ALPHA DIAGNOSTIC INTERNATIONAL

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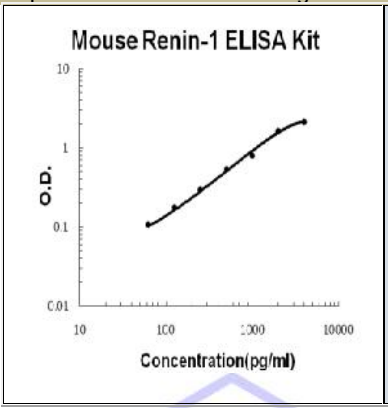
Mouse Renin-1 ELISA Kit, Cat# 1320 (96 tests)

Mouse Renin-1 ELISA Kit is a highly sensitive sandwich ELISA for the measurement of renin-1 in serum, blood plasma, cell culture supernatant and other biological fluid. For research use only (RUO).



Mouse Renin ELISA Kit Features

- Anti-SDMA monoclonal antibody pre-coated, stabilized, ready-to-use 96-well strip plate (8x12 wells),.
- Recombinant mouse renin-1 standards (62.5-4000 ng/ml)
- 100 ul samples (diluted serum or plasma) and then 100 µl SDMA antibodies.
- 90+60+30+30 min incubation steps at room temp.
- Sensitivity ~<10 pg/mL
- Validity &Storage: 6 months (2-8°C)

Contains all necessary reagents. For in vitro research use only.

Assay Procedure: Allow all reagents to reach room temperature. Arrange and label required number of strips.

Step 1. Pipet 100 ul standard and samples (**diluted)** into wells. Shake gently; cover the plate and Incubate at 37oC for **90 min**.
Step 2. Remove the well content by aspiration and adsorb on paper towels**.** Add 100 ul of **Biotin- antibody** to each well. Shake gently; cover the plate and Incubate at 37oC for **60 min**.
Step 3. **Streptavidin-HRP conjugate** to each well cover the plate and Incubate at room temperature for **30 min**.
Step 4. **Wash the wells 3 times with wash buffer. Add 100 ul** each of ABC reagent into all wells. Incubate at **37oC for 30 min**.
Step 5. **Wash the wells 5 times** with wash buffer. **Add 100 ul TMB solution** to all wells. Shake gently and Incubate for **20-25 min** at 37oC for color (blue) development.
Step 5 . Add **100 ul of stop solution** into each well and mix gently (blue color turns yellow). **Measure at 450 nm**. Determine SDMA concentration in each sample using the standards (results are expressed in ng/ml).

Calculation of Results

Calculations: Calculate the Net A450 values of the duplicate (deduct zero values). Plot the renin standard concentration versus the net A450 using a 4-point log-log curve. Calculate the samples values from the standard curve.
Precision: **Intra-assay** (CV<6%) **Inter-assay** (CV<10%).

General Information

Renin-1 is also known as Ren, Angiotensinogenase or Kidney rennin. It is a member of peptidase A1 family. Renin is a highly specific endopeptidase, whose only known function is to generate angiotensin I from angiotensinogen in the plasma, initiating a cascade of reactions that produce an elevation of blood pressure and increased sodium retention by the kidney. It associated to membranes via binding to ATP6AP2. Renin participates in the body's renin-angiotensin aldosterone system (RAAS)—also known as the renin-angiotensin-aldosterone axis—that mediates extracellular volume (i.e., that of the blood plasma, lymph and interstitial fluid), and arterial vasoconstriction. Thus, it regulates the body's mean arterial blood pressure.

The primary structure of renin precursor consists of 406 amino acids with a pre- and a pro-segment carrying 20 and 46 amino acids, respectively. Mature renin contains 340 amino acids and has a mass of 37 kDa. The enzyme renin is secreted by the afferent arterioles of the kidney from specialized cells called granular cells of the juxtaglomerular apparatus in response to three stimuli:

- A decrease in arterial blood pressure (that could be related to a decrease in blood volume) as detected by baroreceptors (pressure-sensitive cells). This is the most direct causal link between blood pressure and renin secretion (the other two methods operate via longer pathways).
- A decrease in sodium levels in the ultrafiltrate of the nephron. This flow is measured by the macula densa of the juxtaglomerular apparatus.
- Sympathetic nervous system activity, which also controls blood pressure, acting through the beta1 adrenergic receptors.

Mutations in the REN gene can be inherited, and are a cause of a rare inherited kidney disease. This disease is autosomal dominant*, meaning that it is characterized by a 50% chance of inheritance and slowly progressive chronic kidney disease that leads to the need for dialysis or a kidney transplant. Many – but not all – patients and families with this disease suffer from an elevation in serum potassium and unexplained anemia relatively early in life. Patients with a mutation in this gene can have a variable rate of loss of kidney function, with some individuals going on dialysis in their 40's while others may not go on dialysis until into their 70's. This is a rare inherited kidney disease that exists in less than 1% of people with kidney disease.

Model organisms have been used in the study of REN function. A knockout mouse line, called Ren1 $^{\text{Ren-1c Enhancer KO}}$ was generated. Homozygous mutant animals had a decreased heart rate and an increased susceptibility to bacterial infection. Plasma creatinine was also increased and males had lower mean arterial pressure than controls.

Related items

Catalog#	Product Description
1320	Mouse Renin-1 ELISA kit, 96 tests, Quantitative

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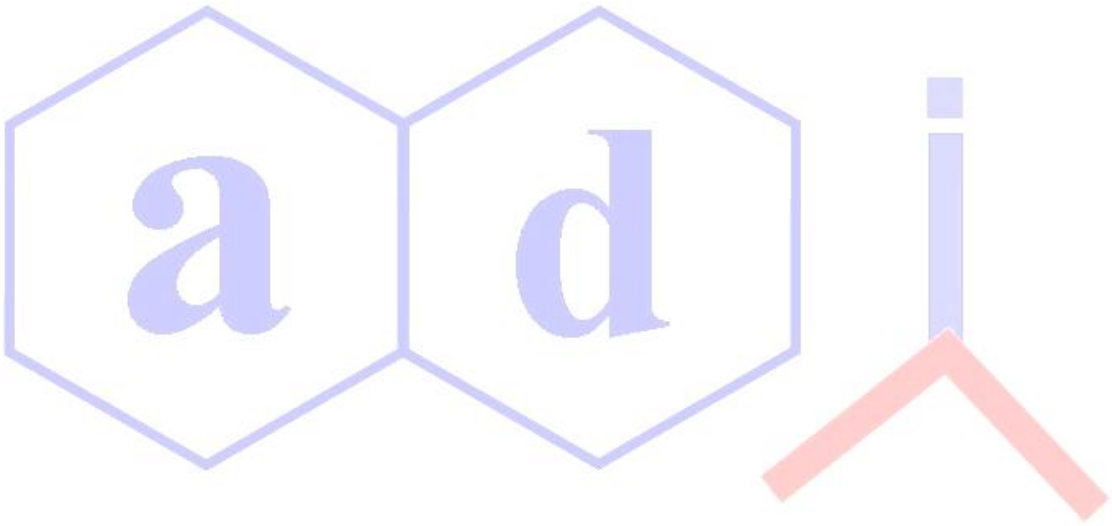
1330 Human Renin-1 ELISA kit, 96 tests, Quantitative
1320-Mouse-Renin-ELISA-Flr 150813A



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