

SMAD3 Polyclonal Antibody

Catalog Number51-1500

Product data sheet

Details		Species Reactivity	
Size	100 µg	Species reactivity	Human
Host/Isotope	Rabbit / IgG	Published species	Dog, Tag, Mink, Rat, Non-human primate, Virus, Deer, Luciferase, Human, Mouse, Not Applicable
Class	Polyclonal		
Type	Antibody	Tested Applications	Dilution *
Immunogen	A 20 amino acid synthetic peptide derived from a central portion of the linker domain of human Smad3	ChIP assay (ChIP)	2 µg/10^6 cells
Conjugate	Unconjugated	ELISA (ELISA)	0.1-1.0 µg/mL
Form	Liquid	Immunohistochemistry (IHC)	1.0 µg/mL
Concentration	0.25 mg/mL	Western Blot (WB)	1-3 µg/mL
Purification	Antigen affinity chromatography	Immunocytochemistry (ICC/IF)	1:100-1:500
Storage buffer	PBS, pH 7.4	Published Applications	
Contains	0.1% sodium azide	Immunocytochemistry (ICC/IF)	See 8 publications below
Storage Conditions	-20°C	Western Blot (WB)	See 25 publications below
		Immunohistochemistry (IHC)	See 6 publications below
		Immunohistochemistry (Paraffin) (IHC (P))	See 2 publications below
		Miscellaneous PubMed (Misc)	See 3 publications below
		ChIP assay (ChIP)	See 1 publications below
		Gel Shift (GS)	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.

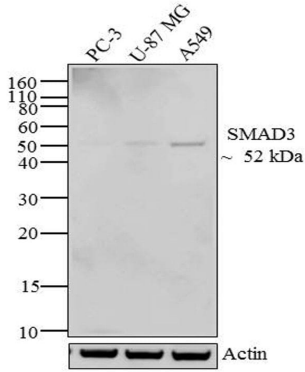
Background/Target Information

SMAD3 belongs to the SMAD family of proteins. They are similar to the gene products of the Drosophila gene 'mothers against decapentaplegic' (Mad) and the C. elegans gene Sma. SMAD proteins are signal transducers and transcriptional modulators that mediate multiple signaling pathways. This protein functions as a transcriptional modulator activated by transforming growth factor-beta and is thought to play a role in the regulation of carcinogenesis.

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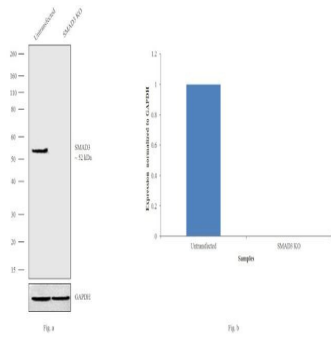
SMAD3 Antibody (51-1500) in WB

Western blot analysis of SMAD3 was performed by loading 35 µg of PC-3 (lane1), U-87 MG (lane2) and a549 (lane3) cell lysate using Novex®NuPAGE® 12 % Bis-Tris gel (Product # NP0341BOX), XCell SureLock Electrophoresis System (Product # EI0002), Novex® 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. SMAD3 was detected at ~ 52 kDa using SMAD3 Rabbit Polyclonal Antibody (Product # 51-1500) at 1-3 µg/mL in 5% skim milk at 4°C overnight on a rocking platform. Goat Anti-Rabbit IgG - HRP Secondary Antibody (G21234) at 1:5000 dilution was used and chemiluminescent detection was performed using Pierce™ ECL Western Blotting Substrate (Product # 32106).



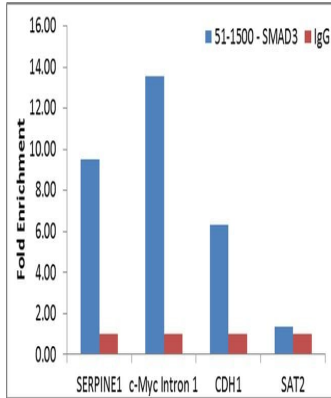
SMAD3 Antibody (51-1500)

Antibody specificity was demonstrated by CRISPR-Cas9 mediated knockout of target protein. Loss of signal was observed for target protein in SMAD3 knockout (KO) cell line using Anti-SMAD3 polyclonal Antibody (Product # 51-1500). {KO}



