RANDOX REAGENTS

LATEX-ENHANCED IMMUNOTURBIDIMETRIC ASSAY FOR THE DETERMINATION OF 11-DEHYDRO THROMBOXANE B2 IN URINE AS NEW ANALYTICAL TOOL FOR THE STUDY OF ASPIRIN EFFECTIVENESS

G Shanbhag, L Young, P McGivern, P Lowry, E Benchikh, S McElhatton, RI McConnell, J Campbell, SP FitzGerald
Randox Laboratories Limited, Crumlin, United Kingdom

INTRODUCTION

Activated and aggregated platelets play a key role in the pathogenesis of cardiovascular disease. An important part of antiplatelet therapy in cardiovascular disease is aspirin, but its effectiveness varies among individuals. Activated platelets produce a potent vasoconstrictor and inducer of platelet aggregation: thromboxane A2(TxA2).[1,2] The measurement of stable metabolites of TxA2, such as urinary 11-dehydro thromboxane B2(11dhTxB2), allows the determination of the production of TxA2 by platelets and the assessment of the effectiveness of aspirin therapy.[3-6] This study presents the performance evaluation of a latex-enhanced immunoturbidimetric assay to determine levels of 11dhTxB2 in human urine.

METHODOLOGY

The assay is a latex-enhanced immunoturbidimetric assay based on the principle of measuring changes in scattered light as a change in absorbance at 700nm. The latex particles are coated with 11dhTxB2, which in the presence of anti-11dhTxB2 antibody solution, rapidly agglutinate. When a sample containing 11dhTxB2 is introduced, the agglutination reaction is partially inhibited. The change in absorbance is inversely proportional to the concentration of 11dhTxB2 in the sample. The assay is applicable to different analysers, in this analytical evaluation the ADVIA 1650 system was used.

RESULTS

Assay range

11dhTxB2 assay	
Assay range* (pg/ml)	400-6000

13/022/TBX

Sensitivity

11dhTxB2 assay		
Limit of blank (pg/ml)	Limit of detection (pg/ml)	Limit of quantitation (pg/ml)
170	238	400

13/022/TBX

Linearity

11dhTxB2 assay	
Linearity* (pg/ml)	6250

13/020/TBX

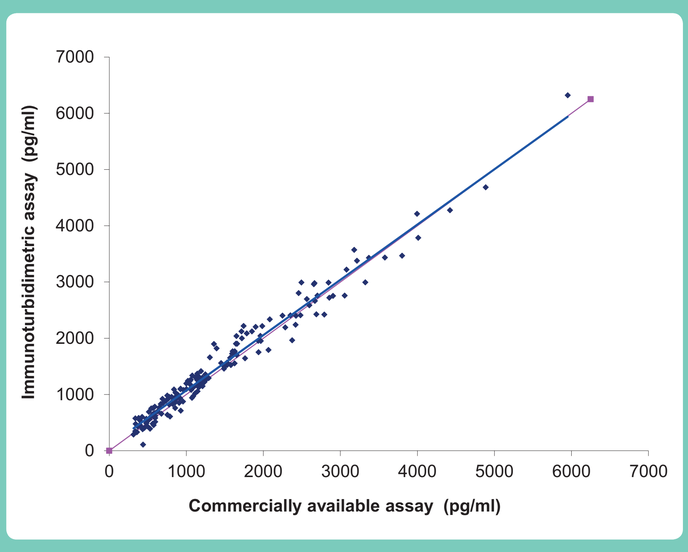
*extended linearity up to 12,000 pg/ml

Precision

11dhTxB2 assay: intra-assay precision		
	Mean concentration (pg/ml)	%CV
Level 1 (n=80)	583	6.2
Level 2 (n=80)	1072	5.9
Level 3 (n=79)	3813	6.5

13/016/TBX

Correlation: Immmunoturbidimetric assay vs commercially available assay



y = 0.983 x + 88.9
r = 0.985
n = 169 (urine samples)

13/024/TBx

CONCLUSION

- Data shows optimal performance of the reported assay for the determination of 11dhTxB2 in urine samples.
- The assay is applicable to different automated analysers and utilises ready–to-use reagents which ensures the reliability and accuracy of the measurements and facilitates the testing procedure.
- The assay is of value as a new analytical tool to predict the effect of aspirin treatment in clinical settings.

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RANDOX
Randox Laboratories Limited, 55 Diamond Road, Crumlin, County Antrim, BT29 4QY, United Kingdom
T +44 (0) 28 9442 2413 F +44 (0) 28 9445 2912 E marketing@randox.com I www.randox.com