Guest Editorial

“Recent Progress in High Performance Separation”

Today, high-performance liquid chromatography (HPLC) is recognized as being one of most efficient separation techniques in various analytical fields. In addition to conventional-scale HPLC, capillary HPLC and micro-LC (μ -LC) or LC on a microchip (microchip-LC) as well as ultra-high pressure LC or ultra-high performance LC have remarkably progressed in the last decades. Especially, the progress of column technologies, *e.g.*, developments of sub- μ m particle-size packings and novel stationary phases, as well as novel separation modes, including HILIC, are important issues.

Over thirty years have passed since capillary electrophoresis (CE) was introduced as a high-performance liquid-phase separation method. CE has played important roles in various analytical fields, including the separation of small molecules, DNA and protein analyses, chiral separations, pharmaceutical and biomedical analyses, and environmental analyses. Studies on microchip electrophoresis (MCE) have been also progressed remarkably along with the development of nanotechnology, most commonly recognized as a part of μ -TAS or lab-on-a-chip. CE and MCE are expected to be the most prominent analytical methods at the present stage, owing to their several advantages, *e.g.*, quite small amount of samples to be analyzed, few amounts of organic modifiers in separation solutions, remarkably less wastes after the analysis, fast analysis and low energy consumptions.

Under these circumstances, the editorial board of *Analytical Sciences* planned to publish a special issue on “Recent Progress in High Performance Separation”. The aim of this special issue is to coordinate original papers dealing with various approaches for improving the performance of HPLC, CE/MCE and other separation techniques as well as applications of these techniques, which will show the current status and future prospects of various separation techniques.

In total, fourteen papers have been accepted for publication in the special issue: one review article on CE with laser-induced fluorescence detection, nine original papers, including column-switching LC, 2D-LC, affinity CE, zone sharpening in CE, capillary isoelectric focusing, microchip-LC, coating technology for MCE, tube radial distribution chromatography, and portable gas chromatography, and four notes. These include an application of LC-MS/MS, the basic application of CE, microscale separation with fabricated micropillars, and LC in an extended nanospace. These articles show important aspects and interesting topics concerning recent progress in high-performance separation techniques. Therefore, we believe that readers will learn many things from them, and be encouraged to engage in these fields.

The guest editor wishes to express his sincere and deepest gratitude to all contributions dedicated to this special issue, and welcomes continuous contributions to *Analytical Sciences* in the future.

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