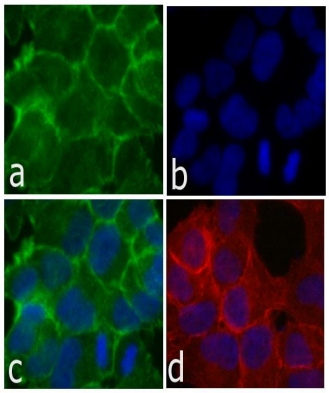


N-cadherin Antibody (33-3900) in ICC/IF

Immunofluorescent analysis of N-Cadherin was done on 70% confluent log phase Caco-2 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 N-Cadherin Mouse Monoclonal Antibody (Product # 33-3900) at 1 µg - 2 µg 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)and cytoskeletal F-actin (red) staining using Rhodamine Phalloidin (Product # R415, 1:300) panel c. Panel d is a merged image showing cell junctional localization of N-Cadherin. Panel e shows no primary antibody. The images were captured at 20X magnification.



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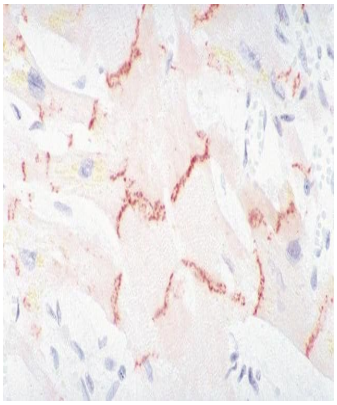
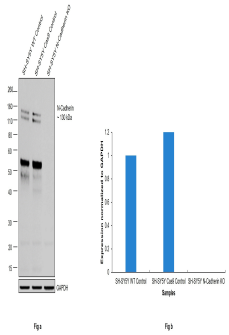


N-cadherin Antibody (33-3900) in IHC

Immunohistochemistry analysis of N-Cadherin was done on human heart tissue section. The tissue was probed with N-cadherin Mouse Monoclonal Antibody (Product # 33-3900).



N-cadherin Antibody (33-3900) in WB

Knockout of N-Cadherin was achieved by CRISPR-Cas9 genome editing using LentiArray™ Lentiviral sgRNA (Product # A32042, Assay ID CRISPR914282_LV) and LentiArray Cas9 Lentivirus (Product # A32064). Western blot analysis of N-Cadherin was performed by loading 30 µg of SH-SY5Y wild type (Lane 1), SH-SY5Y Cas9 (Lane 2) and SH-SY5Y N-Cadherin 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 N-cadherin Monoclonal Antibody (3B9) (Product # 33-3900, 1:500 dilution) and detected by Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A28177, 1:10,000 dilution) using the iBright™ FL1500 (Product # A44115). Chemiluminescent detection was performed using SuperSignal™ West Atto Ultimate Sensitivity Substrate (Product # A38556). Loss of signal upon CRISPR mediated knockout (KO) using the LentiArray™ CRISPR product line confirms that antibody is specific to N-Cadherin. Uncharacterized bands was observed in lane 1 and lane 2 around ~45 kDa-55 kDa.

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PubMed References For N-cadherin Monoclonal Antibody (3B9)

58 Western Blot References

Species / Dilution	Summary
Rat / 1:200	33-3900 was used in Western Blotting to study how PFOS-induced BTB disruption is mediated by down-regulating phosphorylated FAK-Tyr(407) and connexin-43. Endocrinology (2014; 155: 249) **"Perfluorooctanesulfonate (PFOS) perturbs male rat Sertoli cell blood-testis barrier function by affecting F-actin organization via p-FAK-Tyr(407): an in vitro study."** Author(s):Wan HT,Mruk DD,Wong CK,Cheng CY PubMed Article URL:http://dx.doi.org/10.1210/en.2013-1657
Not Applicable / Not Cited	33-3900 was used in western blot to measure expression of E-cadherin and related proteins in breast cancer cell lines Journal of cellular physiology (2010; 222: 596) **"Expression analysis of epithelial cadherin and related proteins in IBH-6 and IBH-4 human breast cancer cell lines."** Author(s):Lapyckyj L,Castillo LF,Matos ML,Gabrielli NM,Lüthy IA,Vazquez-Levin MH PubMed Article URL:http://dx.doi.org/10.1002/jcp.21974
Dog / 1:1000	33-3900 was used in Western Blotting to study the effect of hypothermia on gap junction coupling and Na+ channel function in acute cardiac ischemia. American journal of physiology. Heart and circulatory physiology (2017; 312: H886) **"Mild hypothermia preserves myocardial conduction during ischemia by maintaining gap junction intracellular communication and Na⁺ channel function."** Author(s):Nassal MMJ,Wan X,Dale Z,Deschênes I,Wilson LD,Piktel JS PubMed Article URL:http://dx.doi.org/10.1152/ajpheart.00298.2016
Mouse / 1:2000	33-3900 was used in Western Blotting to reveal that metavinculin bears higher molecular forces but is less frequently engaged as compared to vinculin, leading to altered force propagation in cell adhesions. Nature communications (2020; 11:) **"Metavinculin modulates force transduction in cell adhesion sites."** Author(s):Kanoldt V,Kluger C,Barz C,Schweizer AL,Ramanujam D,Windgasse L,Engelhardt S,Chrostek-Grashoff A,Grashoff C PubMed Article URL:http://dx.doi.org/10.1038/s41467-020-20125-z
Human / Not Cited	The Journal of biological chemistry (2002; 277: 12906) **"The Erbin PDZ domain binds with high affinity and specificity to the carboxyl termini of delta-catenin and ARVCF."** Author(s):Laura RP,Witt AS,Held HA,Gerstner R,Deshayes K,Koehler MF,Kosik KS,Sidhu SS,Lasky LA PubMed Article URL:http://dx.doi.org/10.1074/jbc.M200818200
Rat / Not Cited	33-3900 was used in Western Blotting to suggest that Rab4A participates in adherens junction dynamics in the testis. Journal of andrology (2007; 28: 742) **"Rab4A GTPase catenin interactions are involved in cell junction dynamics in the testis."** Author(s):Mruk DD,Lau AS,Sarkar O,Xia W PubMed Article URL:http://dx.doi.org/10.2164/jandrol.106.002204
Not Applicable / 1:100	33-3900 was used in western blot to elucidate a deletion of AMP-activated protein kinase in mouse Sertoli cells that modify germ cell quality Molecular and cellular endocrinology (2016; 423: 96) **"Specific deletion of AMP-activated protein kinase (1AMPK) in mouse Sertoli cells modifies germ cell quality."** Author(s):Bertoldo MJ,Guibert E,Faure M,Guillou F,Ramé C,Nadal-Desbarats L,Foretz M,Viollet B,Dupont J,Froment P PubMed Article URL:http://dx.doi.org/10.1016/j.mce.2016.01.001
Human / 1:500	33-3900 was used in Western Blotting to describe a method for establishing a robust renal proximal tubular epithelial cell model suitable for further experimentation. PloS one (2014; 8:) **"Isolation and characterization of a primary proximal tubular epithelial cell model from human kidney by CD10 /CD13 double labeling."** Author(s):Van der Hauwaert C,Savary G,Gnemmi V,Glowacki F,Pottier N,Bouillez A,Maboudou P,Zini L,Leroy X,Cauffiez C,Perrais M,Aubert S PubMed Article URL:http://dx.doi.org/10.1371/journal.pone.0066750

