



# Essential and Metabolic Fatty Acids Analysis (RBCs)



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Asheville, NC 28801  
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Patient: **SAMPLE**  
**PATIENT**

DOB:

Sex:

MRN:

## 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

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

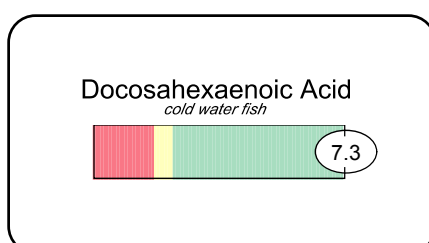
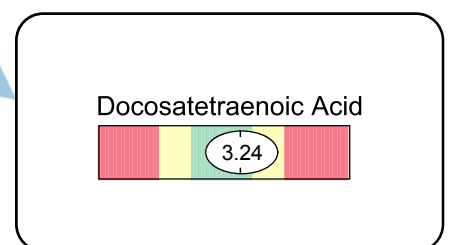
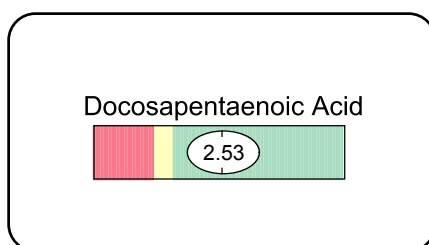
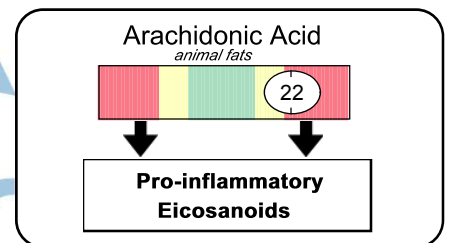
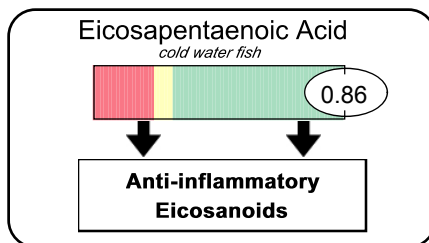
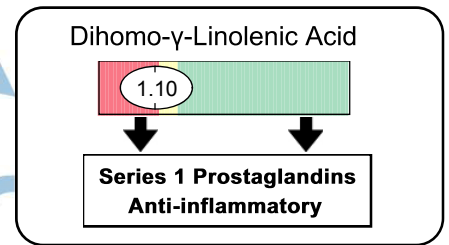
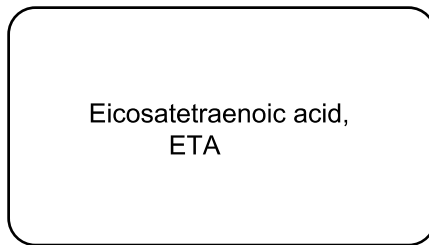
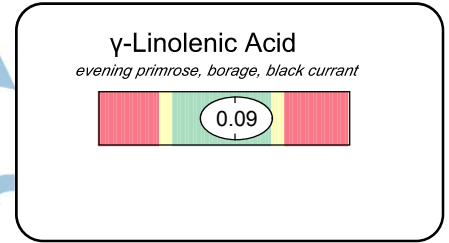
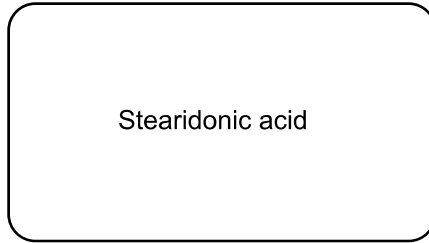
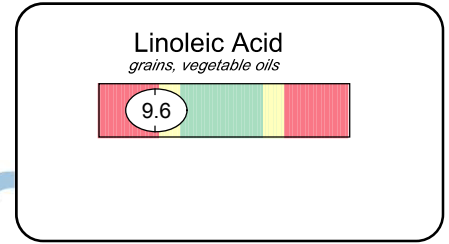
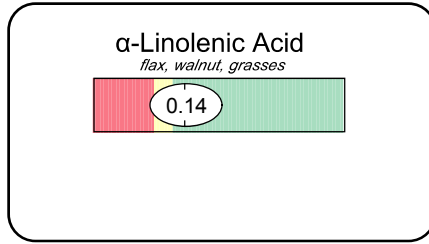
## Cardiovascular Risk

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

### Omega 6 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)

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.

