



Antibody and Immunoassay Services

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Mouse Adiponectin Immunoassay Kit

Catalogue Number: 32010

For the quantitative determination of mouse adiponectin concentrations
in serum, plasma and cell culture supernate samples.

This package insert must be read in its entirety before using this product.
Use only the current version of product data sheet enclosed with the kit.

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Version: 3.0

**FOR RESEARCH USE ONLY
NOT FOR USE IN DIAGNOSTIC PROCEDURES**

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INTRODUCTION

Adiponectin, also known as apM1, Acrp30, GBP28 and adipoQ, is a circulating hormone predominantly produced from adipose tissue¹. Many pharmacological studies demonstrated that this protein possesses potent anti-diabetic, anti-atherogenic and anti-inflammatory functions. Supplement of adiponectin protein can decrease blood glucose², improve insulin sensitivity³, alleviate fatty liver⁴ and prevent atherosclerosis⁵. The protein is posttranslationally modified by hydroxylation and glycosylation⁶, and forms three different oligomeric complexes in the circulation⁷.

Many clinical studies demonstrated that plasma adiponectin is an useful biomarker for metabolic syndrome, nonalcoholic steatohepatitis and certain type of cancers¹. Decreased circulating levels of plasma adiponectin (hypoadiponectinaemia) are associated with increased body mass index (BMI), decreased insulin sensitivity, less favourable plasma lipid profiles, increased levels of inflammatory markers and increased risk for the development of type 2 diabetes, hypertension, and coronary heart diseases. Low adiponectin concentrations were found to be predictive of a future reduction in insulin sensitivity and cardiovascular disorders. Administration of the anti-diabetic drugs thiazolidinediones (TZDs) raises circulating adiponectin levels⁸. In addition, low plasma adiponectin levels are also associated with nonalcoholic steatohepatitis (NASH) and certain types of cancers.

PRINCIPLE OF THE ASSAY

This assay is a sandwich ELISA using affinity-purified polyclonal antibodies against mouse adiponectin. The immunoplate is pre-coated with anti-mouse adiponectin capture antibody. Standards and samples are pipetted into the wells and any mouse adiponectin present is bound by the immobilized antibody. After washing away any unbound substances, a horseradish peroxidase (HRP)-linked polyclonal antibody specific for mouse adiponectin is added to the wells. After a final wash step, an HRP substrate solution is added and colour develops in proportion to the amount of mouse adiponectin bound initially. The assay is stopped and the optical density of the wells determined using a microplate reader. Since the increases in absorbance are directly proportional to the amount of captured mouse adiponectin, the unknown sample concentration can be interpolated from a reference curve included in each assay.

INTENDED USE

This Mouse Adiponectin ELISA kit is designed for quantification of mouse adiponectin in serum, plasma, adipocyte extracts and cell culture media.

REAGENTS SUPPLIED

Each kit is sufficient for one 96-well plate and contains the following components:

1. Micro-titre strips (96 wells)-Coated with anti-mouse adiponectin polyclonal antibody, sealed.
2. 10×Wash buffer-40 ml.
3. 5×Assay buffer-25 ml.
4. 100×Detection antibody solution-A polyclonal antibody against mouse adiponectin conjugated with horseradish peroxidase, 0.12 ml.
5. Mouse adiponectin standard-200 ng of recombinant mouse adiponectin in a buffered protein base, lyophilised.
6. Substrate solution-12 ml, ready for use.
7. Stop solution-12 ml, ready for use.

OTHER MATERIALS REQUIRED, BUT NOT PROVIDED

1. Pipettes and pipette tips.
2. 96-well plate or manual strip washer.
3. Buffer and reagent reservoirs.
4. Paper towels or absorbent paper.
5. Plate reader capable of reading absorbency at 450 nm.
6. Distilled water or deionized water.

STORAGE

The kit should be stored at 2-8°C upon receipt, and all reagents should be equilibrated to room temperature before use. Remove any unused antibody-coated strips from the mouse adiponectin microplate, return them to the foil pouch and re-seal. Once opened, the strips may be stored at 2-8°C for up to one month.

PREPARATION OF REAGENTS

Bring all reagents and materials to room temperature before assay.

A. 1×Assay buffer

Prepare 1×Assay buffer by mixing the 5×Assay buffer (25 ml) with 100 ml of distilled water or deionized water. If precipitates are observed in the 5×Assay buffer bottle, warm the bottle in a 37°C water bath until the precipitates disappear. The 1×Assay buffer may be stored at 2-8°C for up to one month.

B. 1×Wash buffer

Prepare 1×Wash buffer by mixing the 10×Wash buffer (40 ml) with 360 ml of distilled water or deionized water. The 1×Wash buffer may be stored at 2-8°C for up to one month.

