



# Essential and Metabolic Fatty Acids Analysis (RBCs)

Patient: **JOHN DOE**  
DOB: November 01, 1964  
Sex: M  
MRN:

Order Number: **D5240141**  
Completed: March 24, 2011  
Received: March 14, 2011  
Collected: March 13, 2011

## Omega 3 Fatty Acids

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

## Omega 9 Fatty Acids

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

## Saturated Fatty Acids

Analyte	(meat, dairy, coconuts, palm oils)	Reference Range
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>	<b>37.4</b>	<b>39.8-43.6</b>

## Omega 6 Fatty Acids

Analyte	(vegetable oil, grains, most meats, dairy)	Reference Range
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	$\geq 1.19$ 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	$\leq 0.26$ wt %
<b>% Omega 6s</b>	<b>36.4</b>	<b>30.5-39.7</b>

## Monounsaturated Fats

Omega 7 Fats	Reference Range
Palmitoleic 16:1 n7	0.24 $\leq 0.64$ wt %
Vaccenic 18:1 n7	0.65 $\leq 1.13$ wt %

### Trans Fat

Elaidic 18:1 n9t	0.27 $\leq 0.59$ wt %
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## Delta - 6 Desaturase Activity

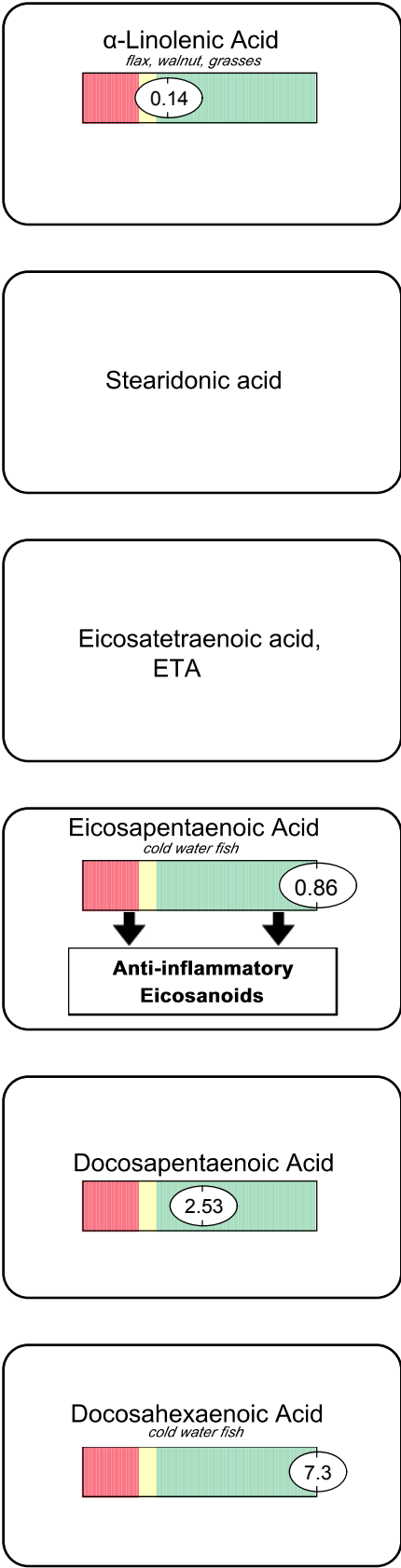
	Upregulated	Functional	Impaired	
Linoleic / DGLA 18:2 n6 / 20:3 n6		8.7		6.0-12.3

## 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 $\geq 4.0$

Essential Fatty Acid Metabolism

Omega 3 Family



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

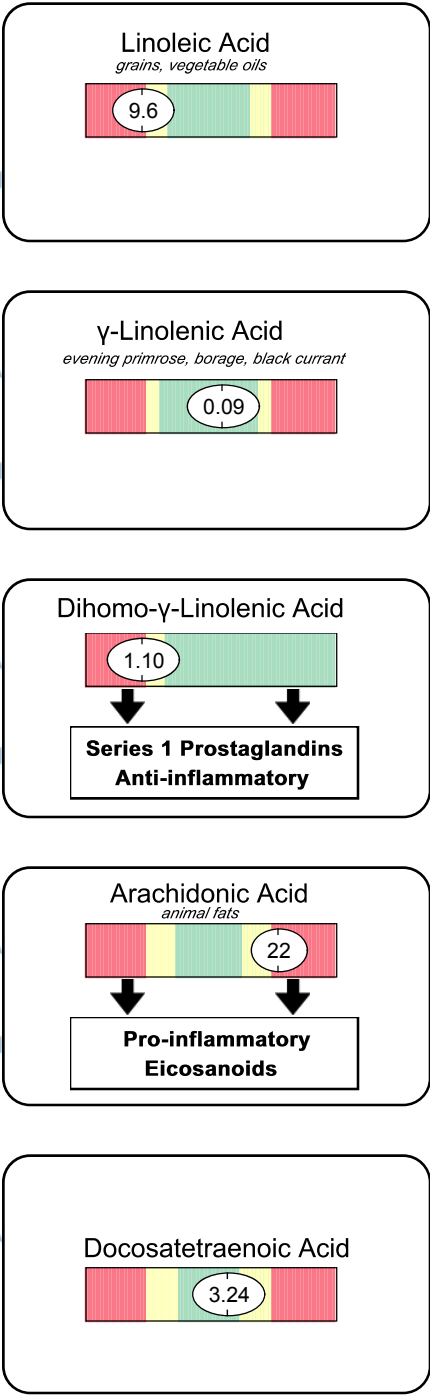
Elongase

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)

Omega 6 Family



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.