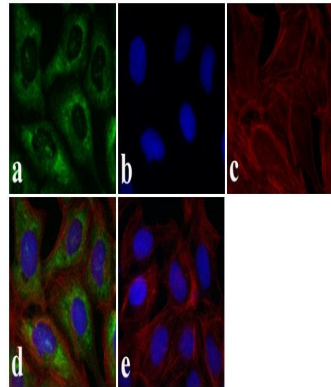
SMAD3 Antibody (51-1500)

Antibody specificity was demonstrated by detection of enrichment of the target protein at specific gene loci. Chromatin Immunoprecipitation (ChIP) was performed using Anti-SMAD3 Rabbit Polyclonal Antibody (Product # 51-1500) using PCR primer pairs over SERPINE1, c-Myc Intron 1 and CDH1 (active) and SAT2 satellite repeats (inactive). {RE}



SMAD3 Antibody (51-1500) in ICC/IF

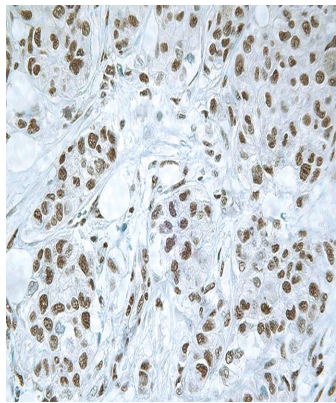
Immunofluorescence analysis of SMAD3 was done on 70% confluent log phase HeLa cells. The cells were fixed with 4% paraformaldehyde for 15 minutes, permeabilized with 0.25% Triton™ X-100 for 10 minutes, and blocked with 5% BSA for 1 hour at room temperature. The cells were labeled with SMAD3 Rabbit polyclonal Antibody (Product # 51-1500) at 2 µg/mL in 1% BSA and incubated for 3 hours at room temperature and then labeled with Alexa Fluor 488 Goat Anti-Rabbit IgG Secondary Antibody (Product # A-11008) 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 DAPI (Product # S36938). F-actin (Panel c: red) was stained with Alexa Fluor 594 Phalloidin (Product # A12381). Panel d is a merged image showing cytoplasmic localization. Panel e shows no primary antibody control. The images were captured at 20X magnification.



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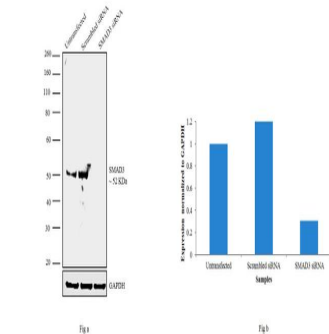


SMAD3 Antibody (51-1500) in IHC

Immunohistochemical staining of human breast carcinoma using Rb anti-Smad3 (PAD: LPC3) (Product # 51-1500).

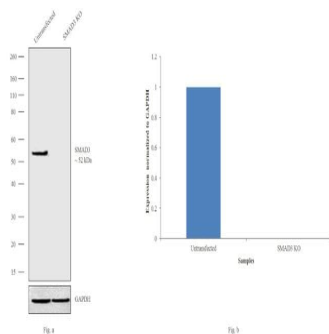
SMAD3 Antibody (51-1500) in WB

Knockdown of SMAD3 was achieved by transfecting A549 with SMAD3 specific siRNAs (Silencer® select Product # s8400). Western blot analysis (Fig. a) was performed using whole cell extracts from the SMAD3 knockdown cells (lane 3), non-specific scrambled siRNA transfected cells (lane 2) and untransfected cells (lane 1). The blots were probed with SMAD3 Polyclonal Antibody (Product # 51-1500, 1 µg/mL) and Goat anti-Rabbit IgG (Heavy Chain) Superclonal™ Secondary Antibody, HRP conjugate (Product # A27036, 0.25 µg/mL, 1:4000 dilution). Densitometric analysis of this western blot is shown in histogram (Fig. b). Absence of signal upon siRNA mediated knock down confirms that antibody is specific to SMAD3.



