INFLAMMATION ASSAY KITS

ARBOR ASSAYS
Interactive Assay Solutions™

INFLAMMATION

WEB 220117

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2′,3′-Cyclic GAMP ELISA Kits

K067-H1 (1 Strip-Well Plate) | K067-H5 (5 Strip-Well Plate)
K067-H1W (1 Whole Plate) | K067-H5W (5 Whole Plate)
K067-H1D (384-Well Plate)

MULTI SPECIES

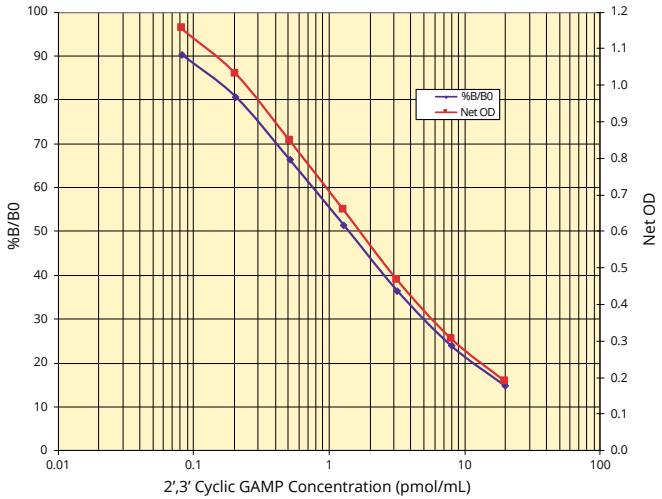
MOST SENSITIVE

FEATURES

- Use — Measure 2′,3′-cGAMP in tissues and cells
- Sample — Cell Lysates, Tissue Extracts, TCM
- Sensitivity — 0.04 pmol/mL, 2 fmol/well
- Samples/Kit — 96-well: 39 or 231 in Duplicate
  384-well: 183 in Duplicate
- Stability — Liquid 4°C Stable Reagents
- Readout — Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

2′,3′-Cyclic guanosine monophosphate–adenosine monophosphate (cyclic GMP-AMP, cGAMP, cyclic [G(2′,5′) pA(3′,5′)p]) is referred to as "noncanonical" cGAMP due to the presence of the atypical 2′-5′ phosphodiester linkage between the guanosine and the adenosine. 2′,3′-Cyclic GAMP is a novel second messenger in innate immunity that regulates type I interferon (IFN) production. Produced in mammalian cells by cGAS (cGAMP synthase) in response to double-stranded DNA in the cytoplasm binding to cGAS, cGAMP binds to the stimulator of interferon genes (STING). Subsequently STING induces the TBK1-IRF3-dependent production of IFN-β. This cGAS-cGAMP-STING pathway has been shown to play a critical role in pathogen detection and physiological conditions such as metabolic dysregulation, autoimmunity, and cancer.



2′,3′-Cyclic GAMP STING-Based FRET Detection Kits

K081-F1 (1 Plate) | K081-H5 (5 Plate)

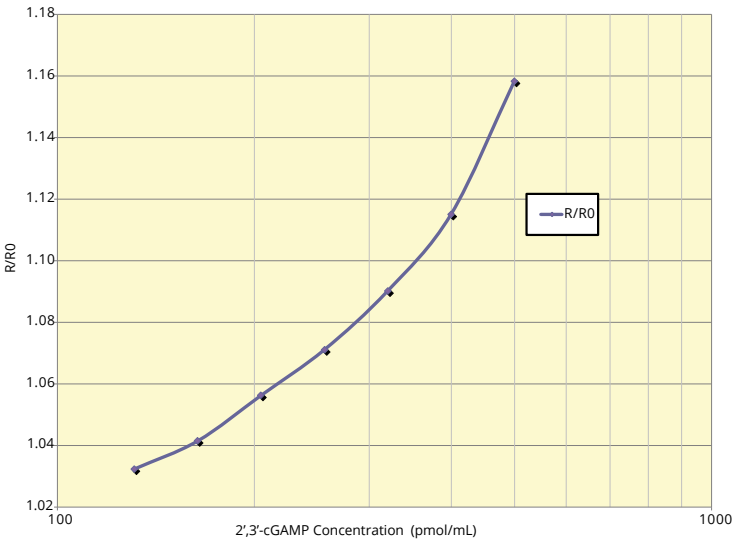
FEATURES

MULTI SPECIES

- Use: Detection of 2′,3′-cGAMP
- Sample: Cell Lysates, Tissue Extracts, TCM
- Sensitivity: 82.02 pmol/mL
- Standard Range: 500 - 131 nM
- Samples/Kit: 40 or 232 in Duplicate
- Readout: Fluorescence: Excitation 458 nm, Emission: 600 nm/490 nm

SCIENTIFIC RELEVANCE

The assay uses a biosensor (BioSTING), a fluorescence resonance energy transfer (FRET) based sensor based on STING, designed specifically to detect 2′,3′-cGAMP in real-time within living cells. FRET is a fluorescence detection platform based on a distance-dependent relationship between two fluorophores. In the case of BioSTING, mTFP and mKO2 are the fluorophores of choice. When mTFP is excited with a wavelength of 458 nm, the emission is detected at 490 nm when no ligand (2′,3′-cGAMP) is present. When BioSTING binds to the ligand, the two fluorophores are positioned in closer proximity to each other, allowing the fluorescence to be transferred from mTFP to mKO2, changing the emission wavelength to 600 nm. Using this detection method, BioSTING shows applicability for in vitro high-throughput screening for cylic di-nucleotide production modulation and direct screening for STING agonists and antagonists.



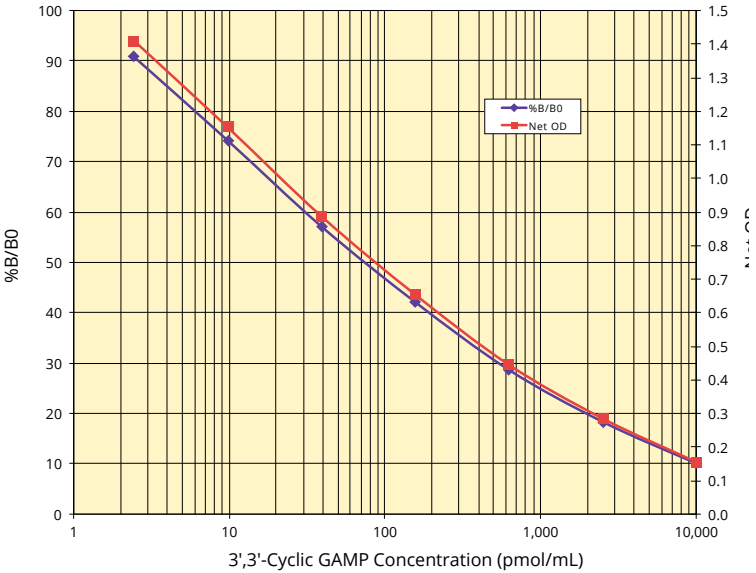
3',3'-Cyclic GAMP ELISA Kits

K073-H1 (1 Strip-Well Plate) | K073-H5 (5 Strip-Well Plate)