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	33-3900 was used in Western Blotting to show that secreted protein acidic and rich in cysteine (SPARC) is highly expressed in PCa tissues with a higher Gleason score.
Human / 1:1000	Asian journal of andrology (2020; 21: 557) **"Secreted protein acidic and rich in cysteine (SPARC) induces epithelial-mesenchymal transition, enhancing migration and invasion, and is associated with high Gleason score in prostate cancer."** Author(s):López-Moncada F,Torres MJ,Castellón EA,Contreras HR PubMed Article URL:http://dx.doi.org/10.4103/aja.aja_23_19
	33-3900 was used in western blot to determine the localization and function of N-cadherin in human spermatozoa and oocytes
Not Applicable / Not Cited	International journal of andrology (2010; 33: e228) **"Neural cadherin is expressed in human gametes and participates in sperm-oocyte interaction events."** Author(s):Marín-Briggiler CI,Lapyckyj L,González Echeverría MF,Rawe VY,Alvarez Sedó C,Vazquez-Levin MH PubMed Article URL:http://dx.doi.org/10.1111/j.1365-2605.2009.00999.x
	33-3900 was used in western blot to examine the effects of mammary gland-specific deletion of Bin1 on initiation and progression of breast cancer in mice
Not Applicable / 1:1000	Cancer research (2007; 67: 100) **"Bin1 ablation in mammary gland delays tissue remodeling and drives cancer progression."** Author(s):Chang MY,Boulden J,Sutanto-Ward E,Duhadaway JB,Soler AP,Muller AJ,Prendergast GC PubMed Article URL:http://dx.doi.org/10.1158/0008-5472.CAN-06-2742
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Human / Not Cited Mouse / Not Cited	The Journal of clinical investigation (2019; 129: 3121) **"Elevated endothelial Sox2 causes lumen disruption and cerebral arteriovenous malformations."** Author(s):Yao J,Wu X,Zhang D,Wang L,Zhang L,Reynolds EX,Hernandez C,Boström KI,Yao Y PubMed Article URL:http://dx.doi.org/10.1172/JCI125965
Human / Not Cited	Oncogene (2005; 24: 6902) **"Gene expression in thyroid autonomous adenomas provides insight into their physiopathology."** Author(s):Wattel S,Mircescu H,Venet D,Burniat A,Franc B,Frank S,Andry G,Van Sande J,Rocmans P,Dumont JE,Detours V,Maenhaut C PubMed Article URL:http://dx.doi.org/10.1038/sj.onc.1208849
Human / Not Cited	Human pathology (1995; 26: 1363) **"The differential expression of N-cadherin and E-cadherin distinguishes pleural mesotheliomas from lung adenocarcinomas."** Author(s):Peralta Soler A,Knudsen KA,Jaurand MC,Johnson KR,Wheelock MJ,Klein-Szanto AJ,Salazar H PubMed Article URL:http://dx.doi.org/10.1016/0046-8177(95)90302-x
	33-3900 was used in Western Blotting to demonstrate the role of N-cadherin in maintaining the progenitor status of primary human limbal epithelial cells in vitro.
Mouse / Not Cited	Investigative ophthalmology & visual science (2009; 50: 4640) **"N-cadherin in the maintenance of human corneal limbal epithelial progenitor cells in vitro."** Author(s):Higa K,Shimmura S,Miyashita H,Kato N,Ogawa Y,Kawakita T,Shimazaki J,Tsubota K PubMed Article URL:http://dx.doi.org/10.1167/iovs.09-3503
	33-3900 was used in immunocytochemistry and western blot to identify and characterize a novel classical cadherin adhesion system
Not Applicable / Not Cited	Journal of cell science (2005; 118: 3883) **"Modulating the strength of cadherin adhesion: evidence for a novel adhesion complex."** Author(s):Kim YJ,Sauer C,Testa K,Wahl JK,Svoboda RA,Johnson KR,Wheelock MJ,Knudsen KA PubMed Article URL:http://dx.doi.org/10.1242/jcs.02508
	33-3900 was used in Western Blotting to study connexin-43 in cardiomyocyte remodeling in a mouse model of Duchenne muscular dystrophy.
Mouse / 1:2000	The Journal of clinical investigation (2020; 130: 1713) **"Prevention of connexin-43 remodeling protects against Duchenne muscular dystrophy cardiomyopathy."** Author(s):Himelman E,Lillo MA,Nouet J,Gonzalez JP,Zhao Q,Xie LH,Li H,Liu T,Wehrens XH,Lampe PD,Fishman GI,Shirokova N,Contreras JE,Fraidenraich D PubMed Article URL:http://dx.doi.org/10.1172/JCI128190

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	33-3900 was used in Western Blotting to investigate the clinical role and biological function of Disabled homolog-2 (DAB2) in human urothelial carcinoma of the bladder (UCB).
Human / 1:500	Diagnostics (Basel, Switzerland) (2020; 10:) **"Disabled Homolog 2 (DAB2) Protein in Tumor Microenvironment Correlates with Aggressive Phenotype in Human Urothelial Carcinoma of the Bladder."** Author(s):Itami Y,Miyake M,Ohnishi S,Tatsumi Y,Gotoh D,Hori S,Morizawa Y,Iida K,Ohnishi K,Nakai Y,Inoue T,Anai S, Tanaka N,Fujii T,Shimada K,Furuya H,Khadka VS,Deng Y,Fujimoto K PubMed Article URL:http://dx.doi.org/10.3390/diagnostics10010054
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Human / 1:1,000	33-3900 was used in Western Blotting to investigate the expression and functional role of fibroblast growth factor 18 in gastric cancer and elucidate its regulatory mechanisms. Oncogene (2019; 38: 33) **"FGF18, a prominent player in FGF signaling, promotes gastric tumorigenesis through autocrine manner and is negatively regulated by miR-590-5p."** Author(s):Zhang J,Zhou Y,Huang T,Wu F,Pan Y,Dong Y,Wang Y,Chan AKY,Liu L,Kwan JSH,Cheung AHK,Wong CC,Lo AKF,Cheng ASL,Yu J,Lo KW,Kang W,To KF PubMed Article URL:http://dx.doi.org/10.1038/s41388-018-0430-x
Human / 1:2000	33-3900 was used in Western Blotting to demonstrate that TGFß drives the treatment resistant phenotype (MITFlow /AXLhigh) and contributes to MHC class I downregulation in melanoma. Nature communications (2020; 11:) **"Transcriptional downregulation of MHC class I and melanoma de- differentiation in resistance to PD-1 inhibition."** Author(s):Lee JH,Shklovskaya E,Lim SY,Carlino MS,Menzies AM,Stewart A,Pedersen B,Irvine M,Alavi S,Yang JYH, Strbenac D,Saw RPM,Thompson JF,Wilmott JS,Scolyer RA,Long GV,Kefford RF,Rizos H PubMed Article URL:http://dx.doi.org/10.1038/s41467-020-15726-7
Non-human primate / Not Cited	33-3900 was used in western blot to determine the functional effects of S368 phosphorylation of connexin 43. Journal of cardiovascular electrophysiology (2016; 27: 110) **"Phosphorylation at Connexin43 Serine-368 Is Necessary for Myocardial Conduction During Metabolic Stress."** Author(s):Nassal MM,Werdich AA,Wan X,Hoshi M,Deschênes I,Rosenbaum DS,Donahue JK PubMed Article URL:http://dx.doi.org/10.1111/jce.12833
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Not Applicable / Not Cited	33-3900 was used in western blot to find that basic fibroblast growth factor downregulates typical cadherin expression on the surface of human umbilical vein endothelial cells via FGF receptor 1 signaling Experimental cell research (2008; 314: 421) **"JNK signaling pathway is required for bFGF-mediated surface cadherin downregulation on HUVEC."** Author(s):Wu JC,Yan HC,Chen WT,Chen WH,Wang CJ,Chi YC,Kao WY PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2007.10.002
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Mouse / Not Cited	Nature medicine (2010; 16: 1414) **"Monoclonal antibody targeting of N-cadherin inhibits prostate cancer growth, metastasis and castration resistance."** Author(s):Tanaka H,Kono E,Tran CP,Miyazaki H,Yamashiro J,Shimomura T,Fazli L,Wada R,Huang J,Vessella RL,An J, Horvath S,Gleave M,Rettig MB,Wainberg ZA,Reiter RE PubMed Article URL:http://dx.doi.org/10.1038/nm.2236