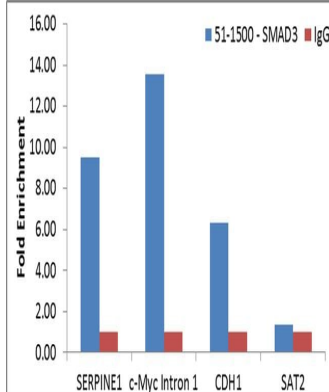
SMAD3 Antibody (51-1500) in WB

Western blot analysis of SMAD3 (Fig. a) was performed by loading 20 µg of HeLa Control (lane 1), HeLa SMAD3 knockout (lane 2) whole cell extracts. SMAD3 was detected at 50 kDa using SMAD3 polyclonal Antibody (Product # 51-1500, 1µg/mL) and Goat anti-Rabbit IgG (Heavy Chain) Superclonal™ Secondary Antibody HRP conjugate (Product # A27036, 1:4000 dilution). Densitometric analysis of this western blot is shown in histogram (Fig. b). Loss of signal in CRISPR mediated knockout (KO) confirms that antibody is specific to SMAD3.



SMAD3 Antibody (51-1500) in ChIP

Enrichment of endogenous SMAD3 protein at specific gene loci using Anti-SMAD3 Antibody: Chromatin Immunoprecipitation (ChIP) was performed using Anti-SMAD3 Rabbit Polyclonal Antibody (Product # 51-1500, 4 µg) on sheared chromatin from 2 million MCF7 cells treated with TGFb (7 ng/mL for 1 hour) using the MAGnify ChIP system kit (Product # 49-2024). Normal Rabbit IgG was used as a negative IP control. The purified DNA was analyzed by qPCR with PCR primer pairs over SERPINE1, c-Myc Intron 1 and CDH1 (active) and SAT2 satellite repeats (inactive). Data is presented as fold enrichment of the antibody signal versus the negative control IgG using the comparative CT method.



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PubMed References For SMAD3 Polyclonal Antibody

8 Immunocytochemistry References

Species / Dilution	Summary
Human / 1:100	51-1500 was used in immunocytochemistry to examine the association between CEACAM1 isoform balance and hepatocellular carcinoma malignant potential and investigate the molecular interaction between CEACAM1 and beta2SP
	Annals of surgical oncology (2014; 21 Suppl 4: S505) "CEACAM1 long cytoplasmic domain isoform is associated with invasion and recurrence of hepatocellular carcinoma." Author(s):Kiriya S,Yokoyama S,Ueno M,Hayami S,Ieda J,Yamamoto N,Yamaguchi S,Mitani Y,Nakamura Y,Tani M, Mishra L,Shively JE,Yamaue H PubMed Article URL: http://dx.doi.org/10.1245/s10434-013-3460-1
	The Journal of biological chemistry (2005; 280: 21858) "Smad7 abrogates transforming growth factor-beta1-mediated growth inhibition in COLO-357 cells through functional inactivation of the retinoblastoma protein." Author(s):Boyer Arnold N,Korc M PubMed Article URL: http://dx.doi.org/10.1074/jbc.M500583200