FEATURES

- Use — Measure 3',3'-cGAMP in tissues and cells
- Sample — Cell Lysates, Tissue Extracts, TCM
- Sensitivity — 0.944 pmol/mL, 47 fmol/well
- Samples/Kit — 39 or 231 in Duplicate
- Stability — Liquid 4°C Stable Reagents
- Readout — Colorimetric, 450 nm

SCIENTIFIC RELEVANCE



3',3'-cyclic GAMP (cyclic [G(3',5')pA(3',5')p], previously known as cGAMP) is a key mediator of bacterial signal transduction and regulation, controlling a range of diverse targets including transcription, enzyme activity and cell cycle progression. 3',3'-cGAMP signaling in bacteria is regulated in-part by gene regulatory RNA elements called riboswitches that bind and respond to cGAMP with high affinity and specificity. The 3',3'-cGAMP riboswitches regulate genes involved in motility, biofilm formation, colonization, and virulence. The cyclic nucleotides have emerged as key players involved in bacterial physiology and inhibition studies of cGAMP signaling are ongoing as an anti-microbial strategy. In mammalian cells, 3',3'-cGAMP and its eukaryotic analog 2',3'-cGAMP produced by cGAS, bind STING (stimulator of IFN genes) and subsequently induce TBK1-IRF3-dependent production of IFN-β. Here, the cGAS-cGAMP-STING DNA sensing pathway is a key activator of the innate immune response to foreign or harmful native DNA. The cGAS-cGAMP-STING pathway plays a critical role in antiviral and antitumor immunity as well as mediating autoimmune responses. Dysregulation or aberrant activation of the pathway by self-DNA has emerged as an underlying cause of tumorigenesis and autoimmune disorders.

Allopregnanolone ELISA Kits

K061-H1 (1 Plate) | K061-H5 (5 Plate)

FEATURES

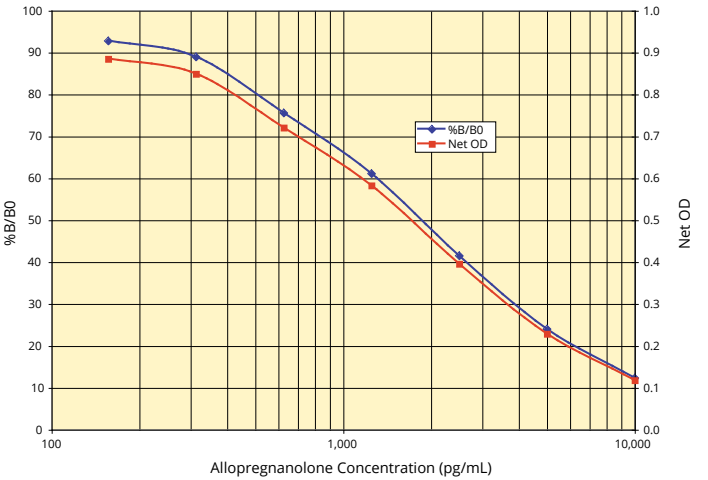
MULTI SPECIES

MOST SENSITIVE

- Use — Measure allopregnanolone in a variety of samples
- Sample — Urine, TCM or Extracted Serum, Plasma, Dried Feces
- Time to Answer — 2.5 Hours or Overnight
- Range — 10,000 – 156.3 pg/mL
- Species — Species Independent
- Samples/Kit — 39 or 231 in Duplicate
- Cross Reactivity — Low Cross Reactivity to Progesterone and Metabolites
- Readout — Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

Allopregnanolone (3α-hydroxy-5α-pregnan-20-one, THP, THPROG) is a prototypic neurosteroid present in the blood and the brain. It is a metabolite of progesterone and potent modulator of $GABA_A$ receptors. Allopregnanolone has pharmacological properties including anxiolytic and anticonvulsant activity. The biosynthesis of allopregnanolone involves the conversion of progesterone into 5α-dihydroprogesterone by the enzyme 5α-reductase type I. Subsequently, 3α-hydroxysteroid oxidoreductase isoenzymes convert this intermediate into allopregnanolone. Anxiety and depression are common side effects of 5α-reductase inhibitors such as finasteride and dutasteride, and they are believed to be caused, in part, by the prevention of the endogenous production of allopregnanolone. Allopregnanolone aids neurogenesis and has been found to reverse neuron proliferative deficit and cognitive deficits in mouse models of Alzheimer's disease.

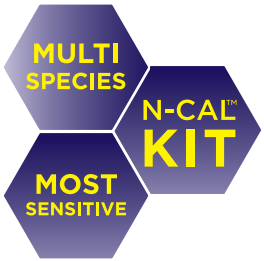


Arg⁸-Vasopressin (AVP) Chemiluminescent ELISA Kits

K049-C1 (1 Plate) | K049-C5 (5 Plate)

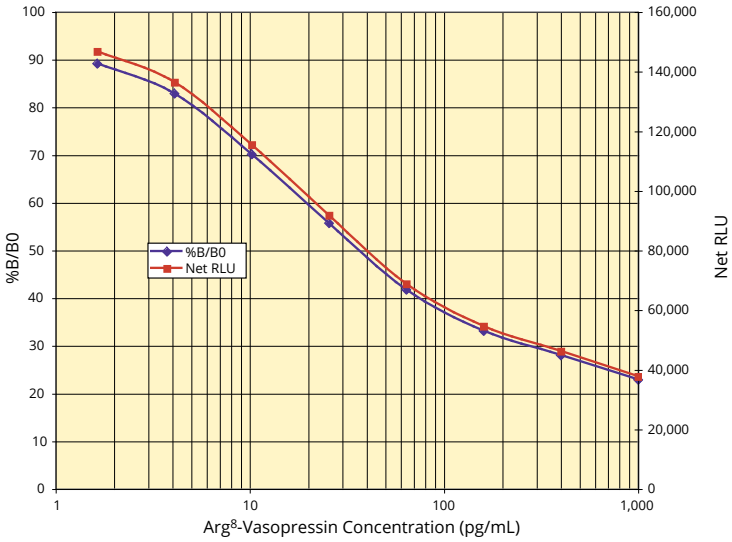
FEATURES

Use	Measure AVP in Mammals, Arg-Vasotocin in Birds, Reptiles
Sample	Extracted Serum, Plasma, Buffers
Sensitivity	< 0.9 pg/mL
Time to Answer	Overnight
Convenient	Extraction reagent included, no C18 SPE Columns
Samples/Kit	38 or 230 in Duplicate
Stability	Liquid 4˚C Stable Reagents
Readout	Glow Luminescent



SCIENTIFIC RELEVANCE

The neurohypophysial hormone arginine vasopressin (AVP) is involved in a wide range of physiological regulatory processes, including renal water reabsorption, cardiovascular homeostasis, hormone secretion from the anterior pituitary, and modulation of social behavior and emotional status. AVP and the structurally related posterior pituitary hormone, oxytocin (OT), are synthesized in the paraventricular nucleus and the supraoptic nucleus of the hypothalamus. AVP is a 9 amino acid peptide with a 6-member disulfide ring. It is structurally related to OT, differing by 2 amino acids.