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Zebrafish / Not Cited Rat / Not Cited	33-3900 was used in Western Blotting to indicate that miR-132 acts as an intercellular signal mediating neural regulation of the brain vascular integrity. Cell research (2017; 27: 882) **"Neurons secrete miR-132-containing exosomes to regulate brain vascular integrity."** Author(s):Xu B,Zhang Y,Du XF,Li J,Zi HX,Bu JW,Yan Y,Han H,Du JL PubMed Article URL:http://dx.doi.org/10.1038/cr.2017.62
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Human / Not Cited	33-3900 was used in Western Blotting to examine the effects of chronic inhalation of potential toxicants emitted by ecigarettes, and compare the risks with combustible cigarettes. Scientific reports (2017; 7:) **"Electronic Cigarette Smoke Impairs Normal Mesenchymal Stem Cell Differentiation."** Author(s):Shaito A,Saliba J,Husari A,El-Harakeh M,Chhouri H,Hashem Y,Shihadeh A,El-Sabban M PubMed Article URL:http://dx.doi.org/10.1038/s41598-017-14634-z
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Human / Not Cited	Journal of proteomics (2017; 151: 2) **"Proteomic analysis of ovarian cancer cells during epithelial-mesenchymal transition (EMT) induced by epidermal growth factor (EGF) reveals mechanisms of cell cycle control."** Author(s):Grassi ML,Palma CS,Thomé CH,Lanfredi GP,Poersch A,Faça VM PubMed Article URL:http://dx.doi.org/10.1016/j.jprot.2016.06.009
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Rat / 1:100	Cell death & disease (2018; 9:) **"Actin nucleator Spire 1 is a regulator of ectoplasmic specialization in the testis."** Author(s):Wen Q,Li N,Xiao X,Lui WY,Chu DS,Wong CKC,Lian Q,Ge R,Lee WM,Silvestrini B,Cheng CY PubMed Article URL:http://dx.doi.org/10.1038/s41419-017-0201-6
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Rat / 1:250	Endocrinology (2005; 146: 1893) **"Blood-testis barrier dynamics are regulated by {alpha}2-macroglobulin via the c-Jun N-terminal protein kinase pathway."** Author(s):Wong CH,Mruk DD,Siu MK,Cheng CY PubMed Article URL:http://dx.doi.org/10.1210/en.2004-1464
Human / Not Cited	Human pathology (1995; 26: 1363) **"The differential expression of N-cadherin and E-cadherin distinguishes pleural mesotheliomas from lung adenocarcinomas."** Author(s):Peralta Soler A,Knudsen KA,Jaurand MC,Johnson KR,Wheelock MJ,Klein-Szanto AJ,Salazar H PubMed Article URL:http://dx.doi.org/10.1016/0046-8177(95)90302-x
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Rabbit / Not Cited	Journal of tissue engineering and regenerative medicine (2017; 11: 1057) **"Spontaneous acquisition of infinite proliferative capacity by a rabbit corneal endothelial cell line with maintenance of phenotypic and physiological characteristics."** Author(s):Kageyama T,Hayashi R,Hara S,Yoshikawa K,Ishikawa Y,Yamato M,Nishida K PubMed Article URL:http://dx.doi.org/10.1002/term.2005

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Mouse / Not Cited	Developmental biology (2019; 446: 119) **"Ankyrin-G regulated epithelial phenotype is required for mouse lens morphogenesis and growth."** Author(s):Rasiah PK,Maddala R,Bennett V,Rao PV PubMed Article URL:http://dx.doi.org/10.1016/j.ydbio.2018.12.016
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Not Applicable / 1:20	Molecular vision (2012; 17: 2177) **"Alterations of epithelial stem cell marker patterns in human diabetic corneas and effects of c-met gene therapy."** Author(s):Saghizadeh M,Soleymani S,Harounian A,Bhakta B,Troyanovsky SM,Brunken WJ,Pellegrini G,Ljubimov AV PubMed Article URL:http://www.ncbi.nlm.nih.gov/pubmed/21866211
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Mouse / 1:100	The Journal of clinical investigation (2019; 129: 3171) **"Ankyrin-B dysfunction predisposes to arrhythmogenic cardiomyopathy and is amenable to therapy."** Author(s):Roberts JD,Murphy NP,Hamilton RM,Lubbers ER,James CA,Kline CF,Gollob MH,Krahn AD,Sturm AC,Musa H, El-Refaey M,Koenig S,Aneq MÅ,Hoorntje ET,Graw SL,Davies RW,Rafiq MA,Koopmann TT,Aafaqi S,Fatah M,Chiasson DA,Taylor MR,Simmons SL,Han M,van Opbergen CJ,Wold LE,Sinagra G,Mittal K,Tichnell C,Murray B,Codima A,Nazer B, Nguyen DT,Marcus FI,Sobriera N,Lodder EM,van den Berg MP,Spears DA,Robinson JF,Ursell PC,Green AK,Skanes AC, Tang AS,Gardner MJ,Hegele RA,van Veen TA,Wilde AA,Healey JS,Janssen PM,Mestroni L,van Tintelen JP,Calkins H, Judge DP,Hund TJ,Scheinman MM,Mohler PJ PubMed Article URL:http://dx.doi.org/10.1172/JCI125538
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Mouse / 1:200	Nature (2017; 552: 248) **"Inhibition of soluble epoxide hydrolase prevents diabetic retinopathy."** Author(s):Hu J,Dziumbla S,Lin J,Bibli SI,Zukunft S,de Mos J,Awwad K,Frömel T,Jungmann A,Devraj K,Cheng Z,Wang L, Fauser S,Eberhart CG,Sodhi A,Hammock BD,Liebner S,Müller OJ,Glaubitz C,Hammes HP,Popp R,Fleming I PubMed Article URL:http://dx.doi.org/10.1038/nature25013
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Mouse / Not Cited	Neuron (2017; 94: 517) **"Mosaic Analysis with Double Markers Reveals Distinct Sequential Functions of Lgl1 in Neural Stem Cells."** Author(s):Beattie R,Postiglione MP,Burnett LE,Laukoter S,Streicher C,Pauler FM,Xiao G,Klezovitch O,Vasioukhin V, Ghashghaei TH,Hippenmeyer S PubMed Article URL:http://dx.doi.org/10.1016/j.neuron.2017.04.012
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Mouse / Not Cited	Circulation research (2015; 117: 758) **"Serine Protease Activation Essential for Endothelial-Mesenchymal Transition in Vascular Calcification."** Author(s):Yao J,Guihard PJ,Blazquez-Medela AM,Guo Y,Moon JH,Jumabay M,Boström KI,Yao Y PubMed Article URL:http://dx.doi.org/10.1161/CIRCRESAHA.115.306751
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Not Applicable / Not Cited	International journal of cancer (2010; 127: 1283) **"Granzyme B is expressed in urothelial carcinoma and promotes cancer cell invasion."** Author(s):D'Eliseo D,Pisu P,Romano C,Tubaro A,De Nunzio C,Morrone S,Santoni A,Stoppacciaro A,Velotti F PubMed Article URL:http://dx.doi.org/10.1002/ijc.25135

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Human / 1:500	Journal of cell science (2014; 127: 2174) **"14-3-3-Mediated transport of plakoglobin to the cell border is required for the initiation of desmosome assembly in vitro and in vivo."** Author(s):Sehgal L,Mukhopadhyay A,Rajan A,Khapare N,Sawant M,Vishal SS,Bhatt K,Ambatipudi S,Antao N,Alam H,Gurjar M,Basu S,Mathur R,Borde L,Hosing AS,Vaidya MM,Thorat R,Samaniego F,Kolthur-Seetharam U,Dalal SN PubMed Article URL:http://dx.doi.org/10.1242/jcs.125807
Mouse / Not Cited	33-3900 was used in immunohistochemistry - paraffin section to evaluate the role of VEGF-mediated angiogenesis in EMT-induced cancer stemness and tumorigenesis
	Cancer research (2014; 74: 1566) **"VEGF-mediated angiogenesis links EMT-induced cancer stemness to tumor initiation."** Author(s):Fantozzi A,Gruber DC,Pisarsky L,Heck C,Kunita A,Yilmaz M,Meyer-Schaller N,Cornille K,Hopfer U,Bentires-Alj M,Christofori G PubMed Article URL:http://dx.doi.org/10.1158/0008-5472.CAN-13-1641
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	Histopathology (2013; 62: 695) **"Further evidence that E-cadherin is not a tumour suppressor gene in invasive ductal carcinoma of the breast: an immunohistochemical study."** Author(s):Rakha EA,Teoh TK,Lee AH,Nolan CC,Ellis IO,Green AR PubMed Article URL:http://dx.doi.org/10.1111/his.12066
Rat / Not Cited	333900 was used in immunohistochemistry to describe a cardiovascular progenitor population derived during embryonic stem cell differentiation
	Stem cells international (2020; 2016:) **"Isolation of an ES-Derived Cardiovascular Multipotent Cell Population Based on VE-Cadherin Promoter Activity."** Author(s):Maltabe VA,Barka E,Kontonika M,Florou D,Kouvara-Pritsouli M,Roumpi M,Agathopoulos S,Kolettis TM,Kouklis P PubMed Article URL:http://dx.doi.org/10.1155/2016/8305624
Not Applicable / 1:25	33-3900 was used in immunohistochemistry to investigate genes regulated by Snail, Slug, and E47 transcription factors
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Mouse / Not Cited	33-3900 was used in immunohistochemistry to study the development of fatal cardiac hypertrophy and arrrhythmia in mice overexpressing miRNA-17-92 in heart and smooth muscle
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Not Applicable / Not Cited	33-3900 was used in immunohistochemistry to compare the eye defects of dyl and Foxe3 mutant mice
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24 Immunocytochemistry References