Luciferase / Not Cited Human / Not Cited Rat / Not Cited	51-1500 was used in immunocytochemistry to test if beta-HPV gene products are present in lesions from kidney transplant recipients
Human / Not Cited	Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc (2014; 27: 1101) "Improved detection reveals active -papillomavirus infection in skin lesions from kidney transplant recipients." Author(s):Borgogna C,Lanfredini S,Peretti A,De Andrea M,Zavattaro E,Colombo E,Quaglia M,Boldorini R,Miglio U, Doorbar J,Bavinck JN,Quint KD,de Koning MN,Landolfo S,Garglio M PubMed Article URL: http://dx.doi.org/10.1038/modpathol.2013.240
Human / Not Cited	American journal of physiology. Lung cellular and molecular physiology (2013; 305: L582) "Differential effects of fluticasone on extracellular matrix production by airway and parenchymal fibroblasts in severe COPD." Author(s):Brandsma CA,Timens W,Jonker MR,Rutgers B,Noordhoek JA,Postma DS PubMed Article URL: http://dx.doi.org/10.1152/ajplung.00152.2013
Not Applicable / 1:200	51-1500 was used in immunocytochemistry and western blot to determine the mechanism of action of Fuzheng Huayu recipe and vitamin E against renal interstitial fibrosis related to transforming growth factor-beta1-mediated tubular epithelial-to-mesenchymal
Mouse / 1:100	Journal of ethnopharmacology (2010; 127: 631) "Fuzheng Huayu recipe and vitamin E reverse renal interstitial fibrosis through counteracting TGF-beta1-induced epithelial-to-mesenchymal transition." Author(s):Wang QL,Yuan JL,Tao YY,Zhang Y,Liu P,Liu CH PubMed Article URL: http://dx.doi.org/10.1016/j.jep.2009.12.011
	American journal of physiology. Lung cellular and molecular physiology (2006; 290: L120) "BMP-7 opposes TGF-beta1-mediated collagen induction in mouse pulmonary myofibroblasts through Id2." Author(s):Izumi N,Mizuguchi S,Inagaki Y,Saika S,Kawada N,Nakajima Y,Inoue K,Suehiro S,Friedman SL,Ikeda K PubMed Article URL: http://dx.doi.org/10.1152/ajplung.00171.2005
	The Journal of biological chemistry (2005; 280: 8079) "Ultraviolet irradiation induces Smad7 via induction of transcription factor AP-1 in human skin fibroblasts." Author(s):Quan T,He T,Voorhees JJ,Fisher GJ PubMed Article URL: http://dx.doi.org/10.1074/jbc.M409647200
Human / Not Cited Mouse / Not Cited	Breast cancer research : BCR (2004; 6: R215) "Induction by transforming growth factor-beta1 of epithelial to mesenchymal transition is a rare event in vitro." Author(s):Brown KA,Aakre ME,Gorska AE,Price JO,Eltom SE,Pietenpol JA,Moses HL PubMed Article URL: http://dx.doi.org/10.1186/bcr778

