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HPLC Analysis of Coenzyme Q10: UV and EC Detections

Peter H. Tang
University of Cincinnati, USA

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) withUV 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 Q10is 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 Q10are 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. BothUV 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.

Peter.Tang@cchmc.org