HPLC Analysis of Coenzyme Q10: UV and EC Detections

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Two new analytical procedures have been developed for analysis of coenzyme Q10 in dietary supplements and in biological samples. Both procedures use a reverse-phased C18 column for separation of coenzyme Q10. The first procedure is a simple and robust high-performance liquid chromatography (HPLC) with UV detection for the determination of total coenzyme Q10 content in dietary supplements. Sample materials include powder-filled capsules, oil-based softgels, and tablets, chewable wafers, liquids, and negative control. Coenzyme Q10 is monitored at a wavelength of 275 nm. This method achieves a linear detector response for peak height measurements over the concentration range of 1-600 μg/mL. The second procedure is a sensitive and reliable high-performance liquid chromatography (HPLC) with electrochemical (EC) detection for simultaneous determination of reduced and oxidized coenzyme Q10 concentrations in biological samples. Sample materials include tissues and organs. Reduced and oxidized coenzyme Q10 are monitored at a coulometric electrode. This method achieves a linear detector response for peak height measurements over the on-column concentration range of 0.5-1,000 ng. Both UV and EC methods have been applied to determine coenzyme Q10 in dietary supplements and in biological samples, respectively.

Biography

Peter H. Tang (PhD, University of Cincinnati) is assistant professor of Pediatrics, Pathology and Laboratory Medicine at Cincinnati Children’s Hospital Medical Center and University of Cincinnati College of Medicine, Cincinnati, Ohio, USA. Dr. Tang is inventor of U.S. Patent: “Electrochemical Analysis of Coenzyme Q10 and Reduced Coenzyme Q10”. Tang’s Clinical and Research Interests are: in vitro diagnostics; disease monitoring procedures; hemoglobin disorders; mitochondrial dysfunction; metabolic disorders; neurodegenerative diseases; neurogenesis; and therapeutic drug monitoring.

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