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Arg[8]-Vasopressin (AVP) ELISA Kits

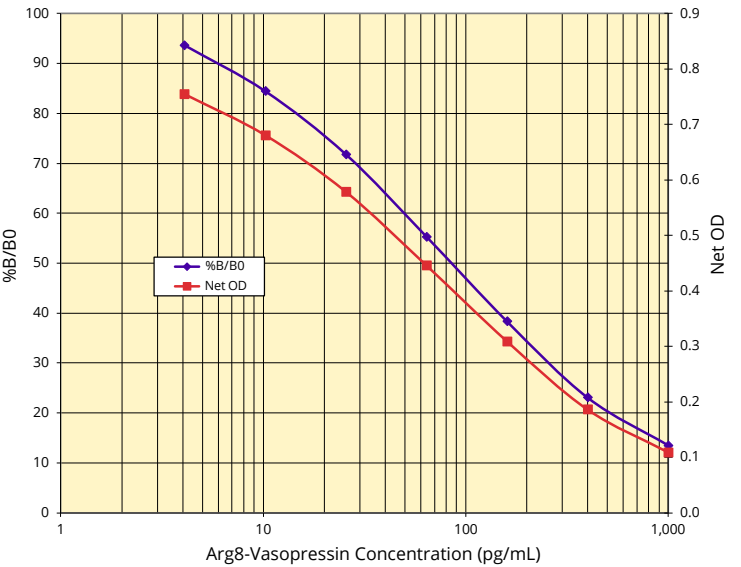
K049-H1 (1 Plate) | K049-H5 (5 Plate)

FEATURES

- Use — Measure AVP in mammals, Arg-Vasotocin in birds, reptiles
- Sample — Serum, Plasma, TCM
- Sensitivity — 3.7 pg/mL
- Convenient — Extraction reagent included, no C18 SPE Columns
- Samples/Kit — 39 or 231 in Duplicate
- Stability — Liquid 4˚C Stable Reagents
- Readout — Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

The neurohypophysial hormone arginine vasopressin (AVP) is involved in a wide range of physiological regulatory processes, including renal water reabsorption, cardiovascular homeostasis, hormone secretion from the anterior pituitary, and modulation of social behavior and emotional status. AVP and the structurally related posterior pituitary hormone, oxytocin (OT), are synthesized in the paraventricular nucleus and the supraoptic nucleus of the hypothalamus. AVP is a 9 amino acid peptide with a 6-member disulfide ring. It is structurally related to OT, differing by 2 amino acids.



Atrial Natriuretic Peptide (ANP) ELISA Kits

K071-H1 (1 Plate) | K071-H5 (5 Plate)

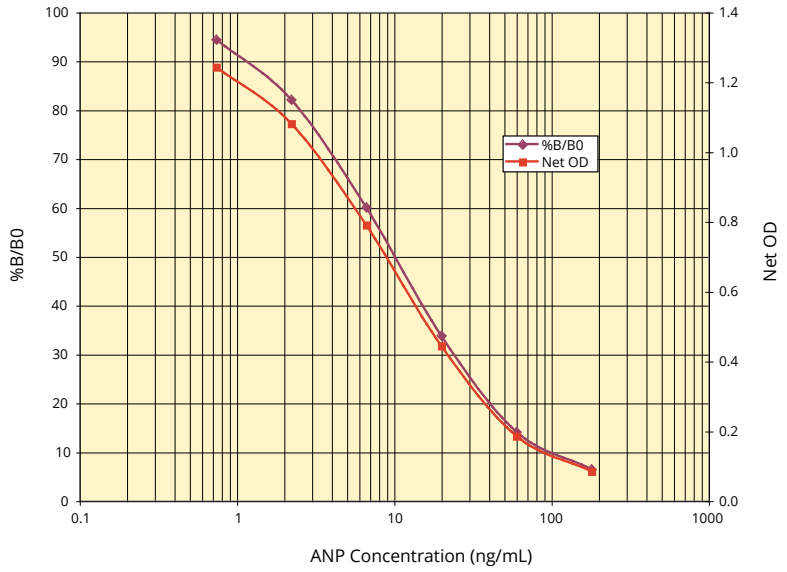
FEATURES

MULTI SPECIES

Use	Quantitate ANP in a variety of samples
Sample	Plasma or Urine samples
Samples/Kit	40 or 232 in Duplicate
Time to Answer	90 Minutes
Simple	2 Step Assay
Stability	Liquid 4°C Stable Reagents
Readout	Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

Atrial natriuretic peptide (ANP), a peptide hormone secreted mostly by cardiac myocytes, is a potent natriuretic, diuretic and vasodilatory peptide that contributes to blood pressure and volume homeostasis. ANP is released by myocytes in response to atrial distension. Upon binding to cell surface receptors (NPR-A, B, and C, also termed guanylyl cyclase-A and B receptors), ANP acts through generation of cyclic guanosine monophosphate (cGMP). Atrial natriuretic peptide demonstrates hemodynamic and glomerular effects, which increase sodium and water load delivery to the tubules, and the inhibition of the release of renin, aldosterone and vasopressin.



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C-Reactive Protein (CRP) Human ELISA Kits

K069-H1 (1 Plate) | K069-H5 (5 Plate)

FEATURES

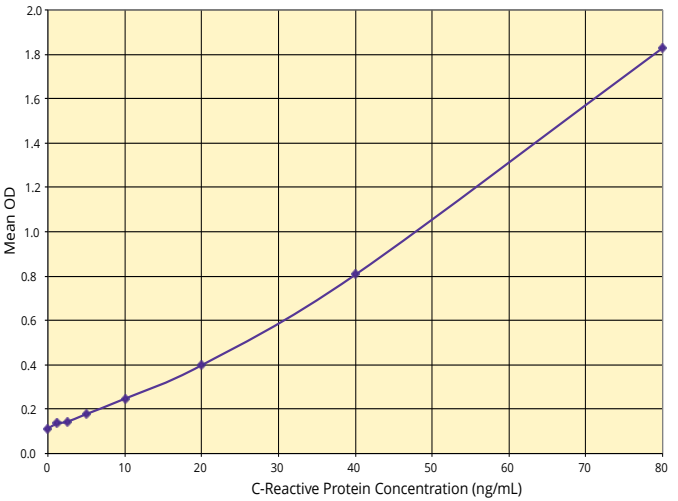
N-CAL™ KIT

Use	Measure CRP in a variety of samples
Sample	Serum, Plasma
Samples/Kit	40 or 232 in Duplicate
Sensitivity	< 0.62 pg/mL
Time to Answer	2.5 Hours
Calibrated	1st WHO International Standard
Stability	Liquid 4°C Stable Reagents
Readout	Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

C-Reactive Protein (CRP) is a ring-shaped, pentameric serum protein produced by the liver. As an acute phase inflammation marker released in response to IL-6 signaling by T-cells, macrophages, and adipocytes, CRP levels rise in a wide range of acute and chronic inflammatory conditions. These include infection, inflammatory disease, tissue injury, cardiovascular disease, and malignancy.