25 Western Blot References

Species / Dilution	Summary
Mouse / Not Cited	51-1500 was used in western blot to investigate the role of nonreceptor tyrosine focal adhesion kinase TGF-beta signaling.
	The Journal of biological chemistry (2011; 286: 17841) "Non-Smad transforming growth factor- signaling regulated by focal adhesion kinase binding the p85 subunit of phosphatidylinositol 3-kinase." Author(s):Hong M,Wilkes MC,Penheiter SG,Gupta SK,Edens M,Leof EB PubMed Article URL: http://dx.doi.org/10.1074/jbc.M111.233676

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	51-1500 was used in western blot to report a novel mechanism by which cells become resistant to TGF-beta-mediated growth suppression
Not Applicable / Not Cited	Molecular cancer research : MCR (2011; 9: 78) "Distinctive mechanism for sustained TGF- signaling and growth inhibition: MEK1 activation-dependent stabilization of type II TGF- receptors." Author(s):Chen G,Ghosh P,Longo DL PubMed Article URL: http://dx.doi.org/10.1158/1541-7786.MCR-10-0216
	51-1500 was used in western blot to investigate the involvement of c-Src in the regulation of TGF-beta1-induced apoptosis
Not Applicable / Not Cited	Oncogene (2004; 23: 6272) "Involvement of c-Src kinase in the regulation of TGF-beta1-induced apoptosis." Author(s):Park SS,Eom YW,Kim EH,Min DS,Kim S,Kim SJ,Choi KS PubMed Article URL: http://dx.doi.org/10.1038/sj.onc.1207856
Human / Not Cited	Breast cancer research : BCR (2004; 6: R215) "Induction by transforming growth factor-beta1 of epithelial to mesenchymal transition is a rare event in vitro."
Mouse / Not Cited	Author(s):Brown KA,Aakre ME,Gorska AE,Price JO,Eltom SE,Pietenpol JA,Moses HL PubMed Article URL: http://dx.doi.org/10.1186/bcr778
	51-1500 was used in western blot to test if inactivation of TGF-beta1 combined with oncogenic activation of K-ras leads to early initiation and faster progression to lung adenocarcinoma
Not Applicable / Not Cited	Carcinogenesis (2007; 28: 2589) "Modulation of tumor induction and progression of oncogenic K-ras-positive tumors in the presence of TGF- b1 haploinsufficiency." Author(s):Pandey J,Umphress SM,Kang Y,Angdisen J,Naumova A,Mercer KL,Jacks T,Jakowlew SB PubMed Article URL: http://dx.doi.org/10.1093/carcin/bgm136
	51-1500 was used in western blot to demonstrate functional roles for Smad3, Hey1, and Jagged1/Notch in mediating TGF-beta-induced epithelial-to-mesenchymal transitions
Not Applicable / Not Cited	The EMBO journal (2004; 23: 1155) "Integration of TGF-beta/Smad and Jagged1/Notch signalling in epithelial-to-mesenchymal transition." Author(s):Zavadil J,Cermak L,Soto-Nieves N,Böttinger EP PubMed Article URL: http://dx.doi.org/10.1038/sj.emboj.7600069
Human / Not Cited	Cancer research (2004; 64: 4523) "Smad-binding defective mutant of transforming growth factor beta type I receptor enhances tumorigenesis but suppresses metastasis of breast cancer cell lines."
Virus / Not Cited	Author(s):Tian F,Byfield SD,Parks WT,Stuelten CH,Nemani D,Zhang YE,Roberts AB PubMed Article URL: http://dx.doi.org/10.1158/0008-5472.CAN-04-0030
	51-1500 was used in Western Blotting to show renal fibrosis can be promoted by Akt1 deletion by induction of the TGF1 /STAT3 pathway.
Rat / 1:500	BioMed research international (2021; 2020:) "Deletion of <i>Akt1</i> Promotes Kidney Fibrosis in a Murine Model of Unilateral Ureteral Obstruction." Author(s):Kim IY, Lee MY, Park MW, Seong EY, Lee DW, Lee SB, Bae SS, Kim SS, Song SH PubMed Article URL: http://dx.doi.org/10.1155/2020/6143542
Human / Not Cited	Cancer research (2003; 63: 8284) "Reduction in Smad2/3 signaling enhances tumorigenesis but suppresses metastasis of breast cancer cell lines." Author(s):Tian F, DaCosta Byfield S, Parks WT, Yoo S, Felici A, Tang B, Piek E, Wakefield LM, Roberts AB PubMed Article URL: http://www.ncbi.nlm.nih.gov/pubmed/14678987
	51-1500 was used in western blot to report that Cbl-b plays an integral role in T cell TGF-beta signaling
Not Applicable / Not Cited	Journal of immunology (Baltimore, Md. : 1950) (2006; 176: 1316) "Cutting edge: deficiency in the E3 ubiquitin ligase Cbl-b results in a multifunctional defect in T cell TGF-beta sensitivity in vitro and in vivo." Author(s):Wohlfert EA, Gorelik L, Mittler R, Flavell RA, Clark RB PubMed Article URL: http://dx.doi.org/10.4049/jimmunol.176.3.1316
	51-1500 was used in western blot to determine the role of activin A in the growth regulation of breast cancer cells
Not Applicable / Not Cited	Cancer research (2005; 65: 7968) "Activin A mediates growth inhibition and cell cycle arrest through Smads in human breast cancer cells." Author(s):Burdette JE, Jeruss JS, Kurley SJ, Lee EJ, Woodruff TK PubMed Article URL: http://dx.doi.org/10.1158/0008-5472.CAN-04-3553
Human / Not Cited	The Journal of biological chemistry (2005; 280: 8079) "Ultraviolet irradiation induces Smad7 via induction of transcription factor AP-1 in human skin fibroblasts." Author(s):Quan T, He T, Voorhees JJ, Fisher GJ PubMed Article URL: http://dx.doi.org/10.1074/jbc.M409647200

