A sensitive, selective, and simple LC–MS/MS method using HILIC was validated for the
Development and validation of a rapid high-performance liquid chromatography-tandem mass spectrometry method for the determination of WJ-38, a novel aldose reductase inhibitor, in rat plasma and its application to a pharmacokinetic study

Original Research Article
Pages 29-33
Jing Lu, Youping Liu, Xin Wang, Shaolong Wang, Xin Di

Highlights
-
WJ-38 is a potent aldose reductase inhibitor for diabetic complications. - It is a strongly protein-bound compound (over 97% was bound to plasma proteins). - A sensitive and specific LC–MS/MS method was developed for WJ-38 analysis. - Special emphasis was focused on the effective extraction of WJ-38 from rat plasma. - The chromatographic run time was 3.5 min and the LOQ was 10.0 ng/ml.

Proteomic characterization of a novel in vitro prostate cancer model system

Original Research Article
Pages 34-42
John D. Lapek Jr., James L. McGrath, William A. Rieke, Alan E. Friedman

Highlights
-

Enrichment and purification of gardenia yellow from Gardenia jasminoides var. radicans Makino by column chromatography technique

Original Research Article
Pages 43-48
Jian-Fang Chen, Gui-Ming Fu, Yin Yan, Cheng-Mei Liu, Jian-Xin Chai, Hong-Ge Li, Jian-Tao Wang, Ming-Hu, Lun-Ning Zhang

Highlights
-
The performance of resins for the purification of gardenia yellow was evaluated. - HPD722 resin was chosen and its condition for purification was optimized. - Under the optimal condition, the colority of the product obtained were up to 300.

Comparison of three derivatization reagents for the simultaneous determination of highly hydrophilic pyrimidine antitumor agents in human plasma by LC–MS/MS

Original Research Article
Pages 49-56
He-ying Liu, Li Ding, Yong Yu, Yan Chu, He Zhu

Highlights
-
A derivatization LC–MS/MS method for quantitation of pyrimidines was established. - Three derivatization reagents were carefully compared. - Three derivatization modes were tried. - The matrix effect and interferences were eliminated by the gradient elution.

Development of a highly sensitive method for the quantification of estrone and estradiol in serum by liquid chromatography tandem mass spectrometry without derivatization

Original Research Article
Pages 57-62
Tom Fiers, Bruno Casetta, Brigitte Benaert, Eric Vandersyp, Martine Debock, Jean-Marc Kaufman

Highlights
-
Analysis of estradiol and estrone by LC–MS/MS without derivatization. - LOQ below 0.5 pg/ml for estradiol and estrone. - Suitable for analysis in children and post-menopausal women.
Semi-automated solid-phase extraction method for studying the biodegradation of ochratoxin A by human intestinal microbiota
Valerie Camel, Minale Oueftrani, Cindy Coudray, Catherine Philippe, Sylvie Rabot

Highlights
- A simple and rapid semi-automated SPE method for the analysis of ochratoxin A in digestive contents and faecal excreta.
- Suitability of the method for the analysis of ochratoxin B in faecal excreta.
- Preliminary results of ochratoxin A biodegradation studies by the human intestinal microbiota under simple in vitro conditions.
- Partial biodegradation of ochratoxin A, and identification of three phase I metabolites (ochratoxin α, ochratoxin B and open ochratoxin A).

Evaluation of human interferon adsorption performance of Cibacron Blue F3GA attached cryogels and interferon purification by using FPLC system
Ali Doğan, Serpil Özkar, Möfrettin Murat San, Lokman Uzun, Adil Denizli

Highlights
- Cibacron Blue F3GA attached supermacroporous cryogels for human interferon adsorption.
- FPLC system was used for interferon purification from human gingival fibroblast extract.
- The purified interferon samples have 97.6% purity determined by SDS–PAGE.
- The cryogels are potential candidate for rapid, cheap and specific interferon purification.

HPLC-DAD protein kinase inhibitor analysis in human serum
Marek Dziadosz, Rüdiger Lessig, Heidemarie Bartels

Highlights
- An HPLC–DAD method for protein kinase inhibitor analysis was validated.
- A comparison with LC/MS/MS is described.
- The advantage over other methods/techniques is discussed.

Sensitive quantification of roffumilast and roffumilast N-oxide in human plasma by LC–MS/MS employing parallel chromatography and electrospray ionisation
Norbert G. Knebel, Rolf Herzog, Felix Reutter, Karl Zech

Highlights
- Quantification of roffumilast and its metabolite, a PDE inhibitor against COPD in human plasma.
- High throughput bioanalytical method with liquid extraction and LC–MS/MS.
- Parallel chromatography in a dual-column-switching mode.
- Positive ion selected reaction monitoring with pneumatically assisted ESI.

Development and validation of LC–MS/MS assays for the quantification of bendamustine and its metabolites in human plasma and urine

Highlights
- Bendamustine is an alkylating agent, used for haematological malignancies.
- Quantification of bendamustine is difficult due to chemical degradation.
- We developed quantitative assays for bendamustine, minimizing its degradation.
- The assays quantify bendamustine and metabolites in human plasma and urine.
- The assays were validated and successfully applied to clinical samples.