CRP assessment, in conjugation with myeloperoxidase, has been used clinically as an accurate prediction of mortality risk for cardiac patients.



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+

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Developed and produced in collaboration with **Athens Research & Technology**.

Cyclic GMP Direct ELISA & Chemiluminescent ELISA Kits

K020-H1 (1 Plate) | K020-H5 (5 Plate)
Chemiluminescent ELISA: K020-C1 (1 Plate) | K020-C5 (5 Plate)

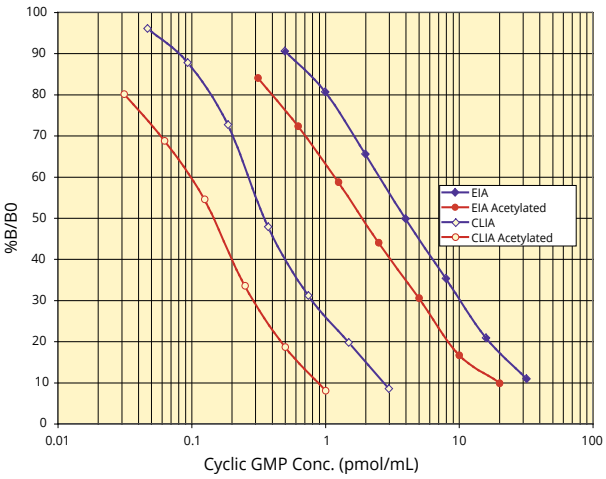
MULTI SPECIES

FEATURES

Use	Measure cGMP Directly
Sample	Cells, Saliva, Urine, Plasma, TCM
Convenient	Lyse, Stabilize and Measure in One Step
Sensitivity	ELISA: 0.188 pmol/mL CLIA: 1.15 fmol/well
Samples/Kit	39 or 231 in Duplicate
Species	Species Independent
Stability	Liquid 4°C Stable Reagents
Readout	ELISA: Colorimetric, 450 nm CLIA: Glow Luminescent

SCIENTIFIC RELEVANCE

Guanosine 3', 5'-cyclic monophosphate (cyclic GMP; cGMP) is a critical and multifunctional second messenger present at levels typically 10-100 fold lower than cAMP in most tissues. Intracellular cGMP is formed by the action of the enzyme guanylate cyclase (GC) on GTP and degraded through phosphodiesterase hydrolysis. Guanylate cyclases are either soluble or membrane bound. Soluble GCs are nitric oxide responsive, whereas membrane bound GCs respond to hormones such as acetylcholine, insulin and oxytocin. Other chemicals like serotonin and histamine also cause an increase in cGMP levels. Cyclic GMP regulates cellular composition through cGMP-dependent kinase, cGMP-dependent ion channels or transporters, and through its hydrolytic degradation by phosphodiesterase.



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Cyclic GMP Direct ELISA Kits - IMPROVED

K065-H1 (1 Plate) | K065-H5 (5 Plate)

FEATURES

MULTI SPECIES

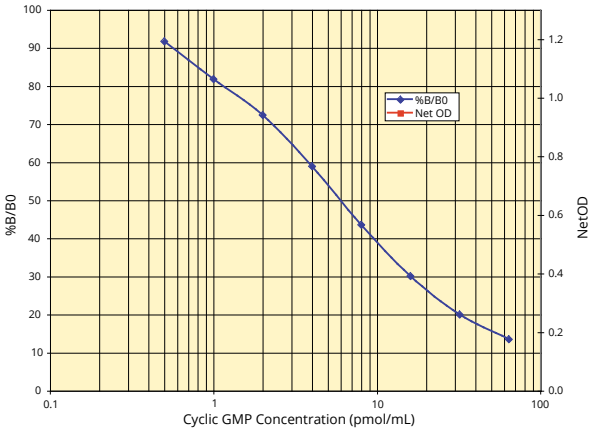
MOST SENSITIVE

Use	Measure cGMP Directly
Sample	Cell and Tissue Lysates, Urine, Plasma, Saliva, TCM
Convenient	Lyse, Stabilize and Measure in One Step
Sensitivity	0.091 pmol/mL, 4.55 fmol/well
Samples/Kit	38 or 230 in Duplicate
Time to Answer	Results in 2.5 Hours
Readout	Colorimetric, 450 nm
Comparison	Improved Sensitivity and Enhanced Signal over K020-H

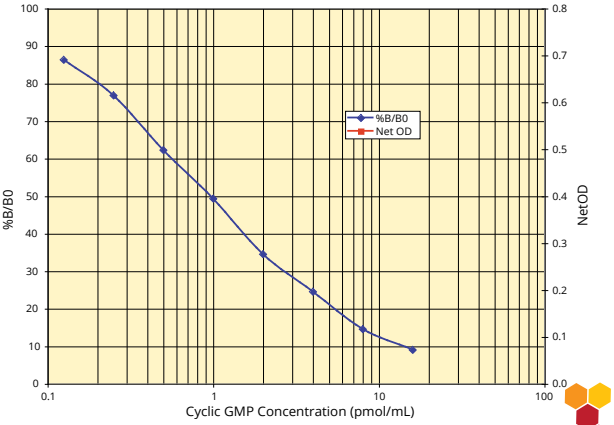
SCIENTIFIC RELEVANCE

Guanosine 3', 5'-cyclic monophosphate (cyclic GMP; cGMP) is a critical and multifunctional second messenger present at levels typically 10-100 fold lower than cAMP in most tissues. Intracellular cGMP is formed by the action of the enzyme guanylate cyclase (GC) on GTP and degraded through phosphodiesterase hydrolysis. Guanylate cyclases are either soluble or membrane bound. Soluble GCs are nitric oxide responsive, whereas membrane bound GCs respond to hormones such as acetylcholine, insulin and oxytocin. Other chemicals like serotonin and histamine also cause an increase in cGMP levels. Cyclic GMP regulates cellular composition through cGMP-dependent kinase, cGMP-dependent ion channels or transporters, and through its hydrolytic degradation by phosphodiesterase.