Species / Dilution	Summary
Mouse / Not Cited	33-3900 was used in Immunocytochemistry to show that ESC transition to an early primed ESC (pESC) state reduces their pairing with TSCs and impairs synthetic embryogenesis.
	The Journal of cell biology (2021; 220:) **"Pluripotency state regulates cytoneme selectivity and self-organization of embryonic stem cells."** Author(s):Junyent S,Reeves J,Gentleman E,Habib SJ PubMed Article URL:http://dx.doi.org/10.1083/jcb.202005095

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	33-3900 was used in Immunofluorescence-cell culture cells to investigate the effect of PFOS on Setoli cell blood-testis barrier, showing that injury occurs via Akt1/2 and disrupts F-actin and microtubule organization.
Rat / 1:100	Scientific reports (2017; 7:) **"Perfluorooctanesulfonate (PFOS)-induced Sertoli cell injury through a disruption of F-actin and microtubule organization is mediated by Akt1/2."** Author(s):Gao Y,Chen H,Xiao X,Lui WY,Lee WM,Mruk DD,Cheng CY PubMed Article URL:http://dx.doi.org/10.1038/s41598-017-01016-8
	33-3900 was used in immunocytochemistry, immunohistochemistry - frozen section, and western blot report that crumbs homolog 3 is an actin microfilament regulator
Rat / 1:100	Scientific reports (2016; 6:) **"Polarity protein Crumbs homolog-3 (CRB3) regulates ectoplasmic specialization dynamics through its action on F-actin organization in Sertoli cells."** Author(s):Gao Y,Lui WY,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1038/srep28589
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Rat / 1:100	Spermatogenesis (2016; 6:) **"Overexpression of plastin 3 in Sertoli cells disrupts actin microfilament bundle homeostasis and perturbs the tight junction barrier."** Author(s):Li N,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1080/21565562.2016.1206353
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Rat / Not Cited	The Journal of endocrinology (2006; 191: 571) **"Dynamin II interacts with the cadherin- and occludin-based protein complexes at the blood-testis barrier in adult rat testes."** Author(s):Lie PP,Xia W,Wang CQ,Mruk DD,Yan HH,Wong CH,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1677/joe.1.06996
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Human / 1:500	Cellular and molecular gastroenterology and hepatology (2022; 13: 405) **"Antagonizing STK25 Signaling Suppresses the Development of Hepatocellular Carcinoma Through Targeting Metabolic, Inflammatory, and Pro-Oncogenic Pathways."** Author(s):Kurhe Y,Caputo M,Cansby E,Xia Y,Kumari S,Anand SK,Howell BW,Marschall HU,Mahlapuu M PubMed Article URL:http://dx.doi.org/10.1016/j.jcmgh.2021.09.018
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Mouse / 1:250	Journal of cell science (2019; 132:) **"The N-cadherin interactome in primary cardiomyocytes as defined using quantitative proximity proteomics."** Author(s):Li Y,Merkel CD,Zeng X,Heier JA,Cantrell PS,Sun M,Stolz DB,Watkins SC,Yates NA,Kwiatkowski AV PubMed Article URL:http://dx.doi.org/10.1242/jcs.221606
	33-3900 was used in immunocytochemistry and western blot to study protein trafficking in Sertoli cells
Rat / 1:50	Experimental cell research (2010; 316: 2945) **"Differential effects of testosterone and TGF-3 on endocytic vesicle-mediated protein trafficking events at the blood-testis barrier."** Author(s):Su L,Mruk DD,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2010.07.018
	33-3900 was used in immunocytochemistry and western blot to examine cadherin expression in mouse fibroblast-like synoviocytes
Not Applicable / Not Cited	Arthritis and rheumatism (2008; 58: 1044) **"Coexpression of two mesenchymal cadherins, cadherin 11 and N-cadherin, on murine fibroblast-like synoviocytes."** Author(s):Agarwal SK,Lee DM,Kiener HP,Brenner MB PubMed Article URL:http://dx.doi.org/10.1002/art.23369

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Human / 1:100	Tissue engineering. Part A (2011; 17: 2213) **"A novel gelatin hydrogel carrier sheet for corneal endothelial transplantation."** Author(s):Watanabe R,Hayashi R,Kimura Y,Tanaka Y,Kageyama T,Hara S,Tabata Y,Nishida K PubMed Article URL:http://dx.doi.org/10.1089/ten.TEA.2010.0568
Human / Not Cited	33-3900 was used in Immunocytochemistry to suggest that pannexin1 overexpression in breast cancer is associated with a shift towards an epithelial-to-mesenchymal transition phenotype that initiates a tumour-promoting effect.
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Mouse / Not Cited	333900 was used in immunocytochemistry to show that decreased WNT/beta-catenin contributes to the pathophysiology of lamin A/C gene cardiomyopathy
	Human molecular genetics (2017; 26: 333) **"Decreased WNT/-catenin signalling contributes to the pathogenesis of dilated cardiomyopathy caused by mutations in the lamin a/C gene."** Author(s):Le Dour C,Macquart C,Sera F,Homma S,Bonne G,Morrow JP,Worman HJ,Muchir A PubMed Article URL:http://dx.doi.org/10.1093/hmg/ddw389
Tag / Not Cited Mouse / Not Cited	The Journal of biological chemistry (2005; 280: 19925) **"Connexin43 associated with an N-cadherin-containing multiprotein complex is required for gap junction formation in NIH3T3 cells."** Author(s):Wei CJ,Francis R,Xu X,Lo CW PubMed Article URL:http://dx.doi.org/10.1074/jbc.M412921200
Human / 1:100	33-3900 was used in Immunocytochemistry-immunoflourescence to show Visco-NPS identifies viscoelastic characteristics of cell populations, providing a biophysical understanding of cellular behavior and a potential for clinical applications.
	iScience (2019; 13: 214) **"Visco-Node-Pore Sensing: A Microfluidic Rheology Platform to Characterize Viscoelastic Properties of Epithelial Cells."** Author(s):Kim J,Li B,Scheideler OJ,Kim Y,Sohn LL PubMed Article URL:http://dx.doi.org/10.1016/j.isci.2019.02.021
Human / Not Cited	33-3900 was used in Immunofluorescence to show that HNF4 increases the expression of OCT1 and CNT3 in RCCNG1 cells, thereby increasing the chemosensitivity of tumor cells to oxaliplatin and 5-FU.
	Journal of pharmaceutical sciences (2014; 103: 3326) **"HNF4 induced chemosensitivity to oxaliplatin and 5-FU mediated by OCT1 and CNT3 in renal cell carcinoma."** Author(s):Hagos Y,Wegner W,Kuehne A,Floerl S,Marada VV,Burckhardt G,Henjakovic M PubMed Article URL:http://dx.doi.org/10.1002/jps.24128
Mouse / Not Cited	FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2012; 26: 503) **"Cadherin-11 contributes to pulmonary fibrosis: potential role in TGF- production and epithelial to mesenchymal transition."** Author(s):Schneider DJ,Wu M,Le TT,Cho SH,Brenner MB,Blackburn MR,Agarwal SK PubMed Article URL:http://dx.doi.org/10.1096/fj.11-186098
Rat / 1:100	Journal of cell science (2014; 127: 4870) **"rpS6 regulates blood-testis barrier dynamics through Akt-mediated effects on MMP-9."** Author(s):Mok KW,Mruk DD,Cheng CY PubMed Article URL:http://dx.doi.org/10.1242/jcs.152231
Not Applicable / 1:100	33-3900 was used in immunocytochemistry to identify the membrane ruffle-targeting region of beta-catenin
	The Journal of biological chemistry (2007; 282: 8545) **"IQ-domain GTPase-activating protein 1 regulates beta-catenin at membrane ruffles and its role in macropinocytosis of N-cadherin and adenomatous polyposis coli."** Author(s):Sharma M,Henderson BR PubMed Article URL:http://dx.doi.org/10.1074/jbc.M610272200
Mouse / 1:100	Journal of cell science (2003; 116: 1471) **"Cadherin-mediated adhesion is essential for myofibril continuity across the plasma membrane but not for assembly of the contractile apparatus."** Author(s):Luo Y,Radice GL PubMed Article URL:http://dx.doi.org/10.1242/jcs.00339

