



# CapitalBio



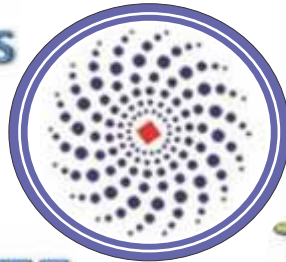
In 2012, our clients published **211 papers** **Cell**  
by using our superior **services and platforms.**



Product Group

Solutions

CapitalBio®

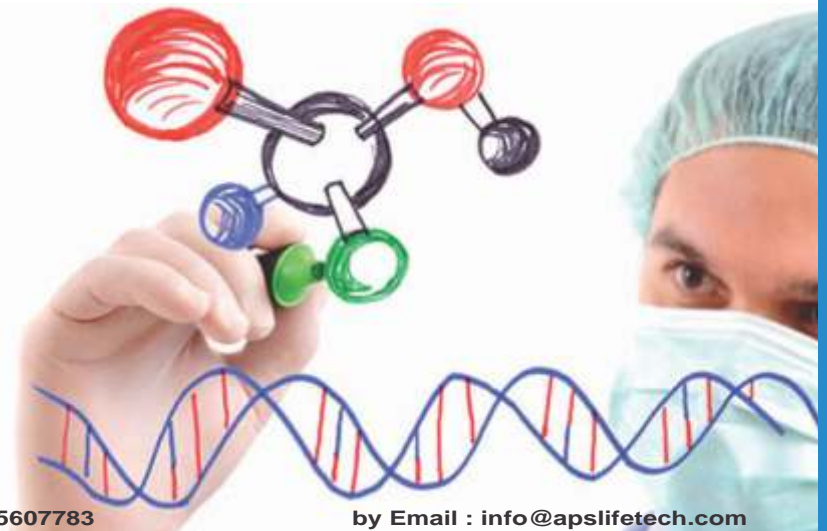


SNP  
GeneChip

MAS V4



TF  
CapitalBio®



## INSTRUMENTS

### ◆ LuxScan HT24 Microarray Scanner

The LuxScan HT24 is our new generation fully automated microarray scanner providing higher throughput (1 – 24 slides) as well as greatly improved spot detection performance. With a new compact optical system and high-speed signal processing. The LuxScan HT24 is highly sensitive and accurate, with a linear signal detection response over a wide dynamic range. The LuxScan HT24 also integrates a barcode reader with optional uses. The chip cartridge is newly designed to provide much more reliable mechanical protection for the chip surface.

The LuxScan HT24 also comes with powerful fully integrated imaging options and applications. The integrated SpotPro application software also has a simpler configuration, and can provide an interface for user-based development. Users can design their own tools for image analysis and data processing, and embed it in standard formats like .dll, .com into the application software.



### ◆ SmartArrayer 136

CapitalBio SmartArrayer 136 is designed for large-scale microarray printing of up to 136 slides or up to 17 96-well plates. The SmartArrayer 136 is equipped with dual systems of contact printing and non-contact dispensing. The multi-purpose microarray spotter prints liquid samples on various substrates, such as glass, silicon, microplates or membranes, with high precision, maximum flexibility.

### ◆ ChemLite 1200 Immunoassay Analyzer

ChemLite 1200 immunoassay analyzer is a random-access tube-based diagnostic platform for qualitative and quantitative chemiluminescence assays of human serum, plasma or other body fluid samples. The operation of ChemLite 1200 is fully automated and equipped with LIS interface and is thus ready for numerous clinical biochemical assays.



### ◆ LuxScan 10K Microarray Scanner

LuxScan 10K Microarray Scanner is a compact high performance system for microarray imaging and data analysis of DNA, protein and cell arrays. Its advanced systems for optics, signal processing and motion control provide superior scan accuracy, and high detection sensitivity over a wide linear dynamic range. With optimized signal acquisition and processing elements, it is an ideal tool for profiling fluorescent labeled microarrays.

LuxScan 10K-A has two excitation lasers (532nm and 635nm) and scans sequentially, avoiding potential signal crosstalk for dual labeled arrays.

LuxScan 10K-B, with a choice of either the 532 nm or 635 nm laser excitation source, provides specific array applications at a lower cost.



### ◆ SmartArrayer 48

SmartArrayer 48 is equipped with dual printing systems: contact print-head and proprietary non-contact spray head. The dual-purpose microarray spotter has easy-to-use features and prints liquid samples onto various substrates, such as glass, silicon or membranes, with high precision and maximum flexibility.