Non-Acetylated



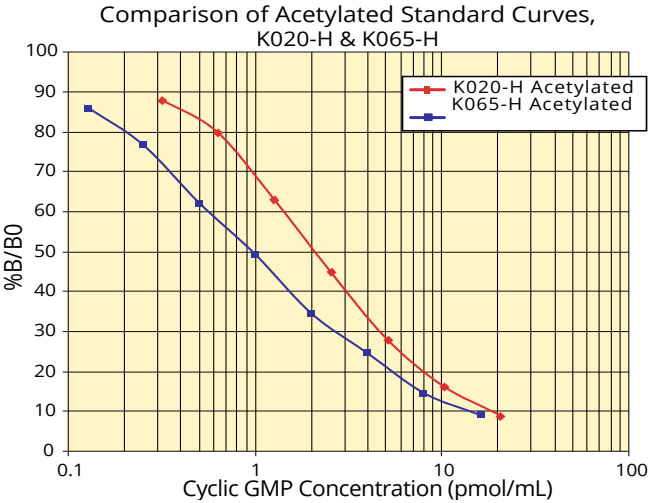
Acetylated



Comparison of cGMP ELISA Kits (K065-H vs. K020-H)

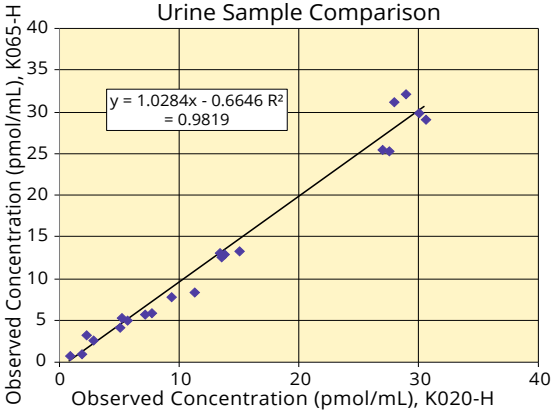
ADDITIONAL INFORMATION

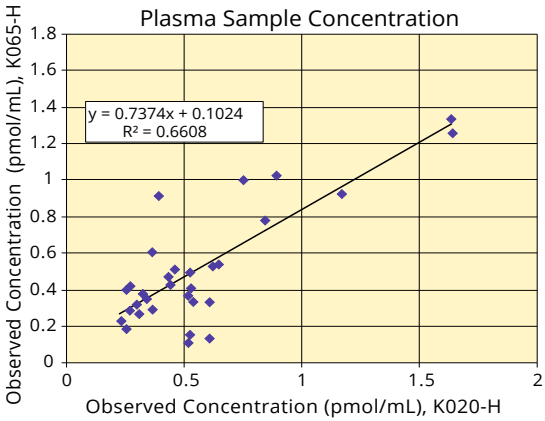
Cyclic GMP levels in most systems are an order of magnitude lower than those found for cyclic AMP. In our constant effort to deliver the easiest, most reliable, and sensitive assays we, have developed a new cGMP antibody to give you enhanced sensitivity. Our new Cyclic GMP ELISA Kits (K065-H) are two times more sensitive than our current cGMP assay (K020-H).



The improvement in sensitivity is shown by the Limits of Detection and calculated Sensitivity for the 2 assays, with K065-H being half that of K020-H.

Urine dilutions were run in the nonacetylated format of K065-H and K020-H, side by side, and measured cGMP concentrations were similar. Plasma dilutions were run in the acetylated format for each kit with only a slightly larger difference seen between the measured concentrations.





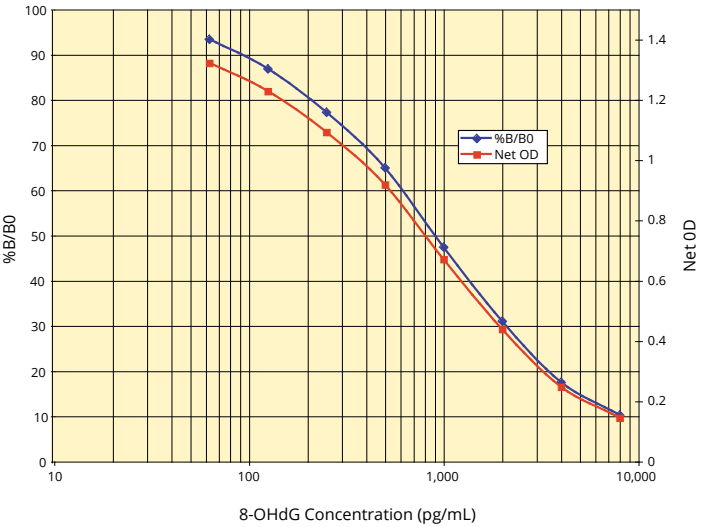
DNA Damage ELISA Kits

K059-H1 (1 Plate) | K059-H5 (5 Plate)

FEATURES

- Use — Measure oxidized guanine molecules
- Sample — Serum, Plasma, Saliva, Urine, Fecal Extracts, Digested DNA, TCM
- Time to Answer — 2.5 hours
- Sensitivity — 51 pg/mL
- Species — Species independent
- Samples/Kit — 38 or 230 in Duplicate
- Readout — Colorimetric, 450 nm

SCIENTIFIC RELEVANCE



Free radicals and other reactive species are constantly generated *in vivo* and cause oxidative damage to biomolecules. This process is held in check only by the existence of multiple antioxidant, repair systems as well as the replacement of damaged nucleic acids, proteins and lipids. Intracellular reactive oxygen species are produced as a result of normal metabolism, and extracellular forms are produced as a result of ultraviolet or ionizing radiation. Cellular function may be interrupted or halted if DNA damage corrupts the integrity of essential information contained in the genome and it is widely thought that continuous oxidative damage to DNA is a significant contributor to the age-related development of major cancers. Among numerous types of oxidative DNA damage, the formation of 8-hydroxy-2′-deoxyguanosine (8-OHdG) is a ubiquitous marker of oxidative stress. 8-OHdG is physiologically formed and enhanced by chemical carcinogens. During the repair of damaged DNA *in vivo* by exonucleases the resulting 8-OHdG is excreted without further metabolism into urine, allowing for convenient detection.

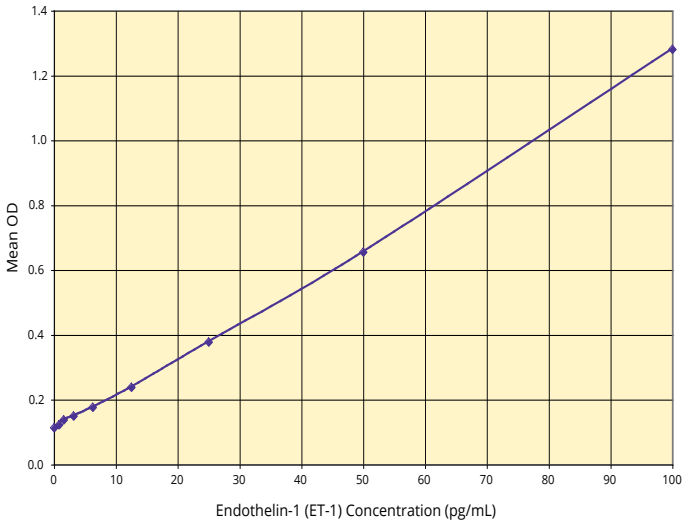
Endothelin-1 (ET-1) ELISA Kit

K045-H1 (1 Plate)

