

## Product datasheet

# Rat MMP-2 ELISA Kit ab213910

1 Image

### Overview

**Product name** Rat MMP-2 ELISA Kit

**Detection method** Colorimetric

**Precision**

Intra-assay

Sample	n	Mean	SD	CV%
Sample 1	16	5.3pg/ml	0.27	5.1%
Sample 2	16	12pg/ml	0.66	5.5%
Sample 3	16	29pg/ml	1.68	5.8%

Inter-assay

Sample	n	Mean	SD	CV%
Sample 1	24	8.8pg/ml	0.54	6.2%
Sample 2	24	16.5pg/ml	1.17	7.1%
Sample 3	24	31.4pg/ml	2	6.4%

**Sample type** Cell culture supernatant, Serum, Heparin Plasma

**Assay type** Sandwich (quantitative)

**Sensitivity** < 10 pg/ml

**Range** 625 pg/ml - 40000 pg/ml

**Assay time** 3h 30m

**Assay duration** Multiple steps standard assay

**Species reactivity** **Reacts with:** Rat

**Product overview** The MMP-2 Enzyme-Linked Immunosorbent Assay (ELISA) kit (ab213910) is designed for the quantitative measurement of MMP-2 in cell culture supernatants, serum and plasma (heparin).

The ELISA kit is based on standard sandwich enzyme-linked immune-sorbent assay technology. A monoclonal antibody from mouse specific for MMP-2 has been pre-coated onto 96-well plates.

Standards and test samples are added to the wells; a biotinylated detection polyclonal antibody from goat specific for MMP-2 is added subsequently and then followed by washing with PBS or TBS buffer. Avidin-Biotin-Peroxidase Complex is added and unbound conjugates are washed away with PBS or TBS buffer. HRP substrate TMB is used to visualize HRP enzymatic reaction. TMB is catalyzed by HRP to produce a blue color product that changed into yellow after adding acidic stop solution. The density of yellow is proportional to the MMP-2 amount of sample captured in plate. The detected MMP-2 includes zymogen and active enzyme.

**Notes** Type IV collagenase, 72-kD, is officially designated matrix metalloproteinase-2 (MMP2). It is also known as gelatinase, 72-kD. MMP-2 plays an essential role in angiogenesis and arteriogenesis, two processes critical to restoration of tissue perfusion after ischemia. MMP-2 expression is increased in tissue ischemia, but the responsible mechanisms remain unknown. Matrix metalloproteinases (MMPs) catalyze extracellular matrix degradation. Control of their activity is a promising target for therapy of diseases characterized by abnormal connective tissue turnover. MMPs are expressed as latent proenzymes that are activated by proteolytic cleavage that triggers a conformational change in the propeptide (cysteine switch). The structure of proMMP-2 reveals how the propeptide shields the catalytic cleft and that the cysteine switch may operate through cleavage of loops essential for propeptide stability. The gene is localized to 16q21 using somatic cell hybrids and in situ hybridization.

**Tested applications** **Suitable for:** Sandwich ELISA

**Platform** Pre-coated microplate (12 x 8 well strips)

### Properties

**Storage instructions** Store at -20°C. Please refer to protocols.

Components	Identifier	1 x 96 tests
ABC Diluent Buffer	Blue Cap	1 x 12ml
Adhesive Plate Seal		4 units
Antibody Diluent Buffer	Green Cap	1 x 12ml
Anti-rat MMP-2 coated Microplate (12 x 8 wells)		1 unit
Avidin-Biotin-Peroxidase Complex (ABC)		1 x 130µl
Biotinylated anti- Rat MMP-2 antibody		1 x 130µl
Lyophilized recombinant Rat MMP-2 standard		2 vials
Sample Diluent Buffer	Green Cap	1 x 30ml
TMB Color Developing Agent	Black Cap	1 x 10ml
TMB Stop Solution	Yellow Cap	1 x 10ml

**Function** Ubiquitous metalloproteinase that is involved in diverse functions such as remodeling of the vasculature, angiogenesis, tissue repair, tumor invasion, inflammation, and atherosclerotic plaque rupture. As well as degrading extracellular matrix proteins, can also act on several nonmatrix proteins such as big endothelial 1 and beta-type CGRP promoting vasoconstriction. Also cleaves

KISS at a Gly-Leu bond. Appears to have a role in myocardial cell death pathways. Contributes to myocardial oxidative stress by regulating the activity of GSK3beta. Cleaves GSK3beta in vitro. PEX, the C-terminal non-catalytic fragment of MMP2, possesses anti-angiogenic and anti-tumor properties and inhibits cell migration and cell adhesion to FGF2 and vitronectin. Ligand for integrin $\alpha$ V/ $\beta$ 3 on the surface of blood vessels.

**Tissue specificity**

Produced by normal skin fibroblasts. PEX is expressed in a number of tumors including gliomas, breast and prostate.

**Involvement in disease**

Defects in MMP2 are the cause of Torg-Winchester syndrome (TWS) [MIM:259600]; also known as multicentric osteolysis nodulosis and arthropathy (MONA). TWS is an autosomal recessive osteolysis syndrome. It is severe with generalized osteolysis and osteopenia. Subcutaneous nodules are usually absent. Torg-Winchester syndrome has been associated with a number of additional features including coarse face, corneal opacities, patches of thickened, hyperpigmented skin, hypertrichosis and gum hypertrophy. However, these features are not always present and have occasionally been observed in other osteolysis syndromes.

**Sequence similarities**

Belongs to the peptidase M10A family.  
Contains 3 fibronectin type-II domains.  
Contains 4 hemopexin-like domains.

**Domain**

The conserved cysteine present in the cysteine-switch motif binds the catalytic zinc ion, thus inhibiting the enzyme. The dissociation of the cysteine from the zinc ion upon the activation-peptide release activates the enzyme.

**Post-translational modifications**

Phosphorylation on multiple sites modulates enzymatic activity. Phosphorylated by PKC in vitro. The propeptide is processed by MMP14 (MT-MMP1) and MMP16 (MT-MMP3). Autocatalytic cleavage in the C-terminal produces the anti-angiogenic peptide, PEX. This processing appears to be facilitated by binding integrin $\alpha$ V/ $\beta$ 3.

**Cellular localization**

Secreted > extracellular space > extracellular matrix. Membrane. Nucleus. Colocalizes with integrin  $\alpha$ V/ $\beta$ 3 at the membrane surface in angiogenic blood vessels and melanomas. Found in mitochondria, along microfibrils, and in nuclei of cardiomyocytes.

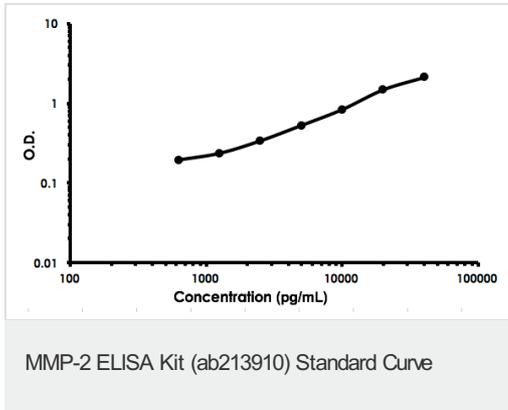
**Applications**

Our [Abpromise guarantee](#) covers the use of **ab213910** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
Sandwich ELISA		Use at an assay dependent concentration.

**Images**



MMP-2 ELISA Kit (ab213910) Standard Curve

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