Personal Arrayer 16



SmartArrayer 48

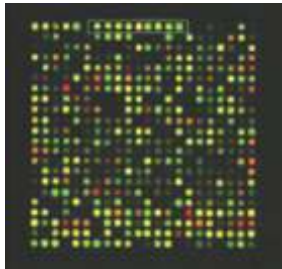


SmartArrayer 136

## CONSUMABLES

### ◆ CalSlide

CalSlide I/II Nano-Fluorescence calibration slides are novel fluorescence calibration tools based on CapitalBio's proprietary Nanobrite™ technology. It is specifically designed for the daily calibration and maintenance of fluorescence microarray scanners and other fluorescence measuring instruments.



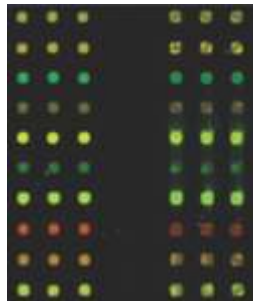
### ◆ Microarray Reaction Control Kit

Gene expression profiling arrays are commonly used for the detection of gene expression levels. The validity of the array detection result can be determined by the hybridization results of the internal controls (usually housekeeping genes) and external controls printed in the arrays. The hybridization results of the internal controls reflect the properties and quantities of the test samples. While the hybridization results of the external controls may be used to monitor the experimental process.

### ◆ DNA Spotting Buffer and Protein Spotting Buffers

CapitalBio DNA Spotting Buffer is an optimized spotting solution system for DNA and oligonucleotide microarray applications, including modified DNA and oligonucleotides. The spotting solution consists of advanced formula for stabilizing nucleic acids and minimizing evaporation, having optimal viscosity and surface tension for contact spotting on various coated glass substrates. The buffer increases DNA deposition, spot precision and uniformity. The buffer will produce the best results when spotting on CapitalBio microarray substrates.

CapitalBio Protein Spotting Buffers are optimized spotting solutions for antigen and antibody microarray applications. The spotting buffers consist of proprietary ingredients for stabilizing protein and minimizing evaporation, featuring optimal viscosity and surface tension for contact spotting on various coated glass substrates. The buffers also increase protein immobilization, spot morphology and uniformity. Optimal results will be obtained when used with CapitalBio microarray substrates. CapitalBio OPPolymerSlide G is recommended to be used together with the Protein Spotting Buffer A. CapitalBio OPEpoxySlide is recommended to be used together with the Protein Spotting Buffer B.



### ◆ IncuSet Protein Chip Incubation Cassette

IncuSet Protein Chip Incubation Cassette aids incubation processes for protein chips. The unit can accommodate standard microscope slides (25 mm × 75 mm) with or without SmartCover. The design of the cassettes ensures uniform reaction temperatures among multiple slides. Wells in the base hold 200 μL of water to maintain optimal internal humidity during incubation at elevated temperature.



### ◆ SmartGrid & SmartCover

SmartGrid and SmartCover allow multiple samples (4, 10 and 12 samples) to be handled on a single microarray slide under identical reaction conditions.

SmartCover helps to enhance the quality of hybridization or immunoreaction, and to facilitate the manual sample injection. Using SmartCover can also minimize the hybridization variability or immunoreaction variability.

### ◆ SmartStick Tool and SmartPress Tool

CapitalBio SmartStick and SmartPress are dedicated tools for the manipulation of SmartGrid and SmartCover. Precise positioning of the SmartGrid is needed for correct adhesion of the CapitalBio SmartCover and is also necessary to prevent spoilage of the hybridization buffer.



### ◆ Slide Centrifugation Tube

The Slide Centrifuge Tube is specially designed for microarray slide centrifugation, cleaning and storage. The slide slots into a fixed position for centrifugation to dry the slide, preventing any possible damage to the surface. The tube is compatible to most of the commonly used centrifuges on the market.

## CONSUMABLES

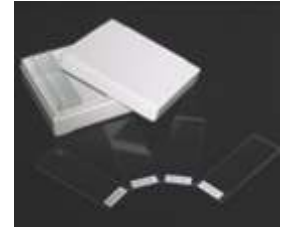
### ◆ Microarray Hybridization Cassette

HybSet microarray hybridization cassette holds a 25 mm x 75 mm microarray slide in an isolated environment to prevent evaporation of the hybridization solution, improving the S/N ratio of the hybridization reaction. Each HybSet consists of a base-board, two brackets, a sealing ring (gasket), a cover board, and a pair of metal retaining clips. The sealing ring and metal clips ensure that the hybridization chamber remains closed and watertight in the waterbath, guaranteeing uniform temperature and humidity. The cassette can be used in a water bath or air bath. A series of brackets can be chosen to accommodate standard slide, or a slide with the SmartGrid, or a slide with the SmartGrid and SmartCover.



