

An efficient method for the simultaneous profiling analysis of organic acids and amino acids combined with a simple graphic pattern recognition method was developed for more objective diagnosis of organic acidurias and amino acidurias. In this method, extractive ethoxycarbonyl (EOC) reaction of amino and sulfhydryl groups with ethyl chloroformate was followed by methoxime (MO) formation of carbonyl group in aqueous solution. Following acidification, the resulting N(O,S)-EOC amino acids and organic acids were recovered by solid-phase extraction using Chromosorb P in normal phase partition mode, with subsequent tert.-butyldimethylsilyl (TBDMS) derivatization of carboxyl and remaining polar groups for the direct gas chromatographic (GC) analysis. The method was validated with excellent linearity ($r \geq 0.995$), with good overall precision (% RSD < 10%), and satisfactory recovery of organic acids (>60%). The present profiling analysis of urinary organic acids and amino acids combined with simple 1 spectral and star symbol pattern recognition methods is expected to become a useful tool for diagnosis of inherited metabolic disorders.

[OD-9] [10/18/2002 (Fri) 16:50 - 17:00 / Hall B]

Depth-profiling of skin in the near infrared using fiber optic probes

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In previous study, we showed the feasibility of the in vivo use of portable near infrared system for the determination of human skin moisture. In order to optimize the acquiring condition of NIR spectrum of skin, skin depth profiling was investigated changing the distance and gap size between illumination and receiving of radiation in the terminal of fiber probe. The collected light information could be controlled depending the distance and gap of fiber optic probe. It was confirmed that the longer distance we used, the deeper site from the skin surface we could get information from. Four kinds of probes with distances such as 0.03 mm, 0.1 mm, 0.5 mm, and 1.0 mm were used. In addition, the gap size from 0.3 mm to 3.0 mm was studied to control the intensity of water absorbance effectively and to avoid saturation of water absorption. We also investigated the reference materials depending the reflectance ratio for water absorption not to be saturated because of the strong absorptivity of water. This study would be great help to condition the acquiring of NIR spectrum for the non-invasive blood components monitoring as well as human skin moisture.

[OD-10] [10/18/2002 (Fri) 17:00 - 17:10 / Hall B]

Comparison of isoBOC derivatives, TBDMS derivatives, with US EPA Method in the sensitivity of Alkylphenols, Chlorophenols, and Bisphenol A potential field-screening applications of GC/MS-SIM

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The alkylphenols, chlorophenols and bisphenol A were determined by gas chromatography/mass spectrometry-selected ion monitoring mode followed by three work-up methods for comparison: EPA method, isoBOC derivatization method and TBDMS derivatization method. Eleven phenols in water samples were extracted with dichloromethane. Also, solid-phase extraction (SPE) with XAD-4 and subsequent conversion to isobutoxycarbonyl derivatives or tert.-butyldimethylsilyl derivatives for sensitive analysis with the selected ion-monitoring (SIM) mode. The recoveries were 85.1 ~ 109.9 % (EPA method) and 90.3 ~ 126.6 % (isoBOC derivatization and TBDMS derivatization), respectively. The

method detection limit of bisphenol A for SIM were 0.732 µg/l (EPA method), 0.002 µg/l (isoBOC derivatization) and 0.021 µg/l (TBDMS derivatization). The SIM responses were linear with the correlation coefficient varying 0.9755~0.9981 (isoBOC derivatization), and 0.9908~0.9996 (TBDMS derivatization). When these methods were applied to treated wastewater sample from a polyethylene plant, the concentrations of 11 phenols were below the method detection limit.

[OE-1] [10/18/2002 (Fri) 12:20 - 12:30 / Hall A]

Application of in situ gelling mucoadhesive delivery system for plasmid DNA as a macromolecule

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Mucosal administration of drug or therapeutic gene is emerging as a new route of delivery for systemic and local therapeutics. Previously, in situ gelling system has been applied to chemical drug such as acetaminophen, insulin, prostaglandin E1, and clotrimazole. Plasmid DNA has not been delivered in form of in situ gelling vehicles. To improve the intranasal absorption of plasmid DNA, we designed delivery systems composed of provide of in situ gelling and mucoadhesive polymers. Poloxamers (Pol) were used to provide in situ gelling property. Polycarbophil (PC) or polyethylene oxide (PEO) was used as mucoadhesive polymers. The gelation temperatures of the formulations slightly decreased by the mucoadhesive polymers, but not by plasmid DNA varied with the contents and type of mucoadhesive polymers. Of vehicles, Pol/PC 0.2% showed the highest absorption with an area under the curve value 11-fold higher than saline, the conventional vehicle. The nasal retention of plasmid DNA was highly prolonged by mucoadhesive polymers. At 3 h postdose, the nasal tissue levels of plasmid DNA given in Pol/PC and Pol/PEO 0.8% were 10- and 40-fold higher relative to saline. The histopathology of nasal tissues was not altered after repeated dosing over 2 weeks. These results indicate that the nasal absorption of plasmid DNA can be effectively and safely enhanced by using in situ gelling and mucoadhesive polymer based-vehicles.

[OF-1] [10/18/2002 (Fri) 17:10 - 17:20 / Hall B]

Corticosteroids and Proximal Femur Fracture in Elderly Women : the KEPEC Study

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Background - Proximal femur fracture is known as one of the major medical problems in terms of mortality, disability and economic costs. To assess the association between the use of corticosteroids and proximal femur fracture, a cohort study was conducted upon Korean elderly women.
Methods - The Korean Elderly Pharmacoepidemiologic Cohort (KEPEC) was constructed from members of the Korea Medical Insurance Corporation over 65 years of age who were living in Busan Metropolitan City in 1993. Study participants (n=6,036) were female respondents to a self-administered question survey. Information on the use of corticosteroids was collected from the claims data of hospitals where the cohort members received medical care between January 1993 and December 1994. The cohort follow-up has since been conducted with information on proximal femur fracture being collected from the Korea Medical Insurance Corporation medical treatment claims database over the six-year period between January 1, 1993 and December 31, 1998. Relative risk and their 95% confidence interval were calculated using Cox's proportional hazard model.
Results - Two hundred and thirty four subjects had received 486 corticosteroids prescriptions and 59 cases of proximal femur fracture were found. After adjusting for age, body mass index, and physical activity, it was found that the use of corticosteroids significantly increased the risk of proximal femur