

# Total Coenzyme Q10 by HPLC, Plasma or Serum

*USED AS ADJUVANT THERAPY IN THE TREATMENT OF DISORDERS OF CELLULAR ENERGY METABOLISM AND OXIDATIVE INJURY*

## Clinical Background

- Coenzyme Q10 (CoQ10, ubiquinone) is one of a group of lipid-soluble benzoquinones involved in mitochondrial electron transport. CoQ10 also functions as an intracellular antioxidant.
- Due to its role in energy metabolism, supplemental CoQ10 has been proposed for the treatment of a variety of disorders. Research supporting the efficacy of CoQ10 shows the most promise for its use in neurodegenerative disorders such as Parkinson disease and some encephalomyopathies.
- Study results in other areas, including use of CoQ10 in the treatment of cardiovascular disease and diabetes, are inconclusive. The value of CoQ10 supplementation with statin use has not been clearly established.

## Indications for Ordering

This test may be used by physicians to monitor coenzyme Q10 concentrations in patients for whom the information may be of value in assessment and management of disease.

## Interpretation

The expected concentration of total coenzyme Q10 in healthy adults is 0.4 - 1.6 mg/L.

## Limitations

This test measures total CoQ10 concentration. Oxidized and reduced fractions are not differentiated.

## Methodology

The concentration of coenzyme Q10 is measured in plasma or serum by coulometric detection following isolation of the compound by reverse-phase high performance liquid chromatography (HPLC). The method is calibrated using a five-point curve with an internal standard coenzyme Q9. Samples are prepared for analysis by protein precipitation.

## References

1. Bonakdar RA, Guarneri E. Coenzyme Q10. Am Fam Physician 2005;72:1065-70.
2. Hargreaves IP. Ubiquinone: cholesterol's reclusive cousin. Ann Clin Biochem 2003;40:207-18.
3. Miles MV, Horn PS, Morrison JA, Tang PH, DeGrauw T, Pesce AJ. Plasma coenzyme Q10 reference intervals, but not redox status, are affected by gender and race in self-reported healthy adults. Clin Chim Acta 2003;332:123-32.
4. Tang PH, Miles MV, DeGrauw A, Hershey A, Pesce A. HPLC analysis of reduced and oxidized coenzyme Q10 in human plasma. Clin Chem 2001;47:256-65.

## Test Information

0081119

Coenzyme Q10, Total

For specific collection, transport, and testing information, refer to the ARUP Web site at [www.aruplab.com](http://www.aruplab.com).