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eNOS Polyclonal Antibody

Catalog Number **PA3-031A**

Product data sheet

Details	
Size	100 µL
Host/Isotope	Rabbit / IgG
Class	Polyclonal
Type	Antibody
Immunogen	Synthetic peptide corresponding to residues P(599) Y N S S P R P E Q H K S Y K(613) C of bovine eNOS.
Conjugate	Unconjugated
Form	Liquid
Concentration	Conc. Not Determined
Storage buffer	whole serum, PBS
Contains	0.05% sodium azide
Storage Conditions	-20° C, Avoid Freeze/Thaw Cycles

Species Reactivity	
Species reactivity	Bovine, Dog, Human, Mouse, Rat
Published species	Dog, Rat, Bovine, Mouse, Human, Not Applicable

Tested Applications	Dilution *
Immunohistochemistry (Paraffin) (IHC (P))	1:250
Western Blot (WB)	1:1,000
Immunocytochemistry (ICC/IF)	1:250

Published Applications	
Immunohistochemistry (IHC)	See 10 publications below
Immunohistochemistry (Paraffin) (IHC (P))	See 2 publications below
Western Blot (WB)	See 2 publications below
Immunocytochemistry (ICC/IF)	See 3 publications below
Miscellaneous PubMed (Misc)	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

PA3-031A detects endothelial Nitric Oxide Synthase (eNOS) from canine, bovine, human, mouse and rat tissues. This antibody does not detect brain NOS (bNOS) or inducible NOS (iNOS). PA3-031A has been successfully used in Western blot, immunohistochemistry, immunofluorescence, and immunocytochemistry procedures. By Western blot, this antibody detects an approximately 140 kDa band representing eNOS from canine cardiac extracts. Immunohistochemical staining of eNOS in mouse cardiac tissue with PA3-031 results in the staining of the endothelium. The PA3-031A immunogen is a synthetic peptide corresponding to residues P(599) Y N S S P R P E Q H K S Y K(613) C of bovine eNOS.

Background/Target Information

Nitric oxide (NO) is an inorganic, gaseous free radical that carries a variety of messages between cells. Vasorelaxation, neurotransmission and cytotoxicity can all be potentiated through cellular response to NO. NO production is mediated by members of the nitric oxide synthase (NOS) family. NOS catalyzes the oxidization of L-arginine to produce L-citrulline and NO. Two constitutive isoforms, brain or neuronal NOS (b or nNOS, type I) and endothelial cell NOS (eNOS, type III), and one inducible isoform (iNOS, type II), have been cloned. All NOS isoforms contain calmodulin, nicotinamide adenine dinucleotide phosphate (NADPH), flavin adenine dinucleotide (FAD), and flavin mononucleotide (FMN) binding domains.

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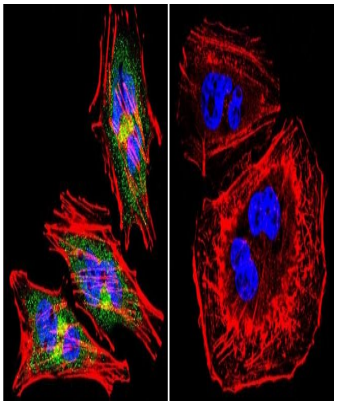
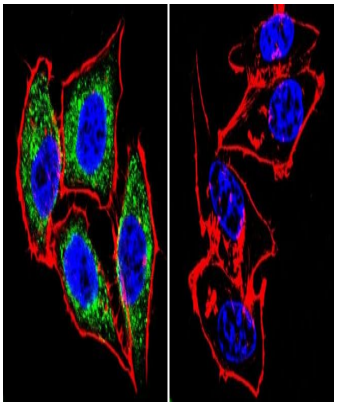
Product Images For eNOS Polyclonal Antibody



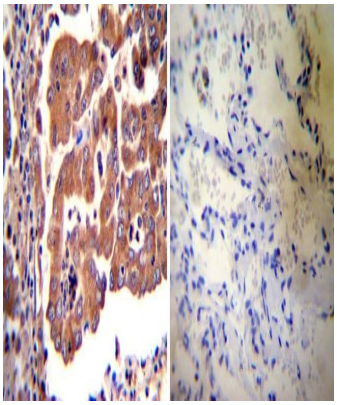
eNOS Antibody (PA3-031A) in ICC/IF

Immunofluorescent analysis of eNOS using eNOS Polyclonal Antibody (Product # PA3-031A) shows staining in A2058 Cells. eNOS (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing eNOS (Product # PA3-031A) at a dilution of 1:200 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.