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	51-1500 was used in western blot to examine the contribution of TGF-beta signaling in the pathogenesis of lymphoid neoplasia
Not Applicable / Not Cited	The New England journal of medicine (2004; 351: 552) "Loss of Smad3 in acute T-cell lymphoblastic leukemia." Author(s):Wolfram LA,Fernandez TM,Mamura M,Fuller WL,Kumar R,Cole DE,Byfield S,Felici A,Flanders KC,Walz TM, Roberts AB,Aplan PD,Balis FM,Letterio JJ PubMed Article URL: http://dx.doi.org/10.1056/NEJMoa031197
	51-1500 was used in western blot to elucidate the species-specific modulation of the GNRH1 response by activin signaling
Not Applicable / Not Cited	Cellular signalling (2010; 22: 936) "SMAD3 and EGR1 physically and functionally interact in promoter-specific fashion." Author(s):Fortin J,Bernard DJ PubMed Article URL: http://dx.doi.org/10.1016/j.cellsig.2010.01.019
	51-1500 was used in western blot to study activin-inducible transcription by Evi-1 and repression of bone morphogenetic protein
Not Applicable / Not Cited	The Journal of biological chemistry (2005; 280: 24227) "Repression of bone morphogenetic protein and activin-inducible transcription by Evi-1." Author(s):Alliston T,Ko TC,Cao Y,Liang YY,Feng XH,Chang C,Derynck R PubMed Article URL: http://dx.doi.org/10.1074/jbc.M414305200
Tag / Not Cited	Blood (2003; 101: 2253) "Cellular response to hypoxia involves signaling via Smad proteins."
Human / Not Cited	Author(s):Zhang H,Akman HO,Smith EL,Zhao J,Murphy-Ullrich JE,Batuman OA PubMed Article URL: http://dx.doi.org/10.1182/blood-2002-02-0629
	51-1500 was used in western blot to report the 2.0-Å structure of SIX bound to EYA2.
Human / 1:1000	Nature structural & molecular biology (2013; 20: 447) "Structure-function analyses of the human SIX1-EYA2 complex reveal insights into metastasis and BOR syndrome." Author(s):Patrick AN,Cabrera JH,Smith AL,Chen XS,Ford HL,Zhao R PubMed Article URL: http://dx.doi.org/10.1038/nsmb.2505
	51-1500 was used in Western Blotting to show that hepatocytes undergo transforming growth factor (TGF)-beta-dependent epithelial-to-mesenchymal transition-like phenotypic changes and actively participate in fibrogenesis.
Mouse / Not Cited	Gastroenterology (2008; 135: 642) "Hepatocyte-specific Smad7 expression attenuates TGF-beta-mediated fibrogenesis and protects against liver damage." Author(s):Dooley S,Hamzavi J,Ciuculan L,Godoy P,Illkavets I,Ehnert S,Ueberham E,Gebhardt R,Kanzler S,Geier A, Breitkopf K,Weng H,Mertens PR PubMed Article URL: http://dx.doi.org/10.1053/j.gastro.2008.04.038
	51-1500 was used in Western Blot to suggest that CtBP is bound to these promoters in the absence of EBNA3C and that EBNA3C interaction with CtBP interferes with the repressive function of CtBP, leading to EBNA3C mediated upregulation.
Human / Not Cited	PLoS pathogens (2021; 17:) "Epstein-Barr virus nuclear antigen 3C (EBNA3C) interacts with the metabolism sensing C-terminal binding protein (CtBP) repressor to upregulate host genes." Author(s):Ohashi M,Hayes M,McChesney K,Johannsen E PubMed Article URL: http://dx.doi.org/10.1371/journal.ppat.1009419
	51-1500 was used in western blot to elucidate how the integrin pathway regulates downstream effectors of the TGF-beta1 pathway in chondrocytic cell signaling
Not Applicable / Not Cited	Cellular signalling (2004; 16: 1133) "Signaling "cross-talk" between TGF-beta1 and ECM signals in chondrocytic cells." Author(s):Schneiderbauer MM,Dutton CM,Scully SP PubMed Article URL: http://dx.doi.org/10.1016/j.cellsig.2004.03.004
	51-1500 was used in western blot to elucidate TGF-beta receptor dynamics and consequential signaling
Not Applicable / Not Cited	Oncogene (2010; 29: 2368) "Extracellular matrix-induced transforming growth factor-beta receptor signaling dynamics." Author(s):Garamszegi N,Garamszegi SP,Samavarchi-Tehrani P,Walford E,Schneiderbauer MM,Wrana JL,Scully SP PubMed Article URL: http://dx.doi.org/10.1038/onc.2009.514
	American journal of physiology. Lung cellular and molecular physiology (2013; 305: L582) "Differential effects of fluticasone on extracellular matrix production by airway and parenchymal fibroblasts in severe COPD."
Human / Not Cited	Author(s):Brandsma CA,Timens W,Jonker MR,Rutgers B,Noordhoek JA,Postma DS PubMed Article URL: http://dx.doi.org/10.1152/ajplung.00152.2013