### ◆ Microarray Substrates

The quality of the glass substrate surface modification is always a critical issue in microarray analysis. As CapitalBio, the slide surface modification process has been optimized for uniformity and compatibility with a number of reactive groups. CapitalBio offers a full set of precision modified glass slides, for both contact and non-contact printing of various nuclear acids and proteins.



## MICROARRAY LABORATORY SOLUTION

### ◆ Molecular Diagnostic Microarray System

CapitalBio has developed a series of products for clinical diagnostics based on the latest discoveries in human genomic and proteomic research, while employing microarray and nucleic acid/protein based technologies. These products are designed to help physicians meet the increasing needs of today's high quality healthcare. The high specificities and sensitivities of the tests have been verified both in our laboratories and in clinical laboratories. The comprehensive genetic data and information on infectious diseases from our diagnostic kits can provide new perspectives about the diseased, enabling healthcare workers to provide a better diagnosis, better treatment and an informed prognosis of disease outcomes.

### ◆ Microarray Printing and Application

CapitalBio provides everything you need to set up your microarray platform including instruments, consumables and reagents, software and database support.



### ◆ Food Safety Detection System

An advanced microarray-based platform for food safety applications CapitalBio Food Safety Detection System is based on an advanced microarray platform. The system includes a microarray scanner, microarray detection kits, result analysis software and other accessories. The current applications of the system are for veterinary drug residues and common bacteria that may contaminate foodstuffs. CapitalBio is developing further applications based on the system. These include fertilizer residue detection, animal epidemic disease identification and gene-modified animal and plant detection.

### ◆ Microarray Laboratory Packages

Life science research and diagnostics demands comprehensive experiments and quick turn around of results. CapitalBio have compiled as series of MICROARRAY LABORATORY PACKAGES, with all you need to produce, hybridize, scan and interpret microarrays – both protein and DNA arrays. The MICROARRAY LABORATORY PACKAGES are designed for utility, but are mean to be fully flexible – You choose the content and your dealer will provide you with a quotation price. Our PACKAGES are the most cost effective you will find – anywhere.

## LAB ON CHIP

### ◆ Self-Positioning Cell-Network Electrophysiological Monitoring Chip

CapitalBio Self Positioning Cell-Network Electrophysiological Monitoring System (CEMS) is a revolutionary biochip-based microelectronic sensor system for monitoring the electrophysiological signals of cells. Dozens of microelectrodes either for cell positioning or for signal testing are arrayed on the surface of a 10 mm x 10 mm glass slide. Cells can be positioned over recording microelectrodes and cell membrane potential discharges of attached cells can then be recorded automatically by the microelectrodes. Changes to the membrane potentials of the cells are measured and recorded automatically in real time by CEMS. Cultured cells growing in the micro-well are monitored in their natural state without any stimulation undesirable mechanical, electrical or chemical stimulation. The entire process is non-invasive and harmless to the cells.

## ELECTRONIC MEDICAL RECORD

### ◆ Electronic Medical Record V4.0

The Electronic Medical Record (CB-EMR) system provides an integrated software-database solution for recording, analyzing, reporting and managing all types of clinical data. It is based on Java 2 Enterprise Edition (J2EE) and standard SQL database technology. It is one of the most complete and efficient electronic medical record software system available. CB-EMR is a medical office software database that improves staff efficiency and enhances patient care. CB-EMR allows users to efficiently and cost-effectively manage their patients' complete clinical experience including appointment scheduling, office visits, medical histories, examinations, health maintenance and medications. The recorded clinical data can be automatically analyzed with programs that extract additional biometric statistics, adding value to the database. CB-EMR is not only a patient medical record software, but it is also an important medical office management software. Furthermore, CB-EMR can be used for disease surveillance and reporting. CB-EMR system is highly customizable and works in different applications. This is accomplished by centralizing patient medical records and streamlining the diagnostic and treatment processes and reducing paper work. This aids researchers undertaking analyses of clinical materials, and enables health-care providers to give better, timely care to patients. CB-EMR system enhances hospital management, improves medical office efficiency, increases profitability and helps clinics stay current and compliant with industry standards and regulations.