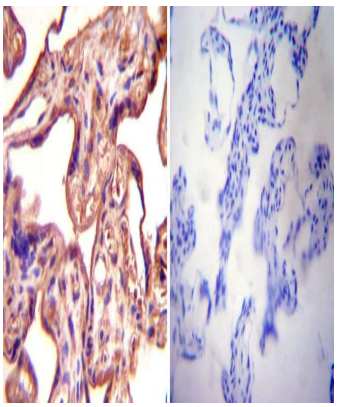
eNOS Antibody (PA3-031A) in ICC/IF

Immunofluorescent analysis of eNOS using eNOS Polyclonal Antibody (Product # PA3-031A) shows staining in Hela Cells. eNOS (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing eNOS (Product # PA3-031A) at a dilution of 1:200 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.



eNOS Antibody (PA3-031A) in IHC (P)

Immunohistochemistry was performed on cancer biopsies of deparaffinized Human lung adenocarcinoma tissues. To expose target proteins, heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:20 with a rabbit polyclonal antibody recognizing eNOS (Product # PA3-031A) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



eNOS Antibody (PA3-031A) in IHC (P)

Immunohistochemistry was performed on normal deparaffinized Human placenta tissue tissues. To expose target proteins, heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:500 with a rabbit polyclonal antibody recognizing eNOS (Product # PA3-031A) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.

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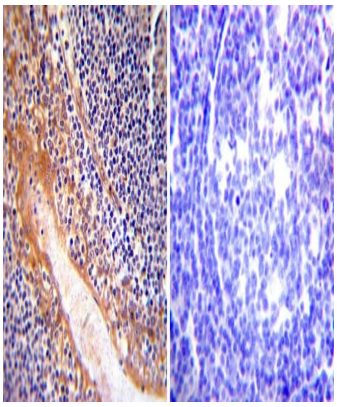

eNOS Antibody (PA3-031A) in IHC (P)

Immunohistochemistry was performed on normal deparaffinized Human tonsil tissue tissues. To expose target proteins, heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:200 with a rabbit polyclonal antibody recognizing eNOS (Product # PA3-031A) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.

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PubMed References For eNOS Polyclonal Antibody