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	51-1500 was used in Western Blotting to identify that Erbb4-IR is a novel lncRNA responsible for TGF-/Smad3-mediated renal fibrosis by downregulating Smad7.
Mouse / Not Cited	Molecular therapy : the journal of the American Society of Gene Therapy (2018; 26: 148) "TGF- Mediates Renal Fibrosis via the Smad3-Erbb4-IR Long Noncoding RNA Axis." Author(s):Feng M,Tang PM,Huang XR,Sun SF,You YK,Xiao J,Lv LL,Xu AP,Lan HY PubMed Article URL: http://dx.doi.org/10.1016/j.ymthe.2017.09.024
	51-1500 was used in western blot to discuss the role of transforming growth factor beta-1 in the pathogenesis of tubulointerstitial fibrosis and in repair following acute injury
Not Applicable / Not Cited	Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association (2009; 24: 2655) "Interleukin-1 beta regulates proximal tubular cell transforming growth factor beta-1 signalling." Author(s):Luo DD,Fielding C,Phillips A,Fraser D PubMed Article URL: http://dx.doi.org/10.1093/ndt/gfp208
	51-1500 was used in Western Blotting to analyse whether human chronic inflammatory nephropathies evolving towards fibrosis could be also characterized by a weak intrarenal IL-15 expression and if IL-15 could inhibit epithelial-mesenchymal transition (EMT) and excess matrix deposition in human renal proximal tubular epithelial cells (RPTEC).
Human / Not Cited	International journal of cell biology (2020; 2019:) "Inhibition of TGF-β1 Signaling by IL-15: A Novel Role for IL-15 in the Control of Renal Epithelial-Mesenchymal Transition: IL-15 Counteracts TGF-β1-Induced EMT in Renal Fibrosis." Author(s):Devocelle A,Lecru L,François H,Desterke C,Gallerne C,Eid P,Estelle O,Azzarone B,Giron-Michel J PubMed Article URL: http://dx.doi.org/10.1155/2019/9151394
6 Immunohistochemistry References	
Species / Dilution	Summary
	51-1500 was used in immunohistochemistry to examine the mechanism of the inhibin and activin signalling pathway in cancers
Human / Not Cited	Molecular human reproduction (2014; 20: 1223) "The inhibin/activin signalling pathway in human gonadal and adrenal cancers." Author(s):Marino FE,Risbridger G,Gold E PubMed Article URL: http://dx.doi.org/10.1093/molehr/gau074
	51-1500 was used in immunohistochemistry to study the role of cell division autoantigen 1 in diabetes-associated renal injury
Mouse / Not Cited	Journal of the American Society of Nephrology : JASN (2013; 24: 1782) "Genetic deletion of cell division autoantigen 1 retards diabetes-associated renal injury." Author(s):Chai Z,Dai A,Tu Y,Li J,Wu T,Wang Y,Hale LJ,Koentgen F,Thomas MC,Cooper ME PubMed Article URL: http://dx.doi.org/10.1681/ASN.2013010060
Mouse / Not Cited	Oncogene (2005; 24: 3028) "Inactivation of TGF-beta signaling in hepatocytes results in an increased proliferative response after partial hepatectomy." Author(s):Romero-Gallo J,Sozmen EG,Chytil A,Russell WE,Whitehead R,Parks WT,Holdren MS,Her MF,Gautam S,Magnuson M,Moses HL,Grady WM PubMed Article URL: http://dx.doi.org/10.1038/sj.onc.1208475
	51-1500 was used in Immunohistochemistry-immunofluorescence to conclude that intense pulsed light upregulates TGF-1 /Smad3 signaling in perilesional skin obtained from patients with mild-to-moderate inflammatory acne vulgaris.
Human / 1:150	Journal of cosmetic dermatology (2013; 12: 195) "Intense pulsed light enhances transforming growth factor beta1/Smad3 signaling in acne-prone skin." Author(s):Ali MM,Porter RM,Gonzalez ML PubMed Article URL: http://dx.doi.org/10.1111/jocd.12045
Human / Not Cited	Cancer research (2003; 63: 8284) "Reduction in Smad2/3 signaling enhances tumorigenesis but suppresses metastasis of breast cancer cell lines." Author(s):Tian F,DaCosta Byfield S,Parks WT,Yoo S,Felici A,Tang B,Piek E,Wakefield LM,Roberts AB PubMed Article URL: http://www.ncbi.nlm.nih.gov/pubmed/14678987
	51-1500 was used in Immunohistochemistry to demonstrate expression of the TGF-beta-receptor-activated Smad2 and Smad3, the common mediator Smad4, and the inhibitory Smad7 in the developing human fetal kidney.
Human / Not Cited	The journal of histochemistry and cytochemistry : official journal of the Histochemistry Society (2007; 55: 275) "Localization of TGF-beta signaling intermediates Smad2, 3, 4, and 7 in developing and mature human and mouse kidney." Author(s):Banas MC,Parks WT,Hudkins KL,Banas B,Holdren M,Iyoda M,Wietecha TA,Kowalewska J,Liu G,Alpers CE PubMed Article URL: http://dx.doi.org/10.1369/jhc.6A7083.2006