FEATURES

Use	Simplified ET-1 Measurement
Sample	Serum, Plasma, TCM
Sensitivity	Measures < 0.58 pg/mL ET-1
Economical	No C18 Cartridges - Supplied Extraction Solution
Species	Species Independent
Samples/Kit	39 in Duplicate
Stability	Liquid 4°C Stable Reagents
Readout	Colorimetric, 450 nm

SCIENTIFIC RELEVANCE



Endothelin-1 (ET-1), a peptide of 21 amino acid residues, is a pleiotropic molecule known for its action as a potent vasoconstrictor. ET-1 is one of a family of three proteins encoded by distinct genes. All members of the Endothelin family contain two essential disulfide bridges and six conserved amino acid residues at the C-terminus. Human ET-1 is initially synthesized as a pre-pro-polypeptide of 212 amino acids. It is proteolytically cleaved by a signal peptidase to produce pro-ET-1 and further processed by a Furin-like protease to yield Big ET-1. The vascular endothelium is an abundant source of ET-1. It may also be expressed by leukocytes, smooth muscle cells, mesangial cells, cardiac myocytes, and astrocytes. ET-1 can be induced in endothelial cells by many factors including mechanical stimulation, various hormones, and pro-inflammatory cytokines. Production is inhibited by nitric oxide (NO), cyclic nucleotides, prostacyclin, and atrial natriuretic peptide (ANP).

Hemoglobin Colorimetric Detection Kits

Regular: K013-H1 (2 Plate)
High Sensitivity: K013-HX1 (2 Plate) | K013-HX5 (10 Plate)

FEATURES

MULTI SPECIES

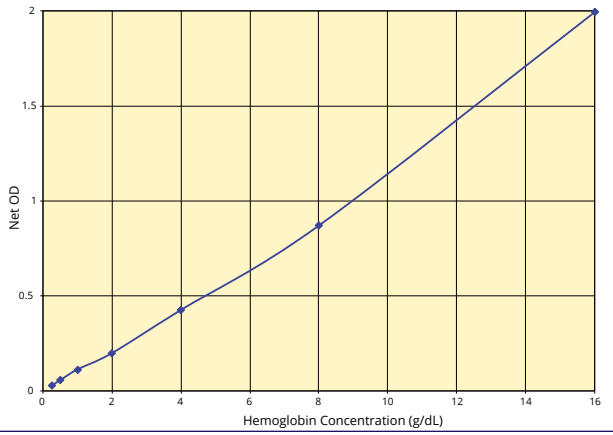
MOST SENSITIVE

▶ Sample Type	K013-H1: Whole Blood, RBCs K013-HX: Serum, Plasma
▶ Time to Answer	30 Minutes
▶ Range	K013-H1: 16-0.25 g/dL K013-HX: 20-0.313 µg/mL
▶ Sensitivity	K013-H1: 0.021 g/dL, 0.21 mg/mL K013-HX: 0.053 ug/mL
▶ Samples/Kit	88 in Duplicate
▶ Stable	Liquid 4°C Stable Reagents
▶ Readout	K013-H1: 560-580 nm K013-HX: 450 nm

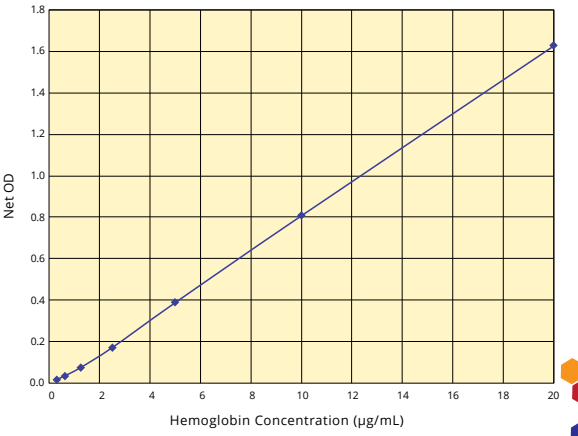
SCIENTIFIC RELEVANCE

Hemoglobin (Hgb) is an erythrocyte protein complex comprised of two sets of identical pairs of subunits, each of which bind an iron-porphyrin group commonly called heme. Heme binds and releases oxygen or carbon dioxide in response to slight changes in local gas tension. Hemoglobin values are associated with a variety of conditions ranging from anemias (low Hgb), erythrocytosis (high Hgb), thalassemias (aberrant chain synthesis), and sickling disorders (abnormal complex shape).

K013-H1



K013-HX1/HX5



Hydrogen Peroxide Colorimetric & Fluorescent Detection Kits

Colorimetric: K034-H1 (2 Plate)
Fluorescent: K034-F1 (2 Plate)

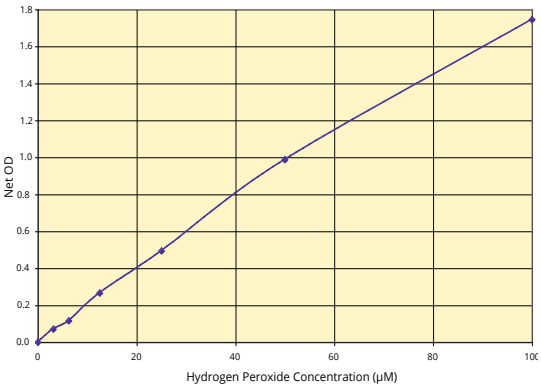
FEATURES

▶ Use	Measure H_2O_2 in Any Sample
▶ Sample	Urine, Buffer, TCM
▶ Rapid	15 Minutes
▶ Sensitive	91.3 pmol (310 ng) (Colorimetric) < 2 pmole (65 pg) (Fluorescent)
▶ Samples/Kit	89 in Duplicate (Colorimetric) 88 in Duplicate (Fluorescent)
▶ Readout	Colorimetric, 560 nm Fluorescent, 590 nm em / 520 nm ex

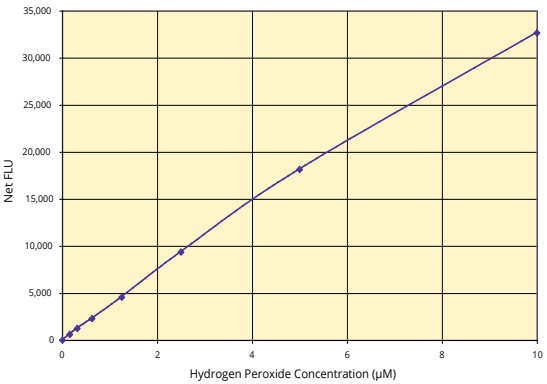
SCIENTIFIC RELEVANCE

In biological systems, incomplete reduction of O_2 during respiration produces superoxide anion ($O_2^{\cdot-}$), which is spontaneously or enzymatically dismutated by superoxide dismutase to H_2O_2. Many cells produce low levels of $O_2^{\cdot-}$ and H_2O_2 in response to a variety of extracellular stimuli, such as cytokines (TGF-β1, TNF-α, and various interleukins), peptide growth factors (PDGF, EGF, VEGF, bFGF, and insulin), the agonists of heterotrimeric G protein–coupled receptors (GPCR) such as angiotensin II, thrombin, lysophosphatidic acid, sphingosine 1-phosphate, histamine, and bradykinin, and by shear stress. The addition of exogenous H2O2, or the intracellular production in response to receptor stimulation, affects the function of various proteins including protein kinases, protein phosphatases, transcription factors, phospholipases, ion channels, and G proteins. In 1894, Fenton described the oxidation of tartaric acid by Fe^{2+} and H_2O_2. H_2O_2 and O_2 may participate in the production of singlet oxygen and peroxynitrite and the generation of these species may be concurrent with reactions involving iron, which under some circumstances might be important contributors to H_2O_2 toxicity.