10 Immunohistochemistry References

Species / Dilution	Summary
Rat / Not Cited	PA3-031A was used in immunohistochemistry to study the potential role of calpain-1 in the greater protective effect against contrast-induced nephropathy of grape seed proanthocyanidin extract as compared to N-acetyl cysteine Life sciences (2014; 103: 101) **"GSPE is superior to NAC in the prevention of contrast-induced nephropathy: might this superiority be related to caspase 1 and calpain 1?"** Author(s):Ulusoy S,Ozkan G,Mungan S,Orem A,Yulug E,Alkanat M,Yucesan FB PubMed Article URL:http://dx.doi.org/10.1016/j.lfs.2014.03.030
Bovine / 1:50	PA3-031A was used in immunohistochemistry to study the bovine oviduct expression of iNOS, eNOS and nNOS across the sexual cycle Anatomia, histologia, embryologia (2013; 42: 384) **"Immunohistochemical expression of nitric oxide synthase enzymes (iNOS, eNOS, nNOS) in the estrual and luteal phases of the sexual cycle in the cow oviduct."** Author(s):Özen A,Ergün E,Özta E,Ergün L,Özcan Z,Alabay B,Bayraktarolu AG,Kürüm A,Erdoan E PubMed Article URL:http://dx.doi.org/10.1111/ahe.12027
Rat / Not Cited	PA3-031A was used in immunohistochemistry to study the expression of eNOS and nNOS in the internal iliac artery and penis of rats subjected to caloric restriction Archivio italiano di urologia, andrologia : organo ufficiale [di] Societa italiana di ecografia urologica e nefrologica (2013; 85: 113) **"Caloric restriction increases internal iliac artery and penil nitric oxide synthase expression in rat: comparison of aged and adult rats."** Author(s):Ozbek E,Simsek A,Ozbek M,Somay A PubMed Article URL:http://dx.doi.org/10.4081/aiua.2013.3.113
Rat / 1:250	PA3-031A was used in Immunohistochemistry to find that diabetes causes serious damage in heart tissue via NOS, and pentoxifylline aided in improving nNOS and iNOS expression. Anatolian journal of cardiology (2016; 16: 310) **"Therapeutic effects of pentoxifylline on diabetic heart tissue via NOS."** Author(s):Karabulut D,Ulusoy HB,Kaymak E,Sönmez MF PubMed Article URL:http://dx.doi.org/10.5152/akd.2015.6252
Rat / Not Cited	PA3-031A was used in immunohistochemistry to study the protective effects of a grape seed proanthocyanidin extract in a rat model of acute kidney injury induced by rhabdomyolysis American journal of nephrology (2014; 38: 368) **"Perspective on rhabdomyolysis-induced acute kidney injury and new treatment options."** Author(s):Ulusoy S,Ozkan G,Alkanat M,Mungan S,Yulu E,Orem A PubMed Article URL:http://dx.doi.org/10.1159/000355537
Human / 1:250	PA3-031A was used in immunohistochemistry to investigate the role of gonadotrophin-releasing hormone agonists during nitric oxide synthase expression and peroxynitrite generation in adenomyosis Human reproduction (Oxford, England) (2000; 15: 2512) **"GnRH agonist-suppressed expression of nitric oxide synthases and generation of peroxynitrite in adenomyosis."** Author(s):Kamada Y,Nakatsuka M,Asagiri K,Noguchi S,Habara T,Takata M,Kudo T PubMed Article URL:http://dx.doi.org/10.1093/humrep/15.12.2512
Mouse / Not Cited	PA3-031A was used in immunohistochemistry to identify how long term exposure to angiotensin II receptor blockers changes renal vessels Journal of the renin-angiotensin-aldosterone system : JRAAS (2011; 12: 65) **"Changes in renal vessels following the long-term administration of an angiotensin II receptor blocker in Zucker fatty rats."** Author(s):Nakanishi K,Nagai Y,Akimoto T,Kato H,Yanakieva-Georgieva N,Ishikawa Y,Yoshihara K,Ito K,Yamanaka N,Oite T PubMed Article URL:http://dx.doi.org/10.1177/1470320310387844
Human / 1:1000	PA3-031A was used in immunohistochemistry to investigate the expression of e-NOS and endothelin-1 in human placenta from heavy smokers and non-smokers APMIS : acta pathologica, microbiologica, et immunologica Scandinavica (2007; 115: 22) **"The human placenta from heavy smokers: evaluation of vasoactive peptides by immunohistochemistry."** Author(s):Clausen HV,Larsen LG,Jørgensen A,Bzorek M PubMed Article URL:http://dx.doi.org/10.1111/j.1600-0463.2007.apm_492.x

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	PA3-031A was used in immunohistochemistry to study the effect of warfarin on the osteonecrosis of femoral head in spontaneously hypertensive rats
Rat / Not Cited	Journal of orthopaedic science : official journal of the Japanese Orthopaedic Association (2005; 9: 585) **"Warfarin reduces the incidence of osteonecrosis of the femoral head in spontaneously hypertensive rats."** Author(s):Wada M,Kumagai K,Murata M,S-Yamashita Y,Shindo H PubMed Article URL:http://dx.doi.org/10.1007/s00776-004-0829-9
	PA3-031A was used in immunohistochemistry to investigate the role of nitric oxide production in the pathogenesis of rat experimental allergic encephalomyelitis
Rat / Not Cited	Journal of neuroimmunology (1996; 64: 123) **"Experimental allergic encephalomyelitis in the rat is inhibited by aminoguanidine, an inhibitor of nitric oxide synthase."** Author(s):Zhao W,Tilton RG,Corbett JA,McDaniel ML,Misko TP,Williamson JR,Cross AH,Hickey WF PubMed Article URL:http://dx.doi.org/10.1016/0165-5728(95)00158-1

2 Immunohistochemistry (Paraffin) References

Species / Dilution	Summary
	PA3-031A was used in immunohistochemistry - paraffin section to analyze NOS induced by diabetes in rat kidney and ameliorative effects of pentoxifylline
Not Applicable / 1:250	Renal failure (2017; 38: 605) **"Ameliorative effects of pentoxifylline on NOS induced by diabetes in rat kidney."** Author(s):Sönmez MF,Dündar M PubMed Article URL:http://dx.doi.org/10.3109/0886022X.2016.1149688
	PA3-031A was used in immunohistochemistry - paraffin section to investigate the association with apoptosis and increased immunoreactivity for nitric oxide synthase in rat retina causing an elevation of intraocular pressure and how the retina derived rela
Not Applicable / Not Cited	Experimental eye research (2016; 145: 401) **"The elevation of intraocular pressure is associated with apoptosis and increased immunoreactivity for nitric oxide synthase in rat retina whereas the effectiveness of retina derived relaxing factor is unaffected."** Author(s):Takr S,Gürel-Gürevin E,Toprak A,Demirci-Tansel C,Uyde-Doan BS PubMed Article URL:http://dx.doi.org/10.1016/j.exer.2016.03.002

