

ANALYTICAL EVALUATION OF A NEW LIQUID STABLE IMMUNOTURBIDIMETRIC ASSAY KIT FOR THE DETERMINATION OF ADIPONECTIN IN SERUM

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INTRODUCTION

Adiponectin is an adipose tissue-derived adipokine abundantly present in human plasma.¹ It has a role in the regulation of the metabolism of hydrocarbons and lipids and in the reduction of insulin resistance. In addition adiponectin has anti-inflammatory, anti-atherosclerotic and vasoprotective actions.² The level is decreased in obesity and related pathologies including type 2 diabetes and cardiovascular disease.^{1,3-5}

This study reports the development of a new immunoturbidimetric assay kit for the determination of adiponectin in human serum. This represents a useful analytical tool for clinical settings

METHODOLOGY

The principle of the assay is immunoturbidimetric. A latex agglutination complex is formed between adiponectin and antibody coated latex particles. The assay kit is applicable to a variety of automated analysers, in this analytical evaluation the Hitachi 917 was used. On-board and calibration stabilities were tested by storing the reagents uncapped on the analyser for a period of 5 weeks. Within-run precision (n=10) was assessed by testing control samples at defined levels and was expressed as %CV. Correlation studies were conducted using a commercially available immunoassay.

RESULTS

Sensitivity and linearity

Adiponectin assay	
Sensitivity (µg/ml)	Linearity (µg/ml)
0.4	27.4

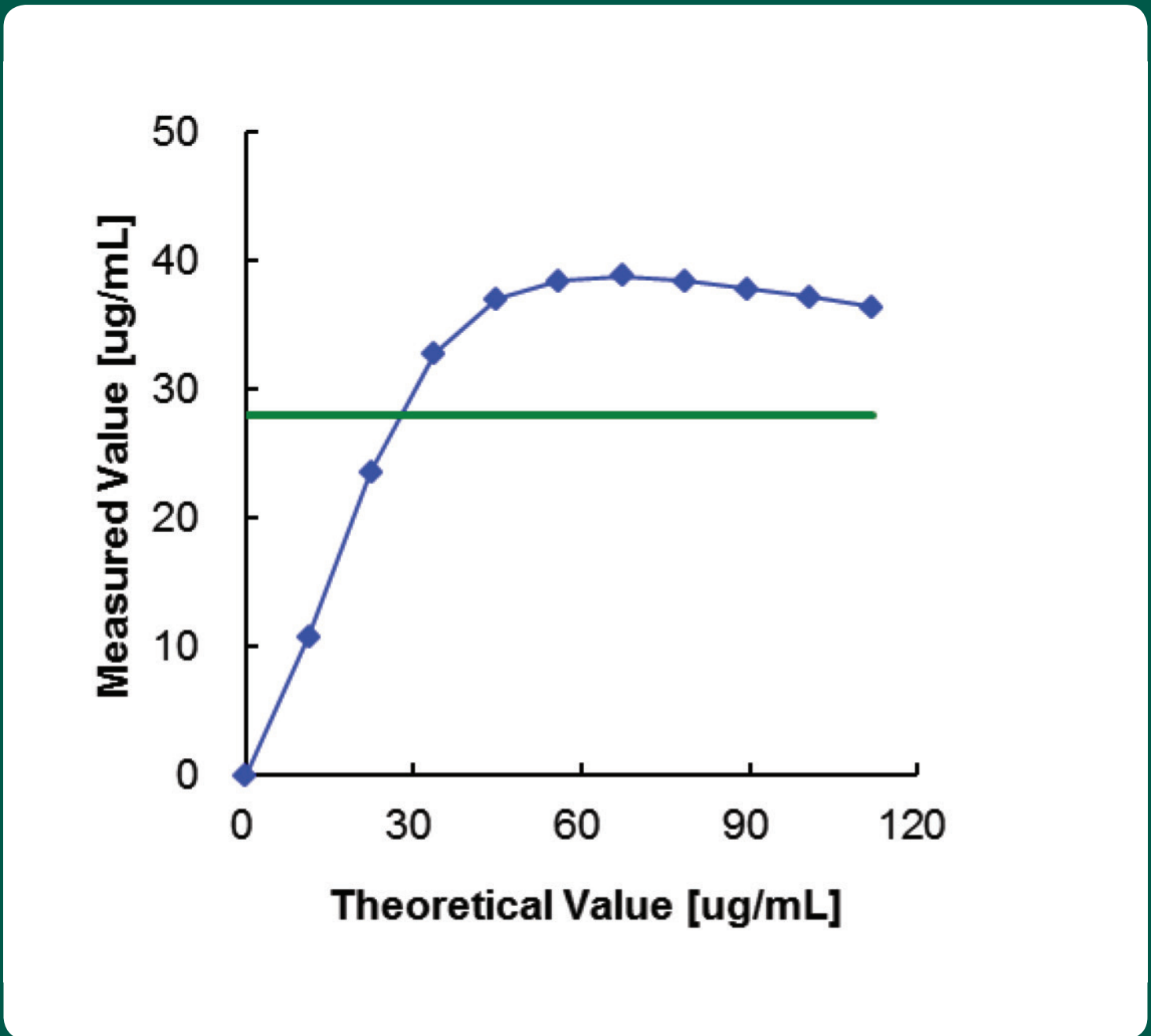
13001003/ADPN

Recovery

Sample	Adiponectin		
	Target (µg/ml)	Mean concentration (µg/ml)	%Recovery
Control sample	4.5	4.6	102
Control sample	11.0	10.9	99