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Not Applicable / 1:100	Endocrinology (2016; 157: 2140) **"Planar Cell Polarity (PCP) Protein Vangl2 Regulates Ectoplasmic Specialization Dynamics via Its Effects on Actin Microfilaments in the Testes of Male Rats."** Author(s):Chen H,Mruk DD,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1210/en.2015-1987
Mouse / 1:200	33-3900 was used in Immunocytochemistry to investigate the connection between metabolic switch and epithelial-mesenchymal transition in promoting cellular reprogramming.
	The EMBO journal (2020; 39:) **"Metabolic switch and epithelial-mesenchymal transition cooperate to regulate pluripotency."** Author(s):Sun H,Yang X,Liang L,Zhang M,Li Y,Chen J,Wang F,Yang T,Meng F,Lai X,Li C,He J,He M,Xu Q,Li Q,Lin L,Pei D,Zheng H PubMed Article URL:http://dx.doi.org/10.15252/embj.2019102961
Human / Not Cited	33-3900 was used in Immunocytochemistry to study the expression of N-cadherin in neuroblastoma tumours and cell lines.
	PloS one (2012; 7:) **"N-cadherin in neuroblastoma disease: expression and clinical significance."** Author(s):Lammens T,Swerts K,Derycke L,De Craemer A,De Brouwer S,De Preter K,Van Roy N,Vandesompele J,Speleman F,Philippé J,Benoit Y,Beiske K,Bracke M,Laureys G PubMed Article URL:http://dx.doi.org/10.1371/journal.pone.0031206
Not Applicable / 1:100	33-3900 was used in immunocytochemistry to characterize disruption of the sertolic cell cytoskeleton by interleukin 1alpha and its affect on gap junctional communication
	Cellular signalling (2016; 28: 469) **"Interleukin 1alpha-induced disruption of the Sertoli cell cytoskeleton affects gap junctional communication."** Author(s):Chojnacka K,Bilinska B,Mruk DD PubMed Article URL:http://dx.doi.org/10.1016/j.cellsig.2016.02.003

26 Immunohistochemistry (Paraffin) References

Species / Dilution	Summary
Rat / Not Cited	33-3900 was used in Immunohistochemistry-immunofluorescence to study the signalling responsible for inducing Sertoli cell tight junction disassembly, which allows for germ cell movement.
	Endocrine reviews (2004; 25: 747) **"Sertoli-Sertoli and Sertoli-germ cell interactions and their significance in germ cell movement in the seminiferous epithelium during spermatogenesis."** Author(s):Mruk DD,Cheng CY PubMed Article URL:http://dx.doi.org/10.1210/er.2003-0022
Mouse / Not Cited	33-3900 was used in immunohistochemistry - paraffin section and western blot to investigate the effect of miR-200c on claudin-low breast cancer.
	Oncogene (2015; 34: 5997) **"Expression of miR-200c in claudin-low breast cancer alters stem cell functionality, enhances chemosensitivity and reduces metastatic potential."** Author(s):Knezevic J,Pfefferle AD,Petrovic I,Greene SB,Perou CM,Rosen JM PubMed Article URL:http://dx.doi.org/10.1038/onc.2015.48
Not Applicable / 1:400	33-3900 was used in immunohistochemistry - paraffin section to investigate the expression of E-, N-, and P-cadherin in ductal carcinoma in situ of the breast
	Virchows Archiv : an international journal of pathology (2002; 440: 16) **"P-cadherin expression is associated with high-grade ductal carcinoma in situ of the breast."** Author(s):Paredes J,Milanezi F,Viegas L,Amendoeira I,Schmitt F PubMed Article URL:http://dx.doi.org/10.1007/s004280100487
Human / Not Cited	33-3900 was used in Immunohistochemistry (Paraffin), Western Blot to demonstrate that FAM83H-AS1 upregulates ULK3 expression through the transcription factor c-Myc and promotes the progression of BCa.
	Cell cycle (Georgetown, Tex.) (2020; 19: 3546) **"Promoting roles of long non-coding RNA FAM83H-AS1 in bladder cancer growth, metastasis, and angiogenesis through the c-Myc-mediated ULK3 upregulation."** Author(s):Liu B,Gao W,Sun W,Li L,Wang C,Yang X,Liu J,Guo Y PubMed Article URL:http://dx.doi.org/10.1080/15384101.2020.1850971

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	33-3900 was used in immunohistochemistry - paraffin section to compare clinicopathological characteristics and immunohistochemical profiles of simultaneous bilateral breast cancer and corresponding lymph node metastases
Not Applicable / Not Cited	Histology and histopathology (2005; 20: 791) **"Simultaneous bilateral breast carcinoma: Histopathological characteristics and CD44/catenin-cadherin profile."** Author(s):Bassarova AV,Torlakovic E,Sedloev T,Hristova SL,Trifonov DV,Nesland JM PubMed Article URL:http://dx.doi.org/10.14670/HH-20.791
Not Applicable / 1:100	33-3900 was used in immunohistochemistry - paraffin section to investigate zyxin, axin, and Wiskott-Aldrich syndrome protein in the seminiferous epithelium
	Journal of andrology (2004; 25: 200) **"Zyxin, axin, and Wiskott-Aldrich syndrome protein are adaptors that link the cadherin/catenin protein complex to the cytoskeleton at adherens junctions in the seminiferous epithelium of the rat testis."** Author(s):Lee NP,Mruk DD,Conway AM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1002/j.1939-4640.2004.tb02780.x
Mouse / 1:100	33-3900 was used in Immunohistochemistry (Paraffin) to propose that embryonic perturbation of Wnt signalling in cardiomyocytes leads to right ventricular arrhythmic susceptibility in the adult heart through chamber-specific regulation of genes regulating cellular electrophysiology.
	Journal of molecular and cellular cardiology (2018; 123: 92) **"Differential Wnt-mediated programming and arrhythmogenesis in right versus left ventricles."** Author(s):Li G,Khandekar A,Yin T,Hicks SC,Guo Q,Takahashi K,Lipovsky CE,Brumback BD,Rao PK,Weinheimer CJ, Rentschler SL PubMed Article URL:http://dx.doi.org/10.1016/j.yjmcc.2018.09.002
Not Applicable / 1:200	33-3900 was used in immunohistochemistry - paraffin section to measure the expression of tenascin-C, osteopontin, and fibronectin in inflammatory myofibroblastic tumor of the lung
	APMIS : acta pathologica, microbiologica, et immunologica Scandinavica (2010; 118: 91) **"Variable expression of tenascin-C, osteopontin and fibronectin in inflammatory myofibroblastic tumour of the lung."** Author(s):Kaarteenaho R,Sormunen R,Pääkkö P PubMed Article URL:http://dx.doi.org/10.1111/j.1600-0463.2009.02566.x
Human / 1:150	333900 was used in immunohistochemistry - paraffin section to study markers of the epithelial to mesenchymal transition using invasive lobular carcinoma samples
	The Journal of pathology (2016; 238: 489) **"An epithelial to mesenchymal transition programme does not usually drive the phenotype of invasive lobular carcinomas."** Author(s):McCart Reed AE,Kutasovic JR,Vargas AC,Jayanthan J,Al-Murrani A,Reid LE,Chambers R,Da Silva L,Melville L, Evans E,Porter A,Papadimos D,Thompson EW,Lakhani SR,Simpson PT PubMed Article URL:http://dx.doi.org/10.1002/path.4668
Not Applicable / Not Cited	33-3900 was used in immunohistochemistry - paraffin section to present three cases of primary peritoneal malignant mixed mullerian tumors
	International journal of gynecological cancer : official journal of the International Gynecological Cancer Society (2004; 13: 870) **"Oncoprotein profiles of primary peritoneal malignant mixed müllerian tumors."** Author(s):Ng JS,Han AC,Edelson MI,Rosenblum NG PubMed Article URL:http://dx.doi.org/10.1111/j.1525-1438.2003.13332.x
Not Applicable / 1:200	33-3900 was used in immunohistochemistry - paraffin section to discover if N-cadherin expression is associated with the bladder tumor progression
	Clinical cancer research : an official journal of the American Association for Cancer Research (2006; 12: 2780) **"N-cadherin as a novel prognostic marker of progression in superficial urothelial tumors."** Author(s):Lascombe I,Clairotte A,Fauconnet S,Bernardini S,Wallerand H,Kantelip B,Bittard H PubMed Article URL:http://dx.doi.org/10.1158/1078-0432.CCR-05-2387
Human / 1:200	33-3900 was used in Immunohistochemistry (Paraffin) to find that RSPO2/Rspo2 expression is restricted to the oocyte of developing follicles in both human and mouse ovaries from the beginning of the follicular growth.
	Cell death and differentiation (2020; 27: 2856) **"R-spondin2 signaling is required for oocyte-driven intercellular communication and follicular growth."** Author(s):De Cian MC,Gregoire EP,Le Rolle M,Lachambre S,Mondin M,Bell S,Guigon CJ,Chassot AA,Chaboissier MC PubMed Article URL:http://dx.doi.org/10.1038/s41418-020-0547-7