## LIFESCIENCE MICROARRAY SERVICES

### GENOMICS

#### ◆ CGH Customization Services

Genomic DNA gains and losses can play a causal role in many diseases. Comparative genomic hybridization (CGH) is a powerful technique for the detection of chromosomal imbalances. CGH can also be used to identify different genes in diverse subtypes of the same species, thus indirectly confirming those phenotypes. The CGH method is based on a comparison of the test and control DNA samples which are labeled with different fluorophores, equally mixed, and simultaneously hybridized on one microarray, which can measure the DNA copy number differences between the test and control samples rapidly. CGH can be used to detect DNA copy number alterations in entire genome which can help determine the abnormal development of cells, and can provide an important means for diagnosis of tumors and other diseases related to chromosomal alteration. When applying CGH to tumor genetics, an entire genome "scanning image" can be obtained and the gains and losses of tumor DNA in a whole genome can be recognized: tumor suppressor genes may be lost or oncogenes may be amplified.

#### ◆ GeneChip SNP Detection Services

The Human Genome is composed of 3 billion nucleotides carrying hereditary information which determines an individual's genetic potential. There is about 0.1% - 0.2% genomic DNA sequence difference between races and individuals, due mainly to single nucleotide polymorphisms (SNPs). Many of the SNPs can generate different inherited biochemical characteristics. For example, the ABO blood group site markers, leukocyte HLA site markers and individual disparities in drug metabolism. Knowledge of the DNA sequence differences and single nucleotide polymorphisms and their significance has begun to revolutionize diagnosis, treatment, prognosis and prevention in man.



### TRANSCRIPTOMICS

#### ◆ MicroRNA Array Services

MicroRNAs (miRNAs) are small (approximately 22nt) ribonucleotides found in animal and plant cells which play important roles in cell differentiation, tissue development and apoptosis by regulating gene expression and protein translation. Altered expression of microRNAs has also been seen in numerous mammalian cancers. CapitalBio has developed two microRNA arrays, the mammalian miRNA array (human, rat, mouse) and the plant miRNA array which contain 1320 and 426 non-redundant microRNA probes, respectively.

#### ◆ Expression Profiling Array Services

CapitalBio Expression Profiling Array Services guarantee the quality of your results. The exceptional quality of our services was highlighted in the U.S. FDA-sponsored MicroArray Quality Control (MAQC) project (Nature Biotechnology, 24(9): 1140-1150, 2006). CapitalBio's highly trained specialists manufacture, hybridize, scan, and conduct a preliminary analysis of your arrays. There is no need for you to train your lab personnel in highly specialized techniques or purchase expensive instruments to fabricate arrays in-house. Moreover, because CapitalBio products range includes ready-to-use arrays to customizable array designs, which enables you to explore the complex bio-world and answer your research questions more quickly.

### PROTEOMICS

#### ◆ Aviva Systems Biology ChIP-DSL Array

Transcription factors (TF) regulate gene transcription through DNA-protein interactions, such as direct binding with DNA. In order to mediate a specific gene transcription, TFs bind in a sequence-specific manner to certain promoter sequences that are usually located upstream from its target gene. By combining chromatin immunoprecipitation using TF specific antibodies, also known as the ChIP assay, then labeling IP-captured promoter-DNA as a probe for hybridization with an array that is pre-spotted with various promoter sequences, it is possible to determine many genetic targets for a given TF. The first generation technology called "ChIP-on-chip" has demonstrated its effectiveness (Ren, B. et al., (2000) Science 290:2306-2309). Selected by NIH ENCODE project, and invented by UCSD researchers, ChIP-DSL is a new generation of ChIP-Chip technology with greatly increased sensitivity and specificity. It provides a complete product solution for the discovery of virtually all promoters that bind a specific transcription factor. Aviva Systems Biology is pleased to introduce its new ChIP-DSL system.

◆ **Molecular Annotation System V4.0**

The Molecular Annotation System (CB-MAS) is a total data-mining and function-annotation solution capable of extracting and analyzing genome-wide relationships among biological molecules from public knowledge bases. The CB-MAS analysis platform is a web client program for interactive navigation within knowledge bases. CB-MAS uses a relational database of biological networks created from millions of individually modeled relationships between genes, proteins, biological complexes, cells and tissues and their relationships with diseases, providing a view of your data which is integrated with biological networks according to different biological contexts. CB-MAS helps you to understand the biological relationships embedded within gene expression data.

The primary database of CB-MAS integrates the latest high-content biological resources from Genbank, EMBL, SwissProt, Gene Ontology (GO), KEGG, BioCarta, GenMapp, mirBase, EPD, HPRD, MIND, BIND, Intact, TRANSFAC, UniGene, dbSNP, OMIM, InterPro, HUGO, MGI and RGD, with timely upgrades providing wider knowledge base access. CBMAS offers various query entries, graphics result displays, comparative genome information and free word searches. The system represents a powerful alternative approach to mining and for the discovery of the biological significance of high throughput microarray data.

**FOOD SAFETY - Food born Pathogen detection**

◆ **Foodborne Pathogenic Micro-organism Detection Kit**

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