Rapid and efficient purification of chrysophanol in Rheum Palmatum LINN by supercritical fluid extraction coupled with preparative liquid chromatography in tandem

Highlights
- Reliable and cost-effective method for purifying chrysophanol from Rheum Palmatum LINN.
- Supercritical fluid extraction ensures efficient separation.
- Preparative liquid chromatography allows for high throughput.
- The method is suitable for large-scale applications.

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<tr>
<th>Page 134-143</th>
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<tr>
<td><strong>Highlights</strong></td>
<td>► We have developed a SPE/P-HPLC system to purify chrysophanol in large quantities. ► The recovery of chrysophanol in the system was in the range of 88–91.5%. ► The purity of the isolated chrysophanol was as high as 99%. ► The SFE/P-HPLC system can isolate non-polar compounds for safer medicines.</td>
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<td><strong>Serum metabolomic profiles from patients with acute kidney injury: A pilot study</strong></td>
<td>Original Research Article</td>
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<tr>
<td>Jin Chun Sun, Melissa Shannon, Yosuke Ando, Laura K. Schnackenberg, Nasim A. Khan, Didier Portilla, Richard D. Beger</td>
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<td><strong>Highlights</strong></td>
<td>► LC/MS-based metabolic profiling of serum discovered novel indicators of AKI. ► Homocysteine, pyroglutamate and dimethylarginine (ADMA) increased in AKI patients. ► Homocysteine and ADMA are good indicators of AKI. ► Increases in acylcarnitines indicated fatty acid oxidation inhibited in AKI patients.</td>
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<td><strong>Hydrophilic interaction liquid chromatography/positive ion electrospray mass spectrometry for the quantification of deferasirox, an oral iron chelator, in human plasma</strong></td>
<td>Original Research Article</td>
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<td>Helen Pilgoropoulou, Aliadni Vonaparti, Irene Panderi</td>
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<td><strong>Highlights</strong></td>
<td>► A novel HILIC/ESI-MS method to quantify deferasirox in human plasma is proposed. ► Retention mechanisms of the analytes on XBridge®-HILIC column have been investigated. ► The method was applied to the analysis clinical samples of β-thalassemia patients.</td>
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<td><strong>Separation and purification of phosphatidylinositol phospholipids using immobilized metal affinity nanoparticles</strong></td>
<td>Original Research Article</td>
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<td>Jing Zhang, Jun Sun, Yuntao Lu, Junhua Li, Yue Su, Wenhui Xia, Yanjun Yang</td>
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<td><strong>Highlights</strong></td>
<td>► PPPs were purified directly from crude egg yolk hydrolysis polypeptides. ► High-efficiency and low-cost Fe₃O₄ (PEG + CS) @ Fe (III) nanoparticles have been developed. ► The important functional groups were identified by Fourier Transform Infrared technique. ► The characteristics of the immobilized metal affinity nanoparticles were discussed.</td>
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<td><strong>A new HPLC UV validated method for therapeutic monitoring of deferasirox inthalassemic patients</strong></td>
<td>Original Research Article</td>
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<td>Silvia De Francia, Davide Massano, Francesca Maria Piccione, Elisa Piro, Silvia Racca, Francesco Di Carlo, Antonio Piga</td>
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<td><strong>Overcoming non-specific adsorption issues for AZD9164 in human urine samples: Consideration of bioanalytical and metabolite identification procedures</strong></td>
<td>Original Research Article</td>
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<td>Steve Silvester, Frank Zang</td>
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<td><strong>Highlights</strong></td>
<td>► A strategy for evaluating analyte adsorptive losses in urine samples is described. ► A range of additives, including phospholipids, were found to minimise losses. ► Elution of additives were monitored by LC–MS/MS. ► Impact on quantitative assay and metabolite identification was assessed.</td>
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<td><strong>Sensitive determination of isoprostanes in exhaled breath condensate samples with use of liquid chromatography–tandem mass spectrometry</strong></td>
<td>Original Research Article</td>
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<tr>
<td>Monika Janicka, Pawel Kubica, Agata Kot-Wasik, Jacek Kot, Jacek Namieśnik</td>
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Highlights

► Determination of isoprostanes as biomarkers in exhaled breath condensate samples. ► Analytical procedure for simultaneous separation of isoprostanes was developed. ► Higher levels of isoprostanes was determined in samples from tobacco smokers. ► Stability of isoprostanes was examined in different storage temperature.

Validation of the PCR–dHPLC method for rapid identification of Candida glabrata phylogenetically related species in different biological matrices

O. Teferia, G. Ezpeleta, O. Herrero, I. Miranda-Zapico, G. Quindós, R. Cisterna

Highlights

► We tried to differentiate two new species (C. bracarensis and C. rivaniensis) close related to C. glabrata with different phenotype and antifungal susceptibility profile. ► We studied the performance of denaturing high performance liquid chromatography (dHPLC) as a fast and alternative novel technique for simultaneous identification of these three Candida species in different biological matrices. ► dHPLC is a suitable method for screening analysis to identify C. glabrata and its cryptic species.