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	33-3900 was used in immunohistochemistry - paraffin section and western blot to characterize the equine blood-testis barrier during tubular development in normal and cryptorchid stallions
Horse / 1:500	Theriogenology (2015; 84: 763) **"Characterization of the equine blood-testis barrier during tubular development in normal and cryptorchid stallions."** Author(s):Rode K,Sieme H,Richterich P,Brehm R PubMed Article URL:http://dx.doi.org/10.1016/j.theriogenology.2015.05.009
	33-3900 was used in immunohistochemistry - paraffin section to characterize a conditional knock out of ataxia telangiectasia-mutated as a mouse model of pancreatic ductal adenocarcinoma
Not Applicable / 1:100	Nature communications (2015; 6:) **"Loss of ATM accelerates pancreatic cancer formation and epithelial-mesenchymal transition."** Author(s):Russell R,Perkhofer L,Liebau S,Lin Q,Lechel A,Feld FM,Hessmann E,Gaedcke J,Güthle M,Zenke M,Hartmann D,von Figura G,Weissinger SE,Rudolph KL,Möller P,Lennerz JK,Seufferlein T,Wagner M,Kleger A PubMed Article URL:http://dx.doi.org/10.1038/ncomms8677
	33-3900 was used in immunohistochemistry - paraffin section and western blot to assess if E- and N-cadherin expression has diagnostic value for intrahepatic cholangiocarcinoma
Not Applicable / 1:50	Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc (2009; 22: 182) **"N-cadherin serves as diagnostic biomarker in intrahepatic and perihilar cholangiocarcinomas."** Author(s):Mosnier JF,Kandel C,Cazals-Hatem D,Bou-Hanna C,Gournay J,Jarry A,Laboisse CL PubMed Article URL:http://dx.doi.org/10.1038/modpathol.2008.123
	33-3900 was used in Immunohistochemistry (Paraffin) to reveal the preventative effect of TGF-1 in hypospadias induced by DEHP via the reduction of EMT.
Rat / 1:100	Pediatric research (2020; 87: 639) **"TGF-1 relieves epithelial-mesenchymal transition reduction in hypospadias induced by DEHP in rats."** Author(s):Zhou Y,Huang F,Liu Y,Li D,Zhou Y,Shen L,Long C,Liu X,Wei G PubMed Article URL:http://dx.doi.org/10.1038/s41390-019-0622-2
	33-3900 was used in immunohistochemistry - paraffin section to measure the E- and N-cadherin and beta- and alpha-catenin expression in benign and malignant epithelial neoplasms of the ovary and correlate expression with tumor staging, histological grade,
Not Applicable / 1:200	Gynecologic oncology (2004; 94: 16) **"Immunohistochemical patterns for alpha- and beta-catenin, E- and N-cadherin expression in ovarian epithelial tumors."** Author(s):Marques FR,Fonsechi-Carvasan GA,De Angelo Andrade LA,Böttcher-Luiz F PubMed Article URL:http://dx.doi.org/10.1016/j.ygyno.2004.03.037
	33-3900 was used in Immunohistochemistry (Paraffin) to demonstrate that combining overexpression of p-rpS6-MT with a male contraceptive (e.g., adjudin) potentiate the drug bioavailability by modifying the blood-testis barrier.
Rat / 1:100	American journal of physiology. Endocrinology and metabolism (2019; 317: E121) **"mTORC1/rpS6 signaling complex modifies BTB transport function: an in vivo study using the adjudin model."** Author(s):Yan M,Li L,Mao B,Li H,Li SYT,Mruk D,Silvestrini B,Lian Q,Ge R,Cheng CY PubMed Article URL:http://dx.doi.org/10.1152/ajpendo.00553.2018
	33-3900 was used in immunohistochemistry - paraffin section to use adipose tissue-derived stem cells to generate dental buds.
Human / 1:40	The American journal of pathology (2011; 178: 2299) **"Adipose tissue-derived stem cell in vitro differentiation in a three-dimensional dental bud structure."** Author(s):Ferro F,Spelat R,Falini G,Gallelli A,D'Aurizio F,Puppato E,Pandolfi M,Beltrami AP,Cesselli D,Beltrami CA,Ambesi-Impiombato FS,Curcio F PubMed Article URL:http://dx.doi.org/10.1016/j.ajpath.2011.01.055
	33-3900 was used in immunohistochemistry - paraffin section to determine mediation of differentiation and cisplatin chemotherapy resistance by biased expression of the FOXP3delta3 isoform in aggressive bladder cancer
Not Applicable / 1:50	Clinical cancer research : an official journal of the American Association for Cancer Research (2016; 22: 5349) **"Biased Expression of the FOXP33 Isoform in Aggressive Bladder Cancer Mediates Differentiation and Cisplatin Chemotherapy Resistance."** Author(s):Zhang H,Prado K,Zhang KX,Peek EM,Lee J,Wang X,Huang J,Li G,Pellegrini M,Chin AI PubMed Article URL:http://dx.doi.org/10.1158/1078-0432.CCR-15-2581

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	33-3900 was used in Immunohistochemistry on paraffin embedded tissues to show cadherin switch promotes cancer progression via TGF--induced EMT in extrahepatic CC, suggesting a target for elucidating the mechanisms of invasion and metastasis in extrahepatic CC.
Human / 1:50	British journal of cancer (2011; 105: 1885) **"E/N-cadherin switch mediates cancer progression via TGF--induced epithelial-to-mesenchymal transition in extrahepatic cholangiocarcinoma."** Author(s):Araki K,Shimura T,Suzuki H,Tsutsumi S,Wada W,Yajima T,Kobayahi T,Kubo N,Kuwano H PubMed Article URL:http://dx.doi.org/10.1038/bjc.2011.452
Not Applicable / Not Cited	33-3900 was used in immunohistochemistry - paraffin section to investigate the effect of N-cadherin misexpression in mice
	Journal of cellular biochemistry (2005; 95: 1093) **"Effect of N-cadherin misexpression by the mammary epithelium in mice."** Author(s):Knudsen KA,Sauer C,Johnson KR,Wheelock MJ PubMed Article URL:http://dx.doi.org/10.1002/jcb.20469
Mouse / 1:500	33-3900 was used in immunohistochemistry - paraffin section to study lens development in Pax6(Sey)(-Neu)/+ mouse embryos.
	Development (Cambridge, England) (2000; 127: 5439) **"Dosage requirement and allelic expression of PAX6 during lens placode formation."** Author(s):van Raamsdonk CD,Tilghman SM PubMed Article URL:http://dx.doi.org/10.1242/dev.127.24.5439
Avian / 1:50	33-3900 was used in Immunohistochemistry (Paraffin) to provide new information on the localization and expression of cell-cell junction proteins in the testis, epididymis, and ductus deferens of domestic turkeys, and compare expression of junctional protein genes between 2 turkey population, one that produces white normal semen (WNS) and the other that produces yellow abnormal semen.
	Poultry science (2020; 99: 555) **"Differential expression of cell-cell junction proteins in the testis, epididymis, and ductus deferens of domestic turkeys (Meleagris gallopavo) with white and yellow semen."** Author(s):Pardyak L,Kaminska A,Brzoskwinia M,Hejmej A,Kotula-Balak M,Jankowski J,Ciereszko A,Bilinska B PubMed Article URL:http://dx.doi.org/10.3382/ps/pez494
Not Applicable / 1:200	33-3900 was used in immunohistochemistry - paraffin section to measure Twist and E- and N-cadherin expression in human primary bladder tumor from tobacco and non-tobacco users and evaluate their prognostic value
	Urologic oncology (2009; 27: 268) **"The expression of Twist has an impact on survival in human bladder cancer and is influenced by the smoking status."** Author(s):Fondrevelle ME,Kantelip B,Reiter RE,Chopin DK,Thiery JP,Monnien F,Bittard H,Wallerand H PubMed Article URL:http://dx.doi.org/10.1016/j.urolonc.2007.12.012
Not Applicable / 1:400	33-3900 was used in immunohistochemistry - paraffin section to investigate the relationship between primary mucoepidermoid carcinoma of the thyroid and papillary thyroid carcinoma
	Virchows Archiv : an international journal of pathology (2002; 440: 498) **"Mucoepidermoid carcinoma of the thyroid: a tumour histotype characterised by P-cadherin neoexpression and marked abnormalities of E-cadherin/catenins complex."** Author(s):Rocha AS,Soares P,Machado JC,Máximo V,Fonseca E,Franssila K,Sobrinho-Simões M PubMed Article URL:http://dx.doi.org/10.1007/s00428-002-0622-0

