



# APOLIPOPROTEINS

## Apolipoproteins

Go the extra mile with an extended lipid profile.

Cardiovascular disease (CVD) is the number one leading cause of death globally, accounting for 17.7 million deaths per year, equivalent to 31% of all deaths globally. CVD represents a significant burden on healthcare services, which could be avoided through early diagnosis and timely intervention. The traditional lipid panel only detects approximately 10% of all coronary artery disease (CAD) patients. Advancing lipid testing is recommended to optimise patient treatment.

### Biological significance of Apolipoproteins

Apolipoproteins are proteins that bind to lipids forming lipoproteins. The main role of lipoproteins is to transport lipids around the body, in addition to this Apolipoproteins are responsible for maintaining the structural integrity and solubility of lipoproteins, lipoprotein receptor recognition, and regulation of enzymes during the metabolism of lipoproteins.

Randox offer six Apolipoproteins assays to aid in the diagnosis of a variety of clinical disorders.

### Apolipoprotein A-I (Apo A-I)

Benefits of the Randox Apo A-I test

- Liquid ready-to-use reagents for convenience and ease-of-use
- Wide measuring range of 6.50 – 233mg/dl for the measurement of clinically important results
- Limited interference from Bilirubin, Haemoglobin, Intralipid and Triglycerides, producing accurate results
- Applications available detailing instrument-specific settings for the convenient use of the Randox Apo A-I assay on a wide range of clinical chemistry analysers

### Clinical significance

Apo A-I is one of the main protein forms found in high density lipoproteins (HDL). The chief role of Apo A-I is the activation of lecithin cholesterol acyl transferase (LCAT) and the capture and removal

of free cholesterol from hepatic tissues, also known as reverse cholesterol transport. Apo A-I is therefore non-atherogenic, showing an inverse relationship to cardiovascular risk.

### Apolipoprotein A-II (Apo A-II)

Key benefits of the Randox Apo A-II test

- Liquid ready-to-use reagents for convenience and ease-of-use
- Wide measuring range of 6.75 – 61.1mg/dl for the measurement of clinically important results
- Limited interference from Bilirubin, Haemoglobin, Intralipid and Triglycerides, producing accurate results
- Application available detailing instrument-specific settings for the convenient use of the Randox Apo A-II assay on a wide range of clinical chemistry analysers

## Clinical significance

Apo A-II is a major constituent of HDL particles and plays an important role in the processes of reverse cholesterol transport and lipid metabolism. Increased production of Apo A-II promotes atherosclerosis by decreasing the proportion of anti-atherogenic HDL containing Apo A-I.

## Apolipoprotein B (Apo B)

Key benefits of the Randox Apo B test

- Liquid ready-to-use reagents for convenience and ease-of-use
- Extensive measuring range of 11.2 – 184mg/dl for the measurement of clinically important results
- Limited interference from Bilirubin, Haemoglobin, Intralipid and Triglycerides, producing accurate results
- Applications available detailing instrument-specific settings for the convenient use of the Randox Apo B assay on a wide range of clinical chemistry analysers

## Clinical significance

Apolipoprotein B is the most predominant protein found in low-density lipoproteins (LDL). Apo B is the main cholesterol carrying protein and is the ligand concerned with the uptake of cholesterol into cells by the LDL-receptor pathway. Elevated levels of Apo B correlate with an increased risk of CVD, even when total and LDL cholesterol levels are within the normal range, making Apo B an important risk marker.

## Apolipoprotein C-II (Apo C-II)

Key benefits of the Randox Apo C-II test

- Liquid ready-to-use reagents for convenience and ease-of-use
- Excellent sensitivity of 1.48mg/dl, ensuring depleted levels of Apo C-II are detected
- Limited interference from Bilirubin, Haemoglobin, Intralipid and Triglycerides, producing accurate results
- Applications available detailing instrument-specific settings for the convenient use of the Randox Apo C-II assay on a wide range of clinical chemistry analysers

## Clinical significance

Apolipoprotein C-II is responsible for the activation of lipoprotein lipase in capillaries. As a result, fatty acids are monoglycerides from chylomicrons are liberated, with the fatty acids passing into adipocytes or muscle tissue. A defect in the production of Apo C-II causes hyperlipoproteinemia type IB, which is characterised by hypertriglyceridemia, xanthomas and an increased risk of pancreatitis and early atherosclerosis.

## Apolipoprotein C-III (Apo C-III)

Key benefits of the Randox Apo C-III test

- Liquid ready-to-use reagents for convenience and ease-of-use
- Excellent linearity of 21.7mg/dl, ensuring that elevated levels are detected
- Limited interference from Bilirubin, Haemoglobin, Intralipid and Triglycerides, producing accurate results
- Applications available detailing instrument specific settings for the convenient use of the Randox Apo C-III assay on a wide range of clinical chemistry analysers

## Clinical significance

Apolipoprotein C-III modulates the uptake of triglyceride-rich lipoproteins via the LDL receptor related protein through the inhibition of lipoprotein lipase and hepatic lipase. Elevated levels of Apo C-III are associated with both primary and secondary hypertriglyceridemia. Genetically determined Apo C-III deficiency has been identified to increase the rate of triglyceride clearance from the plasma up to 7-fold. Reduced levels of Apo C-I and Apo C-III have been identified in patients with stomach cancer and may have a role in the formulation of a diagnostic score for stomach cancer patients.

## Apolipoprotein E (Apo E)

Key benefits of the Randox Apo E test

- Liquid ready-to-use reagents for convenience and ease-of-use
- Extensive measuring range of 1.04 – 12.3mg/dl for the measurement of clinically important results
- Limited interference from Bilirubin, Haemoglobin, Intralipid and Triglycerides, producing accurate results
- Applications available detailing instrument-specific settings for the convenient use of the Randox Apo E assay on a wide range of clinical chemistry analysers.

### **Clinical significance of Apo E**

Apolipoprotein E is involved in the receptor recognition of intermediate-density lipoprotein and chylomicron remnant by the liver. Apo E plays an important role in the transport, uptake and redistribution of cholesterol which is a significant factor in the remodelling and repair of nerve tissues. Some studies have found an association between Apo E and neurodegenerative conditions such as Alzheimer's Disease and Multiple Sclerosis. A deficiency in Apo E gives rise to high levels of serum cholesterol and triglycerides, leading to premature atherosclerosis. Numerous factors can affect the concentration levels of Apo E including: genetic polymorphism, oral contraceptives, puberty, BMI and age.

### **Useful links**

[Download our Reagents Brochure](#) for information on a wide range of clinical assays from Randox.

[Contact us via our enquiry form](#) and we will get back to you.

Buy Randox reagents online via our Online Store [www.store.randox.com](http://www.store.randox.com)