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Complete chromatographic process for fast separation of biopolymers

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Scientists working in many fields require fast separations of intact proteins using liquid chromatography. From the viewpoint of chromatography, the speed of separations usually refers to the quickness of the chromatographic run process (CRP) of solute separation, i.e. the process from the sample injection to the elution of all of the components without considering the non-chromatographic process (NCP), such as column regeneration, system equilibration in 1D-LC and buffer exchange in 2D-LC. The NCP usually takes longer than those of the CRP alone. Routine analyses in hospitals, quality control in production lines, and protein separations in proteomics must operate hundreds and even thousands of samples daily. Thus, a complete chromatographic time (CCP) as a new concept for rapid protein separation, including both CRP and NCP must be considered together. This presentation comprehensive discusses recent developments in both of CRP and NCP. For the former, it involves nonporous packings, core-shell silica particles, monolithic columns and disks, perfusion chromatography, chromatographic cake, and high-temperature fast chromatography, for the latter, it contains 2 dimensional cylinder column (2D column), off-line and on-line 2D-LC, protein folding liquid chromatography in small and large scales, one minute separation of intact proteins, and so on. The fast analysis of nutrition proteins in milks in analytical scale and the renaturation with simultaneous purification of recombinant human interferon-gamma in industrial scale are taken as two typical examples to explain the advantages of the CCP.

Biography

Xindu Geng has completed his BS at the age of 19 years from Northwest University (Xi'an) and Faculty Member of Department of Chemistry, University of Minnesota in 1982~1983; Visiting Professor of Purdue University separately at Department Biochemistry in 1982~1984 and Department Chemistry in 1985~1996, and Visiting Professor of Chemistry Department of Creighton University. He is Director of Institute of Modern Separation Science of Northwest University. He has published more than 260 papers in reputed journals and serving as an editorial board member of repute Journals, Biomedical Chromatography, Separation Science, and Journal of Chinese Chromatography, honor Chinese Distinguish Contribution Scientist.

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