tandem mass spectrometry reduces sample preparation time (non-derivatized procedure) and specificity is enhanced by using ratios of phenylalanine (Phe) to tyrosine (Tyr) concentrations. The specificity and sensitivity of the procedure is provided largely by the selectivity of the Multiple Reaction Monitoring (MRM) scan functions performed by the mass spectrometer. The method is very sensitive, with detection limits well below the normal concentrations of the amino acids found in blood.

[PD4-15] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Determination of Recombinant Human Epidermal Growth Factor (rhEGF) in Pharmaceutical Formulation by High Performance Liquid Chromatography with Electrochemical Detection

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An improved determination method of recombinant human epidermal growth factor (rhEGF) using high performance liquid chromatography with electrochemical detection (ECD) has been developed. The factors affecting the response of rhEGF, have been studied the pH and kinds of buffer, polarisation voltage of the working electrode, cell temperature, and flow rate of eluent.
rhEGF was separated from other components in its formulation on a reversed-phase C18 column with 24 % acetonitrile in 100 mM phosphate buffer (pH 4.6) at a flow rate of 1.0 mL/min. Electrochemical oxidation of rhEGF at a glassy carbon electrode occurred at 0.90 V relative to the Ag/AgCl reference electrode. The limit of quantitation was approximately 0.5 ng and the calibration curve was linear in the concentration range between 1.0-20 ng of rhEGF (the correlation coefficient was 0.995). The method was successfully applied for the determination of rhEGF in a pharmaceutical formulation.

[PD4-16] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Analysis of Acylcarnitines by Tandem Mass Spectrometry for Newborn Screening

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The acylcarnitines are a homologous group of metabolites derived from mitochondrial acyl-coenzyme A (CoA) intermediates of fatty acid and branched chain amino acid catabolism by the action of a family of enzymes, the carnitine acyltransferases. The diagnostic importance of acylcarnitines was not realized until recently, owing to the lack of specific method for their analysis. In this reason, Seoul Medical Science Institute has begun development of Acylcarnitines screening system using this new technology. In the triple quadruple, collision-induced dissociation (CID) of acylcarnitine buthyl ester M+ ions produces a common fragment of m/z 85, usually the base peak in the product ion spectrum. By scanning the first quadruple (Q1) over the mass range m/z 200-550 while Q3 transmits only ions of m/z 85, acylcarnitines are detected simultaneously and with high sensitivity.

[PD4-17] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Improved Gas Chromatography-Mass Spectrometry Detection of Five Corticosteroids in Serum and Urine

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