FUJIFILM
Value from Innovation

Wako

FOR IN VITRO DIAGNOSTIC USE

Non-Esterified Fatty Acids
NEFA

ACS • ACOD Method

- Detects a variety of free fatty acids
- Broad Linear Range (0.01- 4.00 mEq/L)
- No extraction step required
- Designed for automated analyzers

Measurements of fatty acids are used in the diagnosis and treatment of various disorders of lipid metabolism. Labor intensive extraction/titration methods have been commonly applied to the measurement of free fatty acids in serum. These approaches are time consuming, hazardous and not easily automated.

The FUJIFILM Wako NEFA assay is an original test developed as an enzymatic method which is available in a series of individual reagents. The need for an extraction step has been eliminated. This enzymatic method is accurate, precise, simple and fast. The FUJIFILM Wako method relies upon the acylation of coenzyme A (CoA) and ultimately results in a purple colored product which can be measured colorimetrically at 550 nm.

Catalog No.	Product Name	Pkg Size	Storage
999-34691	HR Series NEFA-HR(2) Color Reagent A	4 x 50 mL	2-10°C
995-34791	HR Series NEFA-HR(2) Solvent A	4 x 50 mL	2-10°C
991-34891	HR Series NEFA-HR(2) Color Reagent B	4 x 25 mL	2-10°C
993-35191	HR Series NEFA-HR(2) Solvent B	4 x 25 mL	2-10°C
276-76491	NEFA Standard Solution	4 X 10 mL	2-10°C

PERFORMANCE CHARACTERISTICS

Principle

Non-esterified fatty acids (NEFA) in serum are treated with acyl-CoA synthetase (ACS) in the presence of adenosine triphosphate (ATP) and Coenzyme A (CoA). Thiol esters of CoA then form as acyl-CoA along with byproducts adenosine monophosphate (AMP) and pyro-phosphate (PPi). In the second portion of the procedure, the acyl-CoA is oxidized by added acyl-CoA oxidase (ACOD) to produce hydrogen peroxide. In the presence of added peroxidase (POD), this allows for the oxidative condensation of 3-methyl-N-ethyl-N-(ß- hydroxyethyl)-aniline (MEHA) with 4-aminoantipyrine to form a purple colored end product with an absorption maximum at 550 nm. Thus, the amount of NEFA in the sample can be determined from the optical density measured at 550 nm.

Accuracy

The accuracy of this method was demonstrated by a recovery study.

No.	Added value (mEq/L)	Expected value (mEq/L)	Measured value (mEq/L)	Obtained value (mEq/L)	Recovery (%)
1	0.15	0.42	0.42	0.15	100.0
2	0.30	0.57	0.58	0.31	103.3
3	0.59	0.86	0.89	0.62	105.1

No.	Added value (mEq/L)	Expected value (mEq/L)	Measured value (mEq/L)	Obtained value (mEq/L)	Recovery (%)
1	0.39	1.43	1.43	0.39	100.0
2	0.65	1.69	1.69	0.65	100.0
3	0.78	1.82	1.82	0.78	100.0

No.	Added value (mEq/L)	Expected value (mEq/L)	Measured value (mEq/L)	Obtained value (mEq/L)	Recovery (%)
1	0.59	2.61	2.62	0.60	101.7
2	1.18	3.20	3.16	1.14	96.6
3	1.77	3.79	3.87	1.85	104.5

Precision

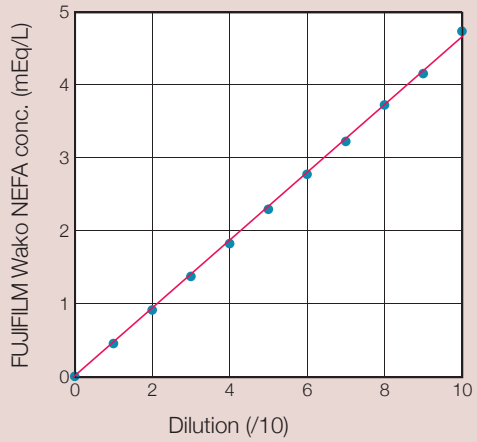
Within-run precision

Sample #	Replicates	Mean (mEq/L)	SD	CV (%)
1	20	0.51	0.0038	0.75
2	20	0.96	0.0059	0.61

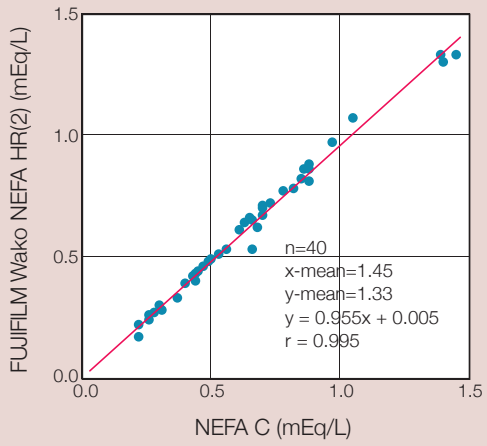
Total precision

Number of assay days	Mean (mEq/L)	CV (%)	S_{WT}	S_T
20	0.548	0.75	0.0015	0.0041
20	1.082	4.91	0.0053	0.0531

Linearity 0.01 - 4.00 mEq/L



Correlation



Interference (Additive Study)

Hemoglobin (mg/dL)	None	100	200	300	400	500
NEFA (mEq/L)	0.48	0.47	0.45	0.44	0.42	0.40

Ascorbic acid (mg/dL)	None	10	20	30	40	50
NEFA (mEq/L)	2.16	2.15	2.14	2.13	2.14	2.11

Free Bilirubin (mg/dL)	None	10	20	30	40	50
NEFA (mEq/L)	1.74	1.69	1.65	1.60	1.57	1.56

Conjugated Bilirubin (mg/dL)	None	8	16	24	32	40
NEFA (mEq/L)	2.08	1.98	1.87	1.77	1.67	1.56

Instruments

Various automated analyzer applications are available.

FUJIFILM Healthcare Americas Corporation
81 Hartwell Avenue, Suite 300, Lexington MA 02421
ivd.fujimed.com

For additional information, please contact us at:
email: fmsuivdsalesinquiry@fujifilm.com

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