SPOTlight on Peptide Arrays on Solid Supports – Applications and Perspectives

Editorial

Protein-protein and protein-nucleic acid interactions are of key importance in cellular biology and thus in the context of basic as well as applied life science. Roughly, five interaction partners for any given cellular protein have been predicted illustrating the complexity of the formed network. In this context, the parallel synthesis of oligopeptide arrays on cellulose membrane supports (SPOT method) fills the gap between application of a global systematic empirical search and a focused iterative rational design to investigate protein-protein and protein-nucleic acid interactions. Many novel applications for the method and improvements of the method itself have appeared recently. The reviews within this issue of *Mini Reviews in Organic Chemistry* cover the broad variety of applications of peptide arrays. The first section of the issue deals with the production of peptide arrays, which had been continuously optimized including the implementation of novel array formats with drastically increased spot density (chapters 1-4); the second part summarizes the great potential of peptide arrays in order to screen for protein-protein interaction sites such as antibody epitopes, to profile enzyme targeting sites, and to screen for novel antibiotic peptides and their derivatives for clinical applications (chapters 5-8). Finally, the last chapter of the issue summarizes recent achievements to apply peptide arrays to screen with whole cells for peptides which are toxic to tumor cells or might be applied for technical applications such as scaffold for cell growth in cell culture.

Beside the great potential of the method and its many successful applications we also discuss limitations and pitfalls of the technique and their circumvention. All of the articles were written by leading experts in the field whose work is gratefully acknowledged. Moreover, I like to thank the Editorial Board of *Mini Reviews in Organic Chemistry* for their trust and the opportunity to serve as a guest-editor for this issue. Finally, I like to thank Miss Qurrat-ul-Ain Khan for her support and cooperation.

PD Dr. Joachim Koch
Georg-Speyer-Haus
Institute for Biomedical Research
Frankfurt am Main, Germany
E-mail: joachim.koch@em.uni-frankfurt.de