

## Summary

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## Research Article

### Ultra-performance hydrophilic interaction LC-MS/MS for the determination of metformin in mouse plasma

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**Introduction:** Ultra-performance (UP) hydrophilic interaction LC (UPHILIC) interfaced with an ESI source and MS/MS was developed for the determination of metformin in mouse plasma samples. **Materials & methods:** Several silica stationary phases under HILIC conditions were adapted to evaluate the retention mechanism profiles of the analyte. The influences of experimental factors such as the compositions of mobile phases on the chromatographic performance and the ionization efficiency of the test compounds in positive ion mode were investigated. The applicability of the proposed UPHILIC-MS/MS approach following a protein precipitation procedure for the quantitative determination of metformin at nanomole levels was examined with respect to assay specificity and linearity. **Results:** The analytical results obtained by the described UPHILIC-MS/MS approach were found to be in good agreement with those obtained by an ion-pair UPLC-MS/MS method in terms of assay sample throughput, sensitivity and accuracy. **Conclusion:** The results suggested that it is feasible to convert a reversed-phase UPLC-MS/MS method to a UPHILIC-MS/MS method by simply switching the analytical columns while maintaining the rest of the experimental conditions for polar pharmaceutical analyses with enhanced retention and sensitivity.

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