
Lab Dept: Chemistry

Test Name: FATTY ACID PROFILE, MITOCHONDRIAL

General Information

Lab Order Codes: FAPM

Synonyms: Fatty Acid Profile, Mitochondrial (C8-C18), Serum

CPT Codes: 82725 - Fatty Acids, nonesterified

Test Includes: See [Reference Range](#)

Logistics

Test Indications: Useful for biochemical diagnoses inborn errors of mitochondrial fatty acid oxidation, including deficiencies of medium-chain acyl-Co-A dehydrogenase, long-chain acyl-Co A dehydrogenase, and glutaricacidemia type 2.

Lab Testing Sections: Chemistry - Sendouts

Referred to: Mayo Clinic Laboratories (MML Test: FAPM)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 3-5 days, test performed Monday - Friday

Special Instructions: See [Patient Preparation](#)

Specimen

Specimen Type: Blood

Container: SST (Gold, marble or red) tube

Draw Volume: 1.5 mL (Minimum: 0.5 mL) blood

Processed Volume: 0.5 mL (Minimum: 0.15 mL) serum

Collection: Routine venipuncture

Special Processing:

Lab Staff: Centrifuge specimen and aliquot serum into a plastic screw-capped round bottom vial. Store and ship at frozen temperatures. Forward promptly.

Serum specimen stable frozen (preferred) for 92 days, refrigerated for 72 hours.

Patient Preparation:

Overnight (12-14 hour) fast recommended, see [Cautions](#) for further guidance on infants or persons suspected of having a fatty acid oxidation disorder. Patient must not consume any alcohol for 24 hours before the specimen is drawn.

Sample Rejection:

Specimens other than serum; specimens held at incorrect temperature; gross lipemia.

Interpretive**Reference Range:**

| Fatty Acid nmol/mL | 1 - 31 days | 32 days - 1 year | 2 - 17 years | ≥18 years |
|------------------------------|-------------|------------------|--------------|------------|
| Octanoic Acid, C8:0 | 7 - 63 | 7 - 63 | 9 - 41 | 8 - 47 |
| Decenoic Acid, C10:1 | 0.8 - 4.8 | 0.8 - 4.8 | 1.6 - 6.6 | 1.8 - 5.0 |
| Decanoic Acid, C10:0 | 2 - 62 | 2 - 62 | 3 - 25 | 2 - 18 |
| Lauroleic Acid, C12:1 | 0.6 - 4.8 | 0.6 - 4.8 | 1.3 - 5.8 | 1.4 - 6.6 |
| Lauric Acid, C12:0 | 6 - 190 | 6 - 190 | 5 - 80 | 6 - 90 |
| Tetradecadienoic Acid, C14:2 | 0.3 - 6.5 | 0.3 - 6.5 | 0.2 - 5.8 | 0.8 - 5.0 |
| Myristoleic Acid, C14:1 | 1 - 46 | 1 - 46 | 1 - 31 | 3 - 64 |
| Myristic Acid, C14:0 | 30 - 320 | 30 - 320 | 40 - 290 | 30 - 450 |
| Hexadecadienoic Acid, C16:2 | 4 - 27 | 4 - 27 | 3 - 29 | 10 - 48 |
| Palmitoleic Acid, C16:1w7 | 20 - 1020 | 20 - 1020 | 100 - 670 | 110 - 1130 |

| | | | | |
|---|------------|----------------|----------------|----------------|
| Palmitic Acid, C16:0 | 720 - 3120 | 720 - 3120 | 960 - 3460 | 1480 - 3730 |
| Linoleic Acid, C18:2w6 | 350 - 2660 | 1000 - 3300 | 1600 - 3500 | 2270 - 3850 |
| Oleic Acid, C18:1w9 | 250 - 3500 | 250 - 3500 | 350 - 3500 | 650 - 3500 |
| Stearic Acid, C18:0 | 270 - 1140 | 270 - 1140 | 280 - 1170 | 590 - 1170 |
| <p>Interpretation: Fatty acid oxidation disorders are recognized on the basis of disease-specific metabolite patterns that are correlated to the results of other investigations in plasma (carnitine, acylcarnitines) and urine (organic acids, acylglycines).</p> | | | | |

Critical Values:

N/A

Limitations:

For nutritional assessment, a 12- to 14-hour fast is required; however, patients suspected of having a fatty acid oxidation disorder should not fast before testing due to the possibility of acute metabolic decompensation. Instead, collect the specimen after the longest fast possible, just before feeding. In the case of a patient on total parenteral nutrition, specimen can be collected as normal.

Methodology:

Capillary gas chromatography/Mass spectrometry, Stable isotope dilution.

References:

[Mayo Clinic Laboratories](#) August 2023

Updates:

12/23/2010: Updated units, no change in reference ranges.
1/26/2016: CPT update.
12/12/2017: Collection container update.
8/23/2023: Updated CPT code, added specimen stability, corrected specimen rejection criteria, updated limitations and fasting guidance.