

## **Parallel and multiplexed bead-based assays and encoding strategies**

### **Abstract**

Advances in high throughput screening (HTS), together with the rapid progress in combinatorial chemistry, genomic and proteomic sciences have dramatically stimulated the development of a variety of tools to enable the drug discovery process to become more efficient. Major future challenges in HTS include obtaining high density and good quality data based on assays that are rapid, reliable, inexpensive, sensitive, simple and miniaturised. This paper reviews the development and role of bead-based assays for HTS including DNA and single nucleotide polymorphism (SNP) assays, particularly from a multiplex perspective and evaluating the recent advances in bead-based arrays. The encoding strategies that are commonly used in bead-based assays are highlighted, while the importance of magnetic beads in genomic and proteomic purifications is discussed. In conclusion, bead-based assays offer a powerful promising approach for many aspects of drug discovery.