C. 1×Detection antibody solution

Spin down the 100×Detection antibody solution briefly and dilute the desired amount of the antibody 1:100 with 1×Assay buffer, 100 µl of the 1×Detection antibody solution is required per well. Prepare only as much 1×Detection antibody solution as needed. Return the 100×Detection antibody solution to 2-8°C immediately after the necessary volume is removed.

PREPARATION OF STANDARDS AND SAMPLES

Mouse Adiponectin Standards:

Reconstitute the lyophilised standard with 1 ml of 1×Assay buffer to generate a standard stock solution of 200 ng/ml. Allow the standard to sit for 10 minutes with gentle agitation prior to making dilutions. Prepare serially diluted standards using 1×Assay buffer as follows:

Standard Volume	Volume of 1×Assay buffer	Concentration
200 ng/ml stock	-	200 ng/ml
250 µl of 200 ng/ml stock	250 µl	100 ng/ml
250 µl of 100 ng/ml std	250 µl	50 ng/ml
250 µl of 50 ng/ml std	250 µl	25 ng/ml
250 µl of 25 ng/ml std.	250 µl	12.5 ng/ml
250 µl of 12.5 ng/ml std.	250 µl	6.25 ng/ml
250 µl of 6.25ng/ml std.	250 µl	3.12 ng/ml

1×Assay buffer serves as the zero standard (0 ng/ml). The reconstituted standard stock should be aliquoted and frozen at -20°C for one month. Avoid repeating freezing/thawing cycles. Please do not store the diluted standard solutions.

Sample preparation

Serum or plasma sample is generally required a 400-fold dilution with 1× Assay buffer. Option 1 (One-step dilution)-Add 2 µl of sample to 798 µl of 1×Assay buffer to give a 400-fold diluted sample solution.

Option 2 (Two-step dilution) - Add 10 µl of sample to 190 µl of 1×Assay buffer to give a 20-fold diluted sample solution. Add 20 µl of the 20-fold diluted sample solution to 380 µl of 1×Assay buffer to give a final 400-fold diluted sample solution. Cellular extract and culture media dilutions will vary and need to be optimized by the user, also use 1×Assay buffer to prepare these samples.

ASSAY PROCEDURE

It is recommended that all standards and samples be assayed in duplicate.

1. Add 100 μ l of standard or sample per well, incubate at room temperature for 1 hour.
2. Discard the content and tap the plate on a clean paper towel to remove residual solution in each well. Add 300 μ l of 1 \times Wash buffer to each well and incubate for 1 minute. Discard the 1 \times Wash buffer and tap the plate on a clean paper towel to remove residual wash buffer. Repeat the wash step for a total 3 washes.
3. Add 100 μ l of 1 \times Detection antibody solution to each well, incubate at room temperature for 1 hour.
4. Wash each well 4 times as described in step 2.
5. Add 100 μ l of Substrate solution to each well, incubate at room temperature for 15 minutes. **Protect from light.**
6. Add 100 μ l of Stop solution to each well. Gently tap the plate to ensure thorough mixing.
7. Measure absorbance of each well at 450 nm immediately.

CALCULATION

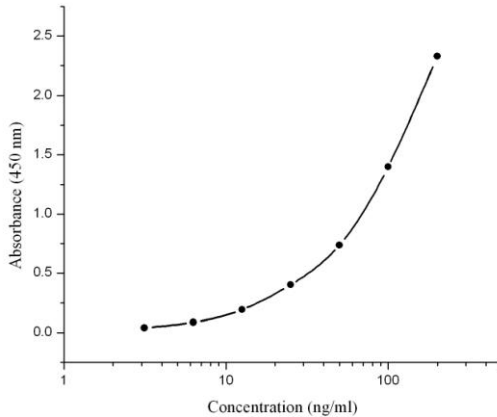
1. Subtract the absorbance of the blank from that of standards and samples.
2. Generate a standard curve by plotting the absorbance obtained (y-axis) against mouse adiponectin concentrations (x-axis). The best fit line can be generated with any curve-fitting software by regression analysis. Any curve of 4-parameter or log-log curve fitting can be used for calculation.
3. Determine mouse adiponectin concentration of samples from standard curve and multiply the value by the dilution factor.

TYPICAL STANDARD CURVE

The following standard curve is provided for demonstration only. A standard curve should be generated for each set of sample assay.

Adiponectin (ng/ml)	Absorbance (450 nm)	Blanked Absorbance
0	0.064	0
3.12	0.105	0.041
6.25	0.151	0.087
12.5	0.257	0.193
25	0.467	0.403
50	0.801	0.737
100	1.463	1.399
200	2.393	2.329

Mouse adiponectin standard curve (4-parameter)



ASSAY CHARACTERISTICS

A. Sensitivity:

The lowest level of mouse adiponectin that can be detected by this assay is 3.12 ng/ml.

B. Specificity:

The antibodies used in this assay are specific to mouse adiponectin and do not cross-react with human adiponectin, and other cytokine or hormone molecules.

REFERENCES

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SUMMARY OF ASSAY PROCEDURE