2 Western Blot References

Species / Dilution	Summary
	PA3-031A was used in western blot to investigate the changes of eNOS and caveolin-1 and -3 in their respective expression level in a dog model of moderate, nonfailing, hypertrophic cardiomyopathy
Dog / Not Cited	American journal of physiology. Heart and circulatory physiology (2002; 282: H219) **"Decreased expression of myocardial eNOS and caveolin in dogs with hypertrophic cardiomyopathy."** Author(s):Piech A,Massart PE,Dessy C,Feron O,Havaux X,Morel N,Vanoverschelde JL,Donckier J,Balligand JL PubMed Article URL:http://dx.doi.org/10.1152/ajpheart.2002.282.1.H219
	PA3-031A was used in Western Blot to observe the role of BH4 availability and the association of HSP90 with NOS3 in APC,mediated cardioprotection against I/R injury.
Rat / 1:1000	International journal of molecular medicine (2020; 45: 615) **"NOS cofactor tetrahydrobiopterin contributes to anesthetic preconditioning induced myocardial protection in the isolated ex vivo rat heart."** Author(s):Wang C,Qiao S,Hong L,Sun J,Che T,An J,Camara AKS PubMed Article URL:http://dx.doi.org/10.3892/ijmm.2019.4445

3 Immunocytochemistry References

Species / Dilution	Summary
	PA3-031A was used in immunocytochemistry to investigate the expression and role of nitric oxide synthase in mouse ovarian follicles
Mouse / 1:300	Human reproduction (Oxford, England) (2004; 19: 30) **"Expression of nitric oxide synthase and effect of substrate manipulation of the nitric oxide pathway in mouse ovarian follicles."** Author(s):Mitchell LM,Kennedy CR,Hartshorne GM PubMed Article URL:http://dx.doi.org/10.1093/humrep/deh032

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	PA3-031A was used in immunocytochemistry to investigate the mechanism of the regulation of bone marrow-derived cell egress by sympathetic nervous system
Mouse / Not Cited	Arteriosclerosis, thrombosis, and vascular biology (2012; 32: 643) **"Sympathetic nervous system regulates bone marrow-derived cell egress through endothelial nitric oxide synthase activation: role in postischemic tissue remodeling."** Author(s):Récalde A,Richart A,Guérin C,Cochain C,Zouggari Y,Yin KH,Vilar J,Drouet I,Lévy B,Varoquaux O,Silvestre JS PubMed Article URL:http://dx.doi.org/10.1161/ATVBAHA.111.244392
	PA3-031A was used in Immunocytochemistry-Immunofluorescence to study how proteins relevant to lung health are affected by cyclic increases in apical air pressure.
Human / 1:200	American journal of physiology. Lung cellular and molecular physiology (2019; 317: L247) **"Cyclic compression increases F508 Del CFTR expression in ciliated human airway epithelium."** Author(s):Marozkina N,Bosch J,Cotton C,Smith L,Seckler J,Zaman K,Rehman S,Periasamy A,Gaston H,Altawallbeh G,Davis M,Jones DR,Schilz R,Randell SH,Gaston B PubMed Article URL:http://dx.doi.org/10.1152/ajplung.00020.2019

1 Miscellaneous PubMed References

Species / Dilution	Summary
	PA3-031A was used in Flow cytometry/Cell sorting to generate a triple-mutant diabetic mouse model coupled with metabolomic profiling data to interrogate whether Tug1 interaction with peroxisome proliferator-activated receptor gamma coactivator 1 (PGC1) is required for mitochondrial remodeling and progression of DN in vivo.
Mouse / Not Cited	Cell reports (2021; 36:) **"PGC1 is required for the renoprotective effect of lncRNA Tug1 in vivo and links Tug1 with urea cycle metabolites."** Author(s):Li L,Long J,Mise K,Galvan DL,Overbeek PA,Tan L,Kumar SV,Chan WK,Lorenzi PL,Chang BH,Danesh FR PubMed Article URL:http://dx.doi.org/10.1016/j.celrep.2021.109510

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