Biochips and Microarrays - Technologies, Markets and Companies

Description: This report is an analysis of biochip/microarray markets based on technologies and applications. The report starts with a description of technologies as a basis for estimation of markets. Technologies include array comparative genomic hybridization (CGH), copy number variation (CNV), DNA methylation, ChIP-Chip, RNA splice variants, and microRNA. Separate chapters are devoted to protein biochips/microarrays, microfluidics and nanobiotechnology-based nano-arrays.

Various applications of biochips and microarrays are described throughout the report. Areas of application such as point-of-care, genetic screening, cancer, and diagnosis of infections are included. Separate chapters are devoted to applications in drug discovery and development as well as personalized medicine

The report provides current share of each segment: market size in 2012 and projected value for the years 2017 and 2022. Gene expression has the largest share and is an established market. Share of microarray technologies in other areas will grow with the maximum growth in RNA splice variants followed by epigenetics. The growth in protein microarrays is somewhat less, partly because it is more mature than the other submarkets and has already shown considerable growth in the past. Impact of next generation sequencing on segments of microarray markets is identified. Customer requirements and unmet needs are described. Markets are also analyzed according to geographical areas.

Brief profiles of companies involved in biochip/microarray technologies are provided. Currently selected 85 companies are included along with listing of 113 collaborations between companies. The text is supplemented by 19 tables, 8 figures and 100 references to literature.

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1. Introduction

Definitions of biochips/microarray Terms used for biochips Historical aspects of biochip/microarray technology Relation of microarrays to other technologies Applications of biochips/microarrays

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Microchip capillary electrophoresis Strand displacement amplification on a biochip Biosensor technologies for biochips DNA-based biosensors Phototransistor biochip biosensor Microarrays for cytogenetics Comparative genomic hybridization Array-based CGH NimbleGen CGH arrays Single-cell array CGH Regulatory requirements for array CGH Agilent CGH+SNP microarray platform SignatureChip® **Tissue microarrays** Pathology tissue-ChIP Carbohydrate microarrays **RNA** profiling **RNA** splice variants **RIP-Chip** miRNAs Microarrays for miRNAs Microarrays vs qPCR for measuring miRNAs Quantitative analysis of miRNAs in tissue microarrays by ISH Exon microarrays Microarrays & DNA sequencing Microarray-based emerging DNA sequencing technologies Exome sequencing for study of human variation High-throughput array-based resequencing Sequencing by hybridization SOLiD-System based ChIP-Sequencing Next generation sequencing vs microarrays for expression profiling Microarray-based gene synthesis

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