13002/ADPN

Prozone



13004/ADPN

Precision

Intra-assay precision	
Sample	
Control level I (µg/ml)	Control Level II (µg/ml)
4.6	10.9
4.6	10.9
4.6	10.9
4.6	10.9
4.6	10.9
4.5	11.0
4.5	10.9
4.5	11.0
4.5	11.0
4.5	10.9
Mean 4.6	Mean 10.9
SD 0.1 %CV 1.16	SD 0.00 %CV 0.44

13003/ADPN

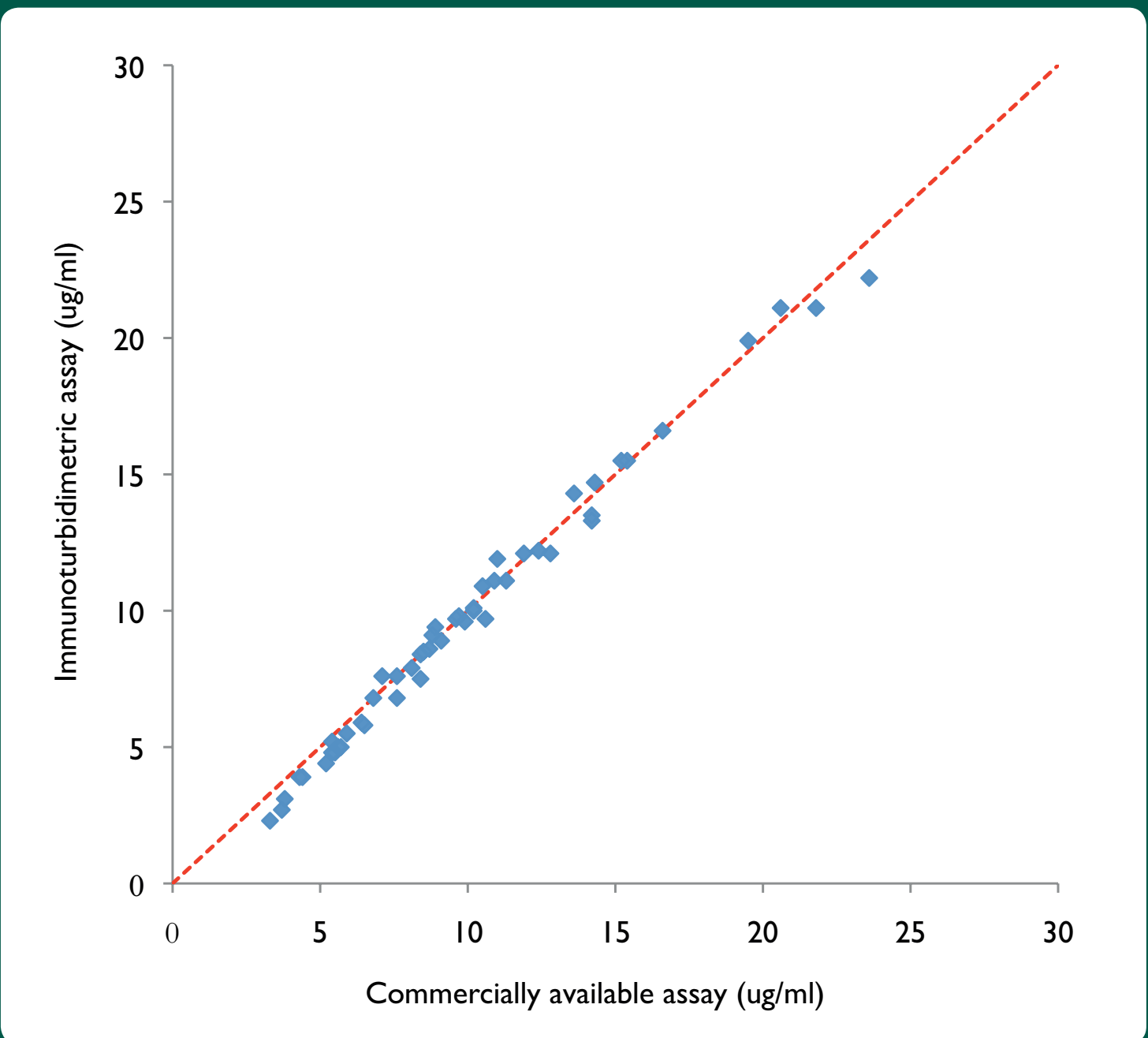
On-board stability

The reagents presented an on-board stability and calibration frequency of 5 weeks.

13007/ADPN

Correlation with other commercially available assay

In the correlation studies 50 serum patient samples were tested, linear regression on the resulting data generated r value of 0.995.



$$\begin{aligned} y &= 1.023x - 0.466 \\ n &= 50 \\ r &= 0.995 \end{aligned}$$

13008/ADPN

CONCLUSION

This evaluation indicates that this immunoturbidimetric assay kit exhibits high accuracy, reproducibility and correlates favourably with other methodology. It presents the added advantage of using liquid reagents with good stability. This represents an improvement for use in the accurate and reliable determination of adiponectin in human serum.



References

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