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# METABONOMICS METHOD DEVELOPMENT BASED ON A NEW ONLINE TWO-DIMENSIONAL HILIC/RP-HPLC SEPARATION SYSTEM

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Nowadays, the metabonomics is attracting more and more attention in disease biomarker discovery and pharmaceutical discovery/development. The used most popular techniques are mass spectrometry and NMR. It is very important to collect the information of as many metabolites as possible in a high throughput way, especially in an analysis. Unfortunately, current techniques are only capable of detecting about 10-15% of the relevant metabolome, comprehensive analysis of metabolome and the unequivocal identification of the detected metabolic biomarker candidates are still a bottleneck of current metabonomics studies.

According to the chromatographic theory, the resolution of a given separation system can be increased by using the multidimensional chromatography or the column with small packing materials. To extend the separation window of metabolites and identify the potential biomarkers, we develop a new online two-dimensional HILIC/RP-HPLC separation system, and a comprehensive identification approach of potential biomarkers including LC-MS metabolic fingerprinting, multivariate statistic analysis, MS<sup>n</sup> fragment analysis, micro preparation, FT-MS accuracy molecular determination, GC retention index and database search.

The work on drug mechanism study and disease biomarker discovery being performed in the laboratory will be used as examples to show the usefulness of the developed new separation system.

## References

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