8 Immunohistochemistry (Frozen) References

Species / Dilution	Summary
	33-3900 was used in immunohistochemistry - frozen section to elucidate the critical role of TRPV2 in maintenance of cardiac function and structure in mice
Human / 1:100	Nature communications (2014; 5:) **"TRPV2 is critical for the maintenance of cardiac structure and function in mice."** Author(s):Katanosaka Y,Iwasaki K,Ujihara Y,Takatsu S,Nishitsuji K,Kanagawa M,Sudo A,Toda T,Katanosaka K,Mohri S, Naruse K PubMed Article URL:http://dx.doi.org/10.1038/ncomms4932
	33-3900 was used in immunohistochemistry - frozen section to study the initiation and regulation of radial migration.
Mouse / 1:200	Nature communications (2014; 5:) **"Cdk5-mediated phosphorylation of RapGEF2 controls neuronal migration in the developing cerebral cortex."** Author(s):Ye T,Ip JP,Fu AK,Ip NY PubMed Article URL:http://dx.doi.org/10.1038/ncomms5826

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	33-3900 was used in immunohistochemistry - frozen section to test if TGF-beta3 regulates anchoring junction dynamics in the blood-testis barrier
Not Applicable / 1:100	Developmental biology (2005; 280: 321) **"TGF-beta3 regulates anchoring junction dynamics in the seminiferous epithelium of the rat testis via the Ras /ERK signaling pathway: An in vivo study."** Author(s):Xia W,Cheng CY PubMed Article URL:http://dx.doi.org/10.1016/j.ydbio.2004.12.036
	33-3900 was used in immunohistochemistry - frozen section to show that the cadherin/catenin complex is present between Sertoli and germ cells and is used for the assembly of functional adheren junctions.
Rat / Not Cited	Biology of reproduction (2003; 68: 489) **"Is the cadherin/catenin complex a functional unit of cell-cell actin-based adherens junctions in the rat testis?"** Author(s):Lee NP,Mruk D,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1095/biolreprod.102.005793
	33-3900 was used in immunohistochemistry - frozen section to study induction of granulosa cell fate and defects and cancers in mouse adult ovary by amplification of R-spondin1 signaling
Not Applicable / 1:200	Oncogene (2017; 36: 208) **"Amplification of R-spondin1 signaling induces granulosa cell fate defects and cancers in mouse adult ovary."** Author(s):De Cian MC,Pauper E,Bandiera R,Vidal VP,Sacco S,Gregoire EP,Chassot AA,Panzolini C,Wilhelm D,Pailhoux E,Youssef SA,de Bruin A,Teerds K,Schedl A,Gillot I,Chaboissier MC PubMed Article URL:http://dx.doi.org/10.1038/onc.2016.191
	33-3900 was used in immunohistochemistry - frozen section to study regulation of the blood-testis barrier
Not Applicable / 1:100	Journal of cellular physiology (2005; 205: 141) **"Disruption of Sertoli-germ cell adhesion function in the seminiferous epithelium of the rat testis can be limited to adherens junctions without affecting the blood-testis barrier integrity: an in vivo study using an androgen suppression model."** Author(s):Xia W,Wong CH,Lee NP,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1002/jcp.20377
	33-3900 was used in Immunohistochemistry (Frozen) to suggest that Cx43 reduction in symptomatic DMD carrier mice leads to prevention of Cx43 remodeling in the heart and prevention of aberrant Cx43 hemichannel activity in the skeletal muscle macrophages neighboring Cx43 non-expressing fibers.
Mouse / 1:300	Scientific reports (2020; 10:) **"Connexin-43 reduction prevents muscle defects in a mouse model of manifesting Duchenne muscular dystrophy female carriers."** Author(s):Nouet J,Himelman E,Lahey KC,Zhao Q,Fraidenraich D PubMed Article URL:http://dx.doi.org/10.1038/s41598-020-62844-9
	33-3900 was used in immunohistochemistry - frozen section to determine the distribution pattern and physiological function of coxsackie and adenovirus receptor in the testis
Not Applicable / 1:50	Experimental cell research (2007; 313: 1373) **"Coxsackie and adenovirus receptor (CAR) is a product of Sertoli and germ cells in rat testes which is localized at the Sertoli-Sertoli and Sertoli-germ cell interface."** Author(s):Wang CQ,Mruk DD,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2007.01.017

2 Flow Cytometry References

Species / Dilution	Summary
	33-3900 was used in Flow cytometry/Cell sorting to study the role of Polybromo-1 in prostate cancer.
Human / 1:100	International journal of molecular sciences (2019; 20:) **"New Insights into the Role of Polybromo-1 in Prostate Cancer."** Author(s):Mota STS,Vecchi L,Zóia MAP,Oliveira FM,Alves DA,Dornelas BC,Bezerra SM,Andrade VP,Maia YCP,Neves AF,Goulart LR,Araújo TG PubMed Article URL:http://dx.doi.org/10.3390/ijms20122852
	33-3900 was used in Western Blotting to show that endothelial-mesenchymal transitions emerged in endothelial cells of cerebral arteriovenous malformation and caused disruption of the lumen.
Human / Not Cited	The Journal of clinical investigation (2019; 129: 3121) **"Elevated endothelial Sox2 causes lumen disruption and cerebral arteriovenous malformations."** Author(s):Yao J,Wu X,Zhang D,Wang L,Zhang L,Reynolds EX,Hernandez C,Boström KI,Yao Y PubMed Article URL:http://dx.doi.org/10.1172/JCI125965

