



# Essential and Metabolic Fatty Acids Analysis (RBCs)



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Patient: **JOHN**

Order Number: **D5240141**

**DOE**

Completed: March 24, 2011

DOB: November 01, 1964

Received: March 14, 2011

Sex: M

Collected: March 13, 2011

MRN:

## Omega 3 Fatty Acids

Analyte	Reference Range
(cold water fish, flax, walnut)	
$\alpha$ -Linolenic (ALA) 18:3 n3	0.14 >= 0.09 wt %
Eicosapentaenoic (EPA) 20:5 n3	0.86 >= 0.16 wt %
Docosapentaenoic (DPA) 22:5 n3	2.53 >= 1.14 wt %
Docosahexaenoic (DHA) 22:6 n3	7.3 >= 2.1 wt %
<b>% Omega 3s</b>	10.9 >= 3.8

## Omega 9 Fatty Acids

Analyte	Reference Range
(olive oil)	
Oleic 18:1 n9	11 10-13 wt %
Nervonic 24:1 n9	3.2 2.1-3.5 wt %
<b>% Omega 9s</b>	14.2 13.3-16.6

## Saturated Fatty Acids

Analyte	Reference Range
(meat, dairy, coconuts, palm oils)	
Palmitic C16:0	17 18-23 wt %
Stearic C18:0	16 14-17 wt %
Arachidic C20:0	0.23 0.22-0.35 wt %
Behenic C22:0	0.98 0.92-1.68 wt %
Tricosanoic C23:0	0.22 0.12-0.18 wt %
Lignoceric C24:0	2.9 2.1-3.8 wt %
Pentadecanoic C15:0	0.11 0.07-0.15 wt %
Margaric C17:0	0.27 0.22-0.37 wt %
<b>% Saturated Fats</b>	37.4 39.8-43.6

## Omega 6 Fatty Acids

Analyte	Reference Range
(vegetable oil, grains, most meats, dairy)	
Linoleic (LA) 18:2 n6	9.6 10.5-16.9 wt %
$\gamma$ -Linolenic (GLA) 18:3 n6	0.09 0.03-0.13 wt %
Dihomo- $\gamma$ -linolenic (DGLA) 20:3 n6	1.10 >= 1.19 wt %
Arachidonic (AA) 20:4 n6	22 15-21 wt %
Docosatetraenoic (DTA) 22:4 n6	3.24 1.50-4.20 wt %
Eicosadienoic 20:2 n6	0.18 <= 0.26 wt %
<b>% Omega 6s</b>	36.4 30.5-39.7

## Monounsaturated Fats

Omega 7 Fats	Reference Range
Palmitoleic 16:1 n7	0.24 <= 0.64 wt %
Vaccenic 18:1 n7	0.65 <= 1.13 wt %

### Trans Fat

Elaidic 18:1 n9t	0.27 <= 0.59 wt %
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## Delta - 6 Desaturase Activity

	Upregulated	Functional	Impaired	
Linoleic / DGLA 18:2 n6 / 20:3 n6		8.7		6.0-12.3

## Cardiovascular Risk

Analyte	Reference Range
Omega 6s / Omega 3s	3.4 3.4-10.7
AA / EPA 20:4 n6 / 20:5 n3	26 12-125
Omega 3 Index	8.2 >= 4.0

Essential Fatty Acid Metabolism

Omega 3 Family

$\alpha$ -Linolenic Acid  
*flax, walnut, grasses*



Stearidonic acid

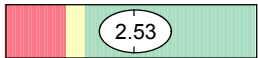
Eicosatetraenoic acid,  
ETA

Eicosapentaenoic Acid  
*cold water fish*



Anti-inflammatory  
Eicosanoids

Docosapentaenoic Acid



Docosahexaenoic Acid  
*cold water fish*

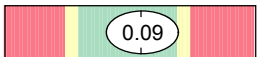


Omega 6 Family

Linoleic Acid  
*grains, vegetable oils*



$\gamma$ -Linolenic Acid  
*evening primrose, borage, black currant*



Dihomo- $\gamma$ -Linolenic Acid



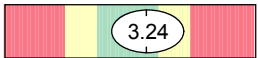
Series 1 Prostaglandins  
Anti-inflammatory

Arachidonic Acid  
*animal fats*



Pro-inflammatory  
Eicosanoids

Docosatetraenoic Acid



Delta-6 Desaturase

Vitamin and Mineral Cofactors:

FAD (B2), Niacin (B3)  
Pyridoxal-5-phosphate (B6)  
Vitamin C, Insulin, Zn, Mg

Elongase

Vitamin and Mineral Cofactors:

Niacin (B3)  
Pyridoxal-5-phosphate (B6)  
Pantothenic Acid (B5)  
Biotin, Vitamin C

Delta-5 Desaturase

Vitamin and Mineral Cofactors:

FAD (B2), Niacin (B3)  
Pyridoxal-5-phosphate (B6)  
Vitamin C, Insulin, Zn, Mg

Elongase

Vitamin and Mineral Cofactors:

Niacin (B3)  
Pyridoxal-5-phosphate (B6), Biotin  
Pantothenic Acid (B5), Vitamin C

Elongase  
Delta-6 Desaturase

Vitamin and Mineral Cofactors:

FAD (B2), Niacin (B3)  
Pyridoxal-5-phosphate (B6), Biotin  
Vitamin C, Zn, Mg, Carnitine  
Pantothenic Acid (B5)

This test was developed and its performance characteristics determined by Genova Diagnostics, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.