LipoFraction NMR
(and LipoFraction NMR with Lipids)

CPT Code **83704, 80061 (with Lipids)***
Order Code **37847 – LipoFraction NMR**
37849 – LipoFraction NMR with Lipids†
Specimen Type **Serum**
Tube Type **Red-Top (without Gel Barrier)**

Importance of LDL:
- LDL-P is associated with increased cardiovascular risk

Importance of HDL:
- HDL-P is associated with reduced cardiovascular risk
- High Triglycerides to HDL-C ratio‡ (TG/HDL-C) is associated with cardiovascular risk

Description
Evaluation of lipoprotein particles has been used to support management of cardiovascular disease (CVD) risk for over 15 years, and lipoprotein subclass analysis has become a valuable tool to help clinicians better stratify patients at risk. In situations where LDL-C or HDL-C levels determined as part of a conventional lipid panel are optimal, additional LDL-C and HDL-C subclass analysis may identify patients with increased CVD risk.[1,2] Enhanced identification of these previously unidentified at-risk patients can help physicians incorporate treatment that can help reduce atherosclerotic CVD and significantly reduce cardiovascular events.[3,4]

The LipoFraction NMR test utilizes the most up-to-date nuclear magnetic resonance technology to measure lipoprotein particles. The 600-MHz magnet creates a high-strength magnetic field for enhanced lipoprotein particle resolution. This test accurately measures lipoproteins to quantify lipoprotein particle number and composition in a single measurement from a single sample.

Clinical Use
The lipoprotein profile generated from the LipoFraction NMR with Lipids test can be used to evaluate CVD risk, insulin resistance,‡ and response to therapy.

Clinical Significance
- When LDL-C is normal and LDL-P is elevated (lipid discordance) CVD risk tracks with levels of LDL-P[1,5]
  - LDL-P is more strongly associated with risk for CVD events and atherosclerosis than LDL-C[1,5]
- LDL-P can identify patients with intermediate risk for CVD events[6]
  - For intermediate-risk patients, LDL-P provides additional insight to CVD risk over and above standard risk factors[7]
- HDL-P is inversely associated with CVD risk[8]
  - HDL-P is associated with reduced CVD risk, with or without statin therapy[8]
- Lipid subfractions, including Small LDL-P,[9-11] LDL Size,[19,12,13] Large HDL-P,[9-11,14] HDL Size,[11,14,15] Large VLDL-P,[9,10,16] and VLDL Size,[9] identify risk of metabolic syndrome,[14] diabetes,[9] coronary artery disease,[10-12,14-16] and stroke[13]
- TG/HDL-C‡ is comparable to LP-IR and HOMA-IR for evaluation of insulin resistance and is predictive of cardiovascular events and mortality[17-19]

Testing Frequency
LipoFraction NMR testing is determined by an individual's medical history, but it may be performed semi-annually or annually, as necessary. If the initial test result is abnormal, then follow-up testing may be performed within 3-6 months following treatment.

Specimen Type
The LipoFraction NMR test should be performed on a serum specimen. Patients should be fasting for 12 hours.

Commercial Insurance or Medicare Coverage
Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination) have been established or posted by CMS (Medicare & Medicaid). Limited information has been provided by the majority of the larger carriers (Aetna, United Healthcare, Cigna, Blues).

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LipoFraction NMR	RELATIVE RISK		
	Optimal	Moderate	High
Cardiovascular Disease Assessment			
LDL-P *(nmol/L)*	<935	935–1816	>1816
Small LDL-P *(nmol/L)*	≤466	467–820	>820
LDL size *(nm)*	>20.5	N/A	≤20.5
HDL-P *(umol/L)*	≥32.9	29.2–32.8	<29.2
Large HDL-P *(umol/L)*	≥7.3	5.3–7.2	<5.3
HDL size *(nm)*	≥9.1	8.7–9.0	<8.7
Large VLDL-P *(nmol/L)*	≤3.6	3.7–6.1	>6.1
VLDL size *(nm)*	≤47.0	47.1–49.0	>49.0
Insulin Resistance Assessment‡			
TG/HDL-C ratio‡	<2.0	2.0–3.0	>3.0

Treatment Considerations§

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

✓ **Advanced cardiovascular testing provides actionable information to individualize treatment options:**

- Initiate/intensify statin therapy.
- Identify opportunities for adjunct therapy.
- Set diet, exercise, and lifestyle targets.

✓ **Treatment options for LipoFraction NMR with Lipids test results:**

- If LDL-P is elevated:
  - Diet and exercise[20]
  - Statins, ezetimibe, bile acid sequestrants, and PCSK9 inhibitors[21,22]
- If HDL-P is suboptimal:
  - Diet and exercise improve HDL function[23]
  - May consider evaluation of HDL function[24]
- If TG/HDL-C‡ is elevated:
  - Diet and exercise[25]
  - Consider therapies to address insulin resistance (eg, metformin)[25]

** The CPT codes provided are based on AMA guidelines and are for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.*

†Panel components may be ordered separately: LipoFraction NMR order code 37847 (CPT 83704); Lipid Panel with TG/HDL-C order code 1006 (CPT 80061). Lipid Panel with TG/HDL-C components may be ordered separately: Cholesterol, total order code C117 (CPT 82465); Triglycerides order code C119 (CPT 84478); HDL Cholesterol, direct order code C118 (CPT 83718).

‡Assessment of insulin resistance is determined by calculation of TG/HDL-C ratio. This will only be performed when a LipoFraction NMR with Lipids test is ordered (order code 37849).

§ The treatment considerations are provided for informational purposes only and are not intended as medical advice. A physician's test selection and interpretation, diagnosis, and patient management decisions should be based on his/her education, clinical expertise, and assessment of the patient.

References

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