ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Cyclooxygenase 3 (COX3, PGH Synthase) Antibodies

Cat. # COX31-P	Mouse COX3 Control Peptide	**SIZE**: 100 ug
Cat. # COX31-A	Rabbit Anti-Mouse COX3 IgG (aff pure)	**SIZE**: 100 ug

The prostanoid family includes PGD2, PGE2, PGF2alpha, PGI2, thromboxane A2 and prostaglandins. The biosynthesis of PGs and some other prostanoids, is catalyzed in a rate limiting step by PG-H synthase (also known as cyclooxygenase (COX), PG-endoperoxidase synthase (PTGS)) which converts arachiodonic acid to prostaglandin/prostanoid precursor PGH2. Two cyclooxygenase isozymes, COX1 and COX2 have been identified. COX1, a constitutively expressed isoform, produces physiologically relevant prostanoids such as those in stomach and platelets. COX2 isoform is inducible and rapidly upregulated at inflammation sites and forms proinflamatory prostanoids. Recently, a third isoform COX3 (canine 633aa; ~65kDa in human aorta) has been reported. Two smaller COX1-derived proteins (partial COX1) PCOX1a (canine 414aa, ~53kDa in human aorta) and PCOX1b have also been characterized. The COX3, but not PCOX1a, possesses glycosylation-dependent cyclooxygenase activity.

COX3 and PCOX1a are made from the COX1 gene but retain intron 1 in their mRNAs. PCOX-1b (53 kDa) lacks the intron 1. This intron introduces an insertion of 30-34aa, depending on mammalian species, into hydrophobic signal peptide that directs COX1 into the lumen of endoplasmic reticulum and nuclear envelope. The signal peptide is cleaved in both COX1 and COX2 proteins, whereas in COX3 and PCOX1a, this signal peptide is retained and both proteins are glycosylated. The COX3 and PCOX mRNAs are expressed in canine cerebral cortex and in lesser amounts in other tissues analyzed. In humans, COX3 mRNA is most abundant in cerebral cortex and heart. COX3 and PCOX1A are expressed efficiently in insect cells as membrane-bound proteins. The nonsteroidal anti-inflammatory drugs (NSAIDs) reduce the formation of prostaglandins by inhibiting the activity of cyclooxygenases (COX1, COX2 and COX3). COX3 activity is selectively inhibited by analgesic/antipyretic drugs such as acetaminophen, phenacetin, antipyrine, and dipyrone, and is potently inhibited by some nonsteroidal anti-inflammatory drugs.

Source of Antigen and Antibodies

Antigen	12aa peptide (1-12aa) of **Mouse COX3** (1); **Designated (COX31-P or control peptide)** conjugated to KLH.; epitope location ~ N-terminus
Ab Host/type	Rabbit, polyclonal Aff pure IgG (**cat # COX31-A**) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

100 ug/100ul solution lyophilized powder

Supplied in **Buffer**: PBS+0.1% BSA

Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide

100 ug/100 ul solution lyophilized powder

Supplied in Buffer: PBS pH 7.5,

Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.

Recommended Usage

Western Blotting (1-10 ug/ml for affinity pure antibody using ECL technique). The antibody (**cat # COX31-A**) will recognize ~65 kDa (COX3) and ~53 kDa PCOX1a of human aorta under reducing and non-reducing conditions. See refs in 2

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: (See refs 2).

Specificity & Cross-reactivity

COX31-P control peptide is 100% conserved in Human and dog COX3 and PCOX1a proteins. Antibody (**cat # COX31-A**) cross-reactivity in various species is not known. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).).

General References: (1) Chandrasekharan NV et al (2002) PNAS 99, 13926; Warner TD and Mitchell, JA (2002) PNAS, 99, 13371; Macchia, L et al (1997) BBRC 233, 496; Simmons DL et al (1999) PNAS 96, 3275; Liu CH et al (2001) JBC 276, 18563; Willoughby, DA et al (2000) The Lancet 355, 646; Jang BC (2002) JBC (in press).

2. Citations of for ADI Antibodies (see updates at the web site)

Lukiw WJ, 2005, BBRC 338, 77-81, WB,
Ayoub SS, 2006, European Journal of Pharmacology, 538, 57-65, WB,
Lukiw WJ, 2005, Brain Research 1054, 73-81, WB,
Siegel B, 2007, Journal of Periodontal Research, Volume 42, Issue 3: 259-266, , IHC
Lukiw WJ, 2006, Current Eye Research, Mar2006, Vol. 31 Issue 3, p259-263,, WB,
Cui J-G, 2005, Neurochem. Res. 9, 1731-1737, WB,
Dou W, 2004, Prostaglins & Other Lipid Mediators, 74,29-43, , IHC

**This product is for In vitro research use only.*

COX31-A-P 71217A

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