A rapid and sensitive LC/ESI–MS/MS method for quantitative analysis of docetaxel in human plasma and its application to a pharmacokinetic study

Hiroaki Yamaguchi, Asuka Fujikawa, Hajime Ito, Nobuaki Tanaka, Ayako Furugen, Kazuaki Miyamori, Natsuko Takahashi, Jiro Ogura, Masaki Kobayashi, Takehiro Yamada, Nanyasu Mino, Ken Iseki

Highlights

► We developed a LC/ESI–MS/MS method for the determination of docetaxel in human plasma. ► One-step protein precipitation method was used for sample pretreatment without evaporation step. ► This method covered a linearity range of 5–5000 ng/mL with the lower limit of quantification of 5 ng/mL. ► The developed method was fully validated. ► This method was successfully applied for clinical pharmacokinetic investigation.

Simultaneous quantitative determination of paracetamol and its glucuronide conjugate in human plasma and urine by liquid chromatography coupled to electrospray tandem mass spectrometry: Application to a clinical pharmacokinetic study

Qin-you Tan, Rong-hua Zhu, Huan-de Li, Feng Wang, Miao Yan, Li-bo Dái

Highlights

► Successfully applied to pharmacokinetic study in healthy volunteers. ► The method is simple, good specificity, robust and time efficient. ► The analytes of interest were well separated.

Development of a fast and simple liquid chromatography–tandem mass spectrometry method for the quantitation of argatroban in patient plasma samples

Jeanne M. Rhea, Marlon L. Snyder, Anne M. Winkler, Charbel Abou-Diwan, Corinne R. Fantz, James C. Ritchie, Fania Szlam, Kenichi A. Tanaka, Ross J. Molinaro

Highlights

► Direct UPLC–MS/MS method to quantitate argatroban in human plasma. ► UPLC–MS/MS offers a simple and quick alternative to indirect argatroban assay. ► Elevated fibrinogen affects indirect but not UPLC–MS/MS argatroban assay. ► Provides a wider analytical measurement range compared to currently published assays.

Analysis of 8-hydroxy-2’-deoxyguanosine in human urine using hydrophilic interaction chromatography with tandem mass spectrometry

Chiemi Hosozumi, Akira Toriba, Thanarat Chuesaad, Takayuki Kameda, Ning Tang, Kazuichi Hayakawa

Highlights

► Direct UPLC–MS/MS method to quantitate argatroban in human plasma. ► UPLC–MS/MS offers a simple and quick alternative to indirect argatroban assay. ► Elevated fibrinogen affects indirect but not UPLC–MS/MS argatroban assay. ► Provides a wider analytical measurement range compared to currently published assays.
27 Selective derivatization of nucleotide diphosphate (NDP)-4-keto sugars for electrospray ionization-mass spectrometry (ESI-MS)  
Yun-Gon Kim, Hyung-Yeon Park, Dongwon Yoo, Changmin Sung, Eunjung Song, Jae-Hun Lee, Yun-Hui Choi, Yong-Hyun Kim, Chang-Soo Lee, Kyungmoon Park, Byung-Gee Kim, Yung-Hun Yang

Highlights

► First application of derivatization reagents on the analysis of NDP-4K sugars with MS. ► Improvement of ESI analysis for NDP-4K sugar by derivatization. ► Finding of O-(2,3,4,5,6-pentfluoro benzyl) hydroxylamine as the best candidate. ► Possible future applications from the importance of NDP-4K sugars in the cell metabolism.

28 PEGylation, detection and chromatographic purification of site-specific PEGylated CD133-Biotin antibody in route to stem cell separation  
Minna González-González, Karla Mayolo-Deloisa, Marco Rito-Palomares

Highlights

► The successful PEGylation of CD133, a neural stem cell marker, is reported. ► The novel PEGylated CD133 can be used for the purification of neural stem cells. ► These findings are the first step in route to define a cell-purification bioprocess.

29 Analysis of fatty acid composition in insulin secreting cells by comprehensive two-dimensional gas chromatography time-of-flight mass spectrometry  
Amy L. Payeur, Matthew A. Lorenz, Robert T. Kennedy

Highlights

► A GC × GC method for assessing the fatty acid content of a cell culture line was developed. ► The method allowed identification of 15 new fatty acids present in insulin secreting cells, double the number previously known. ► Glucose effects on fatty acid content were determined and revealed decreases at high concentration for many fatty acids that may be related to secretion of fatty acids.

30 Influence of ionization source design on matrix effects during LC–ESI-MS/MS analysis  
Chhirmoy Ghosh, Chandrakant P. Shinde, Bhawawat S. Chakraborty

Highlights

► We design a model to study the matrix effects (ME) in different ion source design. ► Different phospholipids were identified in different ion sources causing ME. ► During the experiment Z-spray ion source coupled with UPLC showed more ME. ► Orthogonal spray ion source design coupled with HPLC showed less matrix effects. ► Scope of further research to study the role of ion source design on matrix effects.