2 Immunohistochemistry (Paraffin) References	
Species / Dilution	Summary

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	51-1500 was used in immunohistochemistry - paraffin section to characterize expression of Smad proteins in the developing kidney.
Mouse / Not Cited	<p>Mechanisms of development (2002; 112: 207)</p> <p>"Dynamic regulation of Smad expression during mesenchyme to epithelium transition in the metanephric kidney."</p> <p>Author(s):Oxburgh L,Robertson EJ PubMed Article URL:http://dx.doi.org/10.1016/s0925-4773(01)00648-7</p>
Human / 1:200	<p>51-1500 was used in immunohistochemistry - paraffin section to test if disruptions of transforming growth factor-beta /Smad signaling contribute to the development of head and neck squamous cell carcinoma.</p> <p>Head & neck (2013; 35: 76)</p> <p>"Alterations of Smad expression and activation in defining 2 subtypes of human head and neck squamous cell carcinoma."</p> <p>Author(s):Xie W,Aisner S,Baredes S,Sreepada G,Shah R,Reiss M PubMed Article URL:http://dx.doi.org/10.1002/hed.22924</p>
3 Miscellaneous PubMed References	
Species / Dilution	Summary
	51-1500 was used in western blot to discuss how SKI-mediated processes in melanoma cells
Human / Not Cited	<p>Cell cycle (Georgetown, Tex.) (2010; 9: 1684)</p> <p>"SKI promotes Smad3 linker phosphorylations associated with the tumor-promoting trait of TGFbeta."</p> <p>Author(s):Lin Q,Chen D,Timchenko NA,Medrano EE PubMed Article URL:http://dx.doi.org/10.4161/cc.9.9.11292</p>
Mink / Not Cited	<p>51-1500 was used in gel shift to assess the role of the Ras/MAPK pathways and Smads in TGFbeta3 induction of TGFbeta1 expression in untransformed lung and intestinal epithelial cells.</p> <p>The Journal of biological chemistry (2000; 275: 30765)</p> <p>"Requirement of Ras/MAPK pathway activation by transforming growth factor beta for transforming growth factor beta 1 production in a Smad-dependent pathway."</p> <p>Author(s):Yue J,Mulder KM PubMed Article URL:http://dx.doi.org/10.1074/jbc.M000039200</p>
Human / Not Cited	<p>51-1500 was used in immunocytochemistry and western blot to report that carcinoembryonic antigen directly interacts with TGF-beta receptor and inhibits TGF-beta signaling</p> <p>Cancer research (2010; 70: 8159)</p> <p>"Carcinoembryonic antigen interacts with TGF-{beta} receptor and inhibits TGF-{beta} signaling in colorectal cancers."</p> <p>Author(s):Li Y,Cao H,Jiao Z,Pakala SB,Sirigiri DN,Li W,Kumar R,Mishra L PubMed Article URL:http://dx.doi.org/10.1158/0008-5472.CAN-10-1073</p>
1 ChIP assay References	
Species / Dilution	Summary
	51-1500 was used in ChIP assay and western blot to elucidate the role of Myc in the TGFbeta response
Not Applicable / Not Cited	<p>Oncogene (2009; 28: 422)</p> <p>"A positive role for Myc in TGFbeta-induced Snail transcription and epithelial-to-mesenchymal transition."</p> <p>Author(s):Smith AP,Verrecchia A,Fagà G,Doni M,Perna D,Martinato F,Guccione E,Amati B PubMed Article URL:http://dx.doi.org/10.1038/onc.2008.395</p>
1 Gel Shift References	
Species / Dilution	Summary
Human / Not Cited	<p>The Journal of biological chemistry (2005; 280: 8079)</p> <p>"Ultraviolet irradiation induces Smad7 via induction of transcription factor AP-1 in human skin fibroblasts."</p> <p>Author(s):Quan T,He T,Voorhees JJ,Fisher GJ PubMed Article URL:http://dx.doi.org/10.1074/jbc.M409647200</p>

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