Colorimetric



Fluorescent



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Myeloperoxidase (MPO) Human ELISA Kit

K060-H1 (1 Plate)

FEATURES

- Use: Measure Human MPO in a Variety of Matrices
- Sample: Serum, Platelet-Poor Heparin Plasma, Saliva, Urine, TCM
- Time to Answer: 2.5 Hours
- Sensitivity: 0.0068 ng/mL, 68 pg/mL
- Species: Human
- Samples/Kit: 40 in Duplicate
- Readout: Colorimetric, 450 nm

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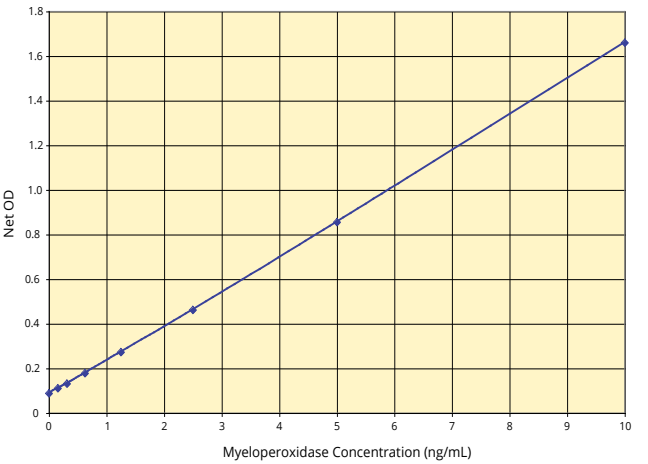
SCIENTIFIC RELEVANCE

Myeloperoxidase (MPO) is a tetrameric heme-containing protein abundantly produced in neutrophil granulocytes, where it plays an important anti-microbial role. During degranulation MPO is released into the extracellular space. There, as part of the neutrophils "respiratory burst", it produces hypochlorous acid from hydrogen peroxide and Cl^-. MPO also uses hydrogen peroxide to oxidize tyrosine to the tyrosyl radical. Both hypochlorous acid and tyrosyl are cytotoxic and when present can kill bacteria and other pathogens. Hereditary deficiency of myeloperoxidase predisposes individuals to immune deficiency. Studies have shown an association between elevated MPO levels and coronary artery disease. In 2003, it was suggested that MPO may serve as a sensitive predictor of myocardial infarction in patients complaining of chest pain. Since then, the clinical utility of MPO testing in cardiac patients has been solidly established in the literature, with well over 100 papers published. In 2010, additional studies further refined this clinical application, which determined that measuring both MPO and C-reactive protein (CRP) provided more accurate prediction of mortality risk than measuring just CRP alone.

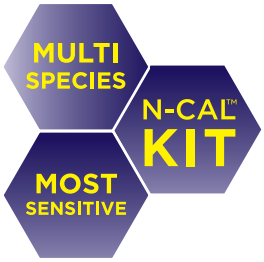


Nitric Oxide Colorimetric Detection Kit

K023-H1 (2 Plate)

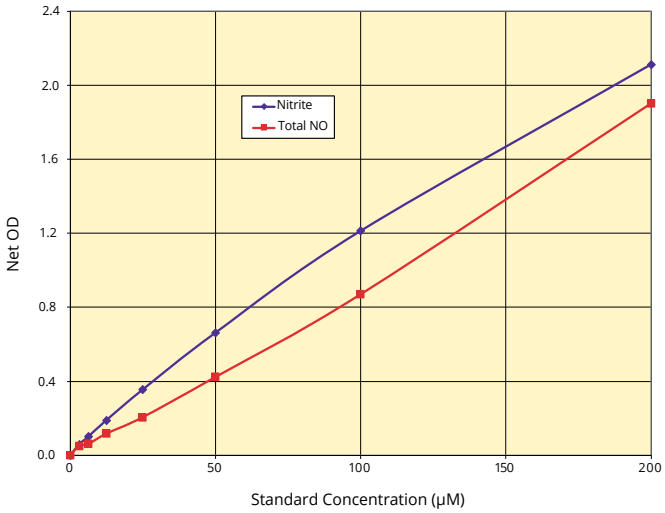
FEATURES

Use	Measure Nitrite & Nitrate
Sample	Water, Serum, Plasma, Urine, Saliva, Lysates, Buffers, TCM
Accurate	Calibrated to NIST Standard Reference Material #3185
Sensitivity	Highest Optical Density of Any Kit
Time to Answer	5 Minute Nitrite – 25 Minute Total NO
Samples/Kit	88 in Duplicate
Stability	Non-Toxic, Liquid 4°C Stable Reagents
Readout	Colorimetric, 550-570 nm



SCIENTIFIC RELEVANCE

Nitric oxide (NO) is a diffusible, transient, reactive molecule that has physiological effects in the pM-µM range. Acting through guanylate cyclase activation, NO is an important regulator of the cardiovascular, nervous, and immunological systems. NO is bio-available by two routes. It can be endogenously generated by constitutive or induced NOS enzymes, or it can be ingested as nitrates or nitrites for conversion into NO. The reactive nature of nitric oxide allows it to act as a cytotoxic factor when released during an immune response by macrophages. The reactivity also allows NO to be easily converted to a toxic radical that can produce nitrosylation damage to cells and DNA. Nitrosylation can be a regulated post-translational modification in cell signaling. The dynamics of the regulatory/damage facets of NO are major forces in mitochondrial signaling and dysfunction. NO is linked not only to coronary heart disease, endothelial dysfunctions, erectile dysfunction, and neurological disorders, but also diabetes, chronic periodontitis, autism and cancer.