# Step 3:

## Ship the specimen to the lab

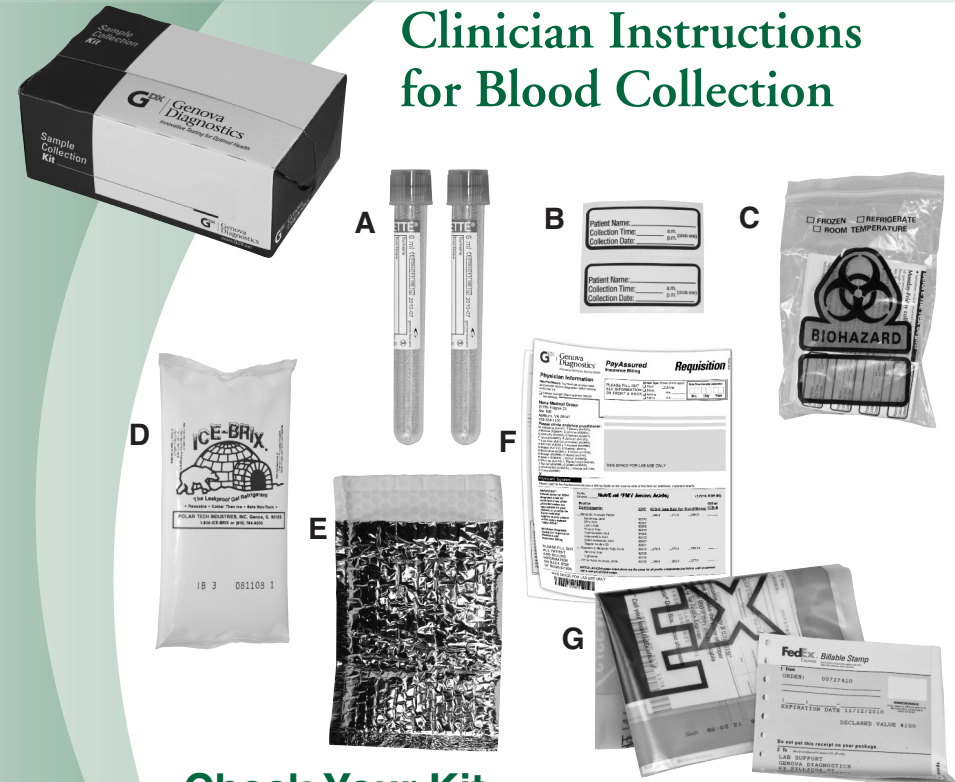
Specimen must be returned in the Genova Diagnostics kit box for correct delivery to the lab. Not following these instructions may result in a shipping charge.

- Plan to ship the specimen Monday – Friday overnight delivery.
- Call 1.800.GoFedEx (1.800.463.3339) to schedule shipping. When the automated system asks “How may I help you?” say “Return a Package”. Tell the FedEx representative “I am using a billable stamp” and they will walk you through the process and make it easy.
- **Make sure the tubes are tightly closed and identified** with completed labels. Seal the tubes in the Biohazard bag.
- **Place the Biohazard bag and the frozen gel pack** in the Flexfoil pack.
- **Place Flexfoil pack (with specimens) inside kit box** and place completed and signed requisition on top before closing. Do not staple or tape the box.
- **Print your name and address** in the section marked “From” on the prepaid shipping envelope label. **DO NOT** mark or write in any other sections.
- Put the kit box into the envelope and seal the envelope.
- Keep your shipment and tracking numbers for future reference and tracking purposes.

# Essential and Metabolic Fatty Acids

IS-536

## Clinician Instructions for Blood Collection



### Check Your Kit

- A - 2 Lavender-top tubes
- B - 2 Labels
- C - 1 Biohazard bag with pad
- D - 1 Gel freezer pak
- E - 1 Flexfoil pack
- F - 1 Requisition (to be completed and signed)
- G - 1 Prepaid mailing envelope

- If any items are missing or expired, call Client Services at 800.522.4762 and press “1”.
- Keep the kit box for shipping your specimen to the lab.

# Step 1:

## Schedule & Prepare for the blood draw

- **Schedule the patient accordingly**
  - Patients must **fast overnight** (at least 12 hours) prior to the blood draw. They should also be instructed to eat light meals the day before.
- **Freeze the enclosed gel freezer pack** a minimum of 4 hours before shipping.
- **Contact FedEx and schedule to ship the specimen overnight delivery** Monday - Friday. *Specimens must be received at the lab within 48 hours of collection. If necessary, the specimen can be kept in a refrigerator overnight before shipping.*
- **Complete the Requisition Form** with all patient and billing information. Be sure it is signed by the Patient/Responsible Party and the healthcare provider.

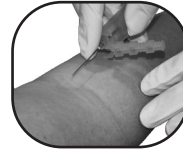
# Step 2:

## Blood Draw & Serum Preparation

Not following these instructions may affect the test results.



- 1 Write the patient's full name and the time and date** of collection on each label and apply to tubes.



- 2 Draw blood** to fill both Lavender top tubes.



- 3 Mix blood samples thoroughly** by gently inverting the tubes three times. Do not shake.



- 4** Place the Lavender top tubes into the Biohazard bag, and seal it securely. *If unable to ship immediately, store the Biohazard bag in a refrigerator. DO NOT FREEZE.* Store refrigerated until shipped.