18 Miscellaneous PubMed References

Species / Dilution	Summary

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	33-3900 was used in immunohistochemistry (paraffin) to examine epithelial-type cadherin and neural-type cadherin as diagnostic markers of malignant noncarcinomatous neoplasms.
Human / 1:200	Archives of pathology & laboratory medicine (2002; 126: 425) **"Epithelial-type and neural-type cadherin expression in malignant noncarcinomatous neoplasms with epithelioid features that involve the soft tissues."** Author(s):Laskin WB,Miettinen M PubMed Article URL:http://dx.doi.org/10.5858/2002-126-0425-ETANTC
Mouse / 1:1000	33-3900 was used in immunohistochemistry - paraffin section and western blot to explore the effect of cadherin specificity on cardiac structure and function.
	Journal of cell science (2002; 115: 1623) **"Remodeling the intercalated disc leads to cardiomyopathy in mice misexpressing cadherins in the heart."** Author(s):Ferreira-Cornwell MC,Luo Y,Narula N,Lenox JM,Lieberman M,Radice GL PubMed Article URL:http://dx.doi.org/10.1242/jcs.115.8.1623
Human / 1:100	33-3900 was used in immunohistochemistry (paraffin) to describe the molecular pathologic characteristics of urothelial carcinomas subtypes.
	The American journal of pathology (2013; 183: 681) **"Toward a molecular pathologic classification of urothelial carcinoma."** Author(s):Sjödahl G,Lövgren K,Lauss M,Patschan O,Gudjonsson S,Chebil G,Aine M,Eriksson P,Månsson W,Lindgren D,Fernö M,Liedberg F,Höglund M PubMed Article URL:http://dx.doi.org/10.1016/j.ajpath.2013.05.013
Rat / Not Cited	33-3900 was used in immunoprecipitation to study the contribution of ZO-1 to cell-cell junction localization
	American journal of physiology. Heart and circulatory physiology (2011; 300: H583) **"ZO-1 determines adherens and gap junction localization at intercalated disks."** Author(s):Palatinus JA,O'Quinn MP,Barker RJ,Harris BS,Jourdan J,Gourdie RG PubMed Article URL:http://dx.doi.org/10.1152/ajpheart.00999.2010
Human / 1:400	33-3900 was used in immunohistochemistry to describe the clinicopathological features of papillary thyroid carcinoma.
	The Journal of pathology (2001; 194: 358) **"Abnormalities of the E-cadherin/catenin adhesion complex in classical papillary thyroid carcinoma and in its diffuse sclerosing variant."** Author(s):Rocha AS,Soares P,Seruca R,Máximo V,Matias-Guiu X,Cameselle-Teijeiro J,Sobrinho-Simões M PubMed Article URL:http://dx.doi.org/10.1002/path.905
Human / Not Cited	33-3900 was used in western blot to study the intercalated disc of the heart.
	Developmental biology (2013; 374: 264) **"The Xin repeat-containing protein, mXin, initiates the maturation of the intercalated discs during postnatal heart development."** Author(s):Wang Q,Lin JL,Chan SY,Lin JJ PubMed Article URL:http://dx.doi.org/10.1016/j.ydbio.2012.12.007
Mouse / Not Cited	33-3900 was used in western blot to study plakoglobin using hypomorphic mice.
	Genesis (New York, N.Y. : 2000) (2012; 50: 717) **"Analysis of a Jup hypomorphic allele reveals a critical threshold for postnatal viability."** Author(s):Swope D,Li J,Muller EJ,Radice GL PubMed Article URL:http://dx.doi.org/10.1002/dvg.22034
Human / Not Cited	33-3900 was used in western blot to examine adhesion- versus a beta-catenin signaling-dependent mechanisms of E-cadherin tumor suppressor activity.
	The Journal of cell biology (2001; 153: 1049) **"E-cadherin suppresses cellular transformation by inhibiting beta-catenin signaling in an adhesion-independent manner."** Author(s):Gottardi CJ,Wong E,Gumbiner BM PubMed Article URL:http://dx.doi.org/10.1083/jcb.153.5.1049
Human / Not Cited	33-3900 was used in immunoprecipitation and western blot to assess the functional significance of N-cadherin in melanoma cells.
	Cancer research (2001; 61: 3819) **"N-cadherin-mediated intercellular interactions promote survival and migration of melanoma cells."** Author(s):Li G,Satyamoorthy K,Herlyn M PubMed Article URL:http://www.ncbi.nlm.nih.gov/pubmed/11325858

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	33-3900 was used in western blot to characterize two clones from triple negative breast MDA-MB-231 cancer cells
Human / 1:500	Experimental cell research (2015; 339: 67) **"Heterogeneity between triple negative breast cancer cells due to differential activation of Wnt and PI3K/AKT pathways."** Author(s):Martínez-Revollar G,Garay E,Martin-Tapia D,Nava P,Huerta M,Lopez-Bayghen E,Meraz-Cruz N,Segovia J, González-Mariscal L PubMed Article URL:http://dx.doi.org/10.1016/j.yexcr.2015.10.006
	33-3900 was used in immunohistochemistry (paraffin) to discuss using expression of cadherins and catenins as prognosis markers for cancer.
Human / Not Cited	Journal of mammary gland biology and neoplasia (2001; 6: 275) **"Cadherin junctions in mammary tumors."** Author(s):Wheelock MJ,Soler AP,Knudsen KA PubMed Article URL:http://dx.doi.org/10.1023/a:1011319507155
	33-3900 was used in immunohistochemistry to characterize the expression of a number of proteins in tissues from pseudomyxoma peritonei patients.
Human / 1:100	Human pathology (2010; 41: 1109) **"Exploring the peritoneal surface malignancy phenotype--a pilot immunohistochemical study of human pseudomyxoma peritonei and derived animal models."** Author(s):Flatmark K,Davidson B,Kristian A,Stavnes HT,Førsund M,Reed W PubMed Article URL:http://dx.doi.org/10.1016/j.humpath.2009.12.013
	33-3900 was used in immunohistochemistry to study expression of E- and N-cadherin in mesotheliomas and adenocarcinomas.
Human / 1:20	Human pathology (2003; 34: 749) **"Value of E-cadherin and N-cadherin immunostaining in the diagnosis of mesothelioma."** Author(s):Ordóñez NG PubMed Article URL:http://dx.doi.org/10.1016/s0046-8177(03)00285-5
	33-3900 was used in western blot to investigate how CaSm promotes pancreatic cancer
Human / Not Cited	Oncogenesis (2016; 5:) **"The CaSm (LSm1) oncogene promotes transformation, chemoresistance and metastasis of pancreatic cancer cells."** Author(s):Little EC,Camp ER,Wang C,Watson PM,Watson DK,Cole DJ PubMed Article URL:http://dx.doi.org/10.1038/oncsis.2015.45
	33-3900 was used in immunohistochemistry (paraffin) to investigate the role of N-cadherin in cardiogenesis.
Mouse / 1:100	Development (Cambridge, England) (2001; 128: 459) **"Rescuing the N-cadherin knockout by cardiac-specific expression of N- or E-cadherin."** Author(s):Luo Y,Ferreira-Cornwell M,Baldwin H,Kostetskii I,Lenox J,Lieberman M,Radice G PubMed Article URL:http://dx.doi.org/10.1242/dev.128.4.459
	33-3900 was used in immunohistochemistry - paraffin section and western blot to study the role of the Rac1 GTPase the shaping of the ocular lens
Mouse / 1:200	Developmental biology (2011; 360: 30) **"Rac1 GTPase-deficient mouse lens exhibits defects in shape, suture formation, fiber cell migration and survival."** Author(s):Maddala R,Chauhan BK,Walker C,Zheng Y,Robinson ML,Lang RA,Rao PV PubMed Article URL:http://dx.doi.org/10.1016/j.ydbio.2011.09.004
	33-3900 was used in western blot to develop and characterize a novel three-dimensional cell culture model of ovarian endometriosis.
Human / 1:1000	Journal of ovarian research (2014; 7:) **"Novel three-dimensional in vitro models of ovarian endometriosis."** Author(s):Brueggmann D,Templeman C,Starzinski-Powitz A,Rao NP,Gayther SA,Lawrenson K PubMed Article URL:http://dx.doi.org/10.1186/1757-2215-7-17
	33-3900 was used in immunohistochemistry (paraffin) to assess the incidence and prognostic significance of the epithelial to mesenchymal transition in cancer of unknown primary.
Human / Not Cited	Anticancer research (2012; 32: 1273) **"Immunohistochemical study of the epithelial-mesenchymal transition phenotype in cancer of unknown primary: incidence, correlations and prognostic utility."** Author(s):Stoyianni A,Goussia A,Pentheroudakis G,Siozopoulou V,Ioachim E,Krikelis D,Golfinopoulos V,Cervantes A, Bobos M,Fotsis T,Bellou S,Fountzilas G,Malamou-Mitsi V,Pavlidis N PubMed Article URL:http://www.ncbi.nlm.nih.gov/pubmed/22493359

1 Immunoprecipitation References

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Rat / Not Cited	FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2008; 22: 1945) **"Blood-testis barrier dynamics are regulated by testosterone and cytokines via their differential effects on the kinetics of protein endocytosis and recycling in Sertoli cells."** Author(s):Yan HH,Mruk DD,Lee WM,Cheng CY PubMed Article URL:http://dx.doi.org/10.1096/fj.06-070342

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