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Prostaglandin E2 (PGE2) Multi-Format ELISA Kits

K051-H1 (1 Strip-Well Plate) | K051-H5 (5 Strip-Well Plate)
K051-H1W (1 Whole Plate) | K051-H5W (5 Whole Plate)

FEATURES

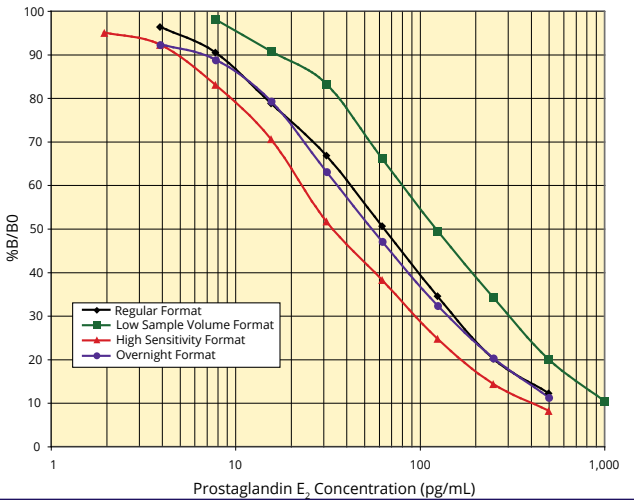
MULTI SPECIES

MOST SENSITIVE

Use	Measure in Cells, Saliva, Urine, Serum, Plasma, Tissue
Multi-Format	3 Ranges: 1,000-15.6; 500-39 or 500-1.95 pg/mL
Sensitive	< 160 fg PGE_2 per well
Samples/Kit	39 or 231 in Duplicate
Workflow	Can be run in 2.5 hours or Overnight
Versatile	Measure PGE_2 in Mouse Serum without Extraction
Readout	Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

Eicosanoid signal transduction pathways are highly conserved and are involved in a number of physiological processes. Prostaglandins are synthesized from arachidonic acid by cyclooxygenase (COX)-1 or -2, which convert the acid into PGH_2. This is further processed by cytosolic or microsomal prostaglandin synthases to become PGE_2 or one of several other prostanoids. Prostacyclin is the major cyclooxygenase product in blood vessel walls and it is present in inflammatory fluids in similar concentrations to PGE_2. PGE_2 is produced by a wide variety of tissues and in several pathological conditions, including inflammation, arthritis, fever, tissue injury, endometriosis, and a variety of cancers. Other biological actions of PGE_2 include vasodilation, modulation of sleep/wake cycles, and facilitation of human immunodeficiency virus replication. It elevates cAMP levels, stimulates bone resorption, sodium excretion and renal hemodynamics, and has thermoregulatory effects.



Protein Kinase A (PKA) Colorimetric Activity Kit

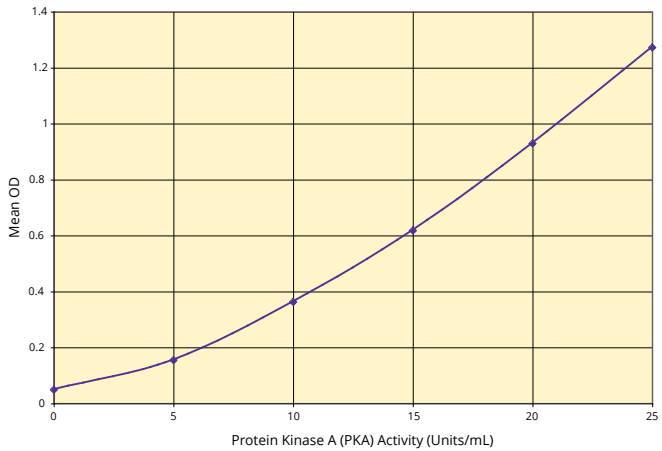
K027-H1 (1 Plate)

FEATURES

Use	Quantitate PKA Activity
Sample	Cell Lysates, Purified Systems
Sensitive	Most Sensitive Kit
Time to Answer	3 Hours
Species	Species Independent
Samples/Kit	42 in Duplicate
Stability	Fully Active PKA Standard, Storage at -20°C
Readout	Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

The expressed PKA holoenzyme, comprising of two catalytic (C) and two regulatory (R) subunits, is activated when cAMP levels rise following stimulation of G Protein-coupled receptors and adenylyl cyclase. The phosphorylation of specific substrates by the C subunit of activated PKA is regulated by the subcellular localization of the enzyme through the binding to the scaffolding A kinase-anchoring proteins (AKAPs). In its inactive state, the pseudosubstrate sequences on the R subunits stop the activity of the C subunits. Upon binding of cAMP to the R subunits, the active monomeric C subunits are released. PKA shares substrate specificity with Akt (PKB) and PKC. Substrates that are phosphorylated by PKA include Bad (Ser^{155}), CREB (Ser^{133}), and GSK-3 (GSK-3α Ser^{21} and GSK -3β Ser^{9}). PKA is a pivotal kinase involved in cancer, vasodilation, metabolic processes, etc.



ST2 Human ELISA Kit

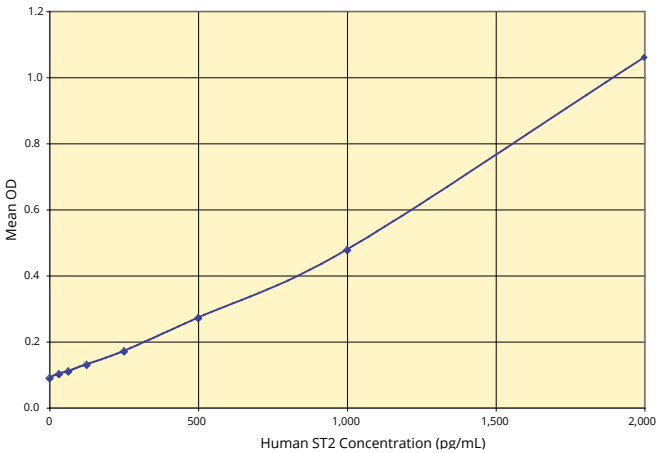
K055-H1 (1 Plate)

FEATURES

- Use — Quantitate Human ST2
- Sample — Serum, Plasma, TCM
- Sensitivity — 30.5 pg/mL
- Time to Answer — 3 Hours
- Samples/Kit — 40 in Duplicate
- Stability — Liquid 4° Stable Reagents
- Readout — Colorimetric, 450 nm

SCIENTIFIC RELEVANCE

ST2 (also known as IL1RL1, DER4, T1 and FIT-1) is a member of the Toll-like/IL-1-receptor superfamily. The interleukin-1 (IL-1) receptor family has several members, including the classical interleukin-1 receptor (IL-1R) and the interleukin-18 receptor (IL-18R). In 1989, one member of the family, ST2, was identified as an orphan receptor. Investigation into the function of ST2 revealed its participation in inflammatory processes, particularly regarding mast cells, type 2 CD4+ T-helper cells, and the production of Th2-associated cytokines. ST2 was characterized as a specific cellular marker that differentiated Th2 from Th1 T-cells. The gene for ST2 spans ~40 kb on human chromosome 2q12, and is part of the larger human IL-1 gene cluster of ~200 kb. ST2 is conserved across species, with homologues in the genomes of mouse, rat, and fruitfly. The ~37 kDa unglycosylated secreted protein is converted into a 60–70 kDa glycosylated product, which is the soluble form of ST2, sST2.



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