OVERVIEW
Luminex® Corporation (NASDAQ: LMNX) develops, manufactures and markets the innovative xMAP® technology with applications throughout the life-sciences industry, including clinical diagnostics. Open-architecture xMAP technology enables multiplexing of biological tests (bioassays) reducing time, labor, and costs over traditional methods.

Systems using xMAP technology (formerly known as LabMAP®) perform discrete bioassays on the surface of color-coded beads known as microspheres, which are then read in a compact analyzer. Using multiple lasers and high-speed digital-signal processors, the analyzer reads multiplex assay results by reporting multiple colors on each individual microsphere particle.

MARKET AND COMPETITIVE LANDSCAPE
The genomics revolution has made the detection of gene sequences, protein interactions and other biological reactions an important step in biomedical research, drug discovery/development and clinical diagnostics. As a result, there is a growing demand for the fast, flexible, affordable, and high-throughput biological testing technology that Luminex's xMAP bead-based multiplexing technology offers.

While other companies often specialize in either DNA or protein analysis using different technology platforms, Luminex is one of the few to offer the versatility of assaying a wide range of biomolecules and reactions on one platform. Compared with other bioassay products, xMAP technology offers several additional advantages:

>> Speed/High-Throughput — Because each microsphere serves as an individual test, a large number of different bioassays can be performed and analyzed simultaneously

>> Versatility — A single xMAP technology-based system can perform bioassays in several different formats, including nucleic acids and antigen-antibody binding, along with enzyme, receptor-ligand and other protein interactions

>> Flexibility — The technology can be customized for the user's specific needs or updated periodically by attaching a specific probe to a uniquely colored microsphere

>> Accuracy — The technology generates real-time analysis and accurate quantification of the biological interactions

>> Reproducibility — High-volume production of xMAP microspheres within a single lot allows assay standardization that solid-phased flat arrays cannot provide
APPLICATIONS

The following are a few examples of applications for xMAP technology:

Drug Discovery/Genomics
>> Detecting single nucleotide polymorphisms (SNPs) for pharmacogenomic applications
>> Expression analysis with transcriptional profiling

Drug Discovery/Proteomics
>> High-throughput screening of potential drug compounds by inhibition of enzymatic targets such as kinases or proteases
>> Kinase selectivity screening of drug candidates against multiple common kinases
>> Measurement of serum analytes in animal and human clinical trial subjects
>> Multianalyte profiling of drug and drug metabolites for purposes of toxicology and drug metabolism studies
>> Drug target validation using receptor-ligand analysis

Diagnostics
>> Screening for genetically inherited diseases such as cystic fibrosis
>> Serological screening for infectious diseases such as hepatitis
>> Multi-analyte profiling of hormone levels
>> HLA typing for transplantation
>> Multiplexed autoimmune and allergy testing

Basic Research
>> Gene expression analysis
>> Genotyping
>> Protein expression analysis
>> Antibody avidity analysis
>> Animal-model serum analyte profiling
>> Antibody epitope mapping
>> Enzyme/substrate research
>> Protein-protein interaction analysis

PRODUCTS

Luminex® 100™
The Luminex 100 System is a compact analyzer that performs up to 100 bioassays simultaneously, using a single drop of fluid — therefore requiring very small patient samples when compared with other testing technologies. This system utilizes version 1.7 of the xMAP technology operating system.

Luminex® 100™ IS
The Luminex 100 IS System is designed to meet the needs of day-to-day operations in a clinical or research laboratory setting by including flexible data-analysis and assay-design software. The Luminex 100 IS System has a DMF at the FDA, and some partner applications have received 510(k) clearance.

Luminex® XYP™
The Luminex XY Platform (Luminex XYP) complements the Luminex 100 by automating the sequential positioning of each well of a microtiter plate. This permits a total of up to 9,600 unattended tests per plate to be performed in less than one hour.

Luminex® SD™
The Luminex Sheath Delivery System (Luminex SD) allows the user to run samples continuously in a low- or high-throughput mode unattended.

Luminex® HTS™
The Luminex High Throughput Screening System (Luminex HTS) combines high-throughput with high-content screening. This allows the user to measure a single target or 64 targets — and any combination in between.

CONSUMABLES

Standard Microspheres
xMAP microspheres are internally labeled with fluorescent dyes and are available with either carboxylate or avidin surface chemistries.

Luminex® FlexMAP™ Microspheres
Luminex FlexMAP microspheres are pre-coupled with universal-capture oligonucleotides, optimized for isothermal multiplexing (up to 100-plex) with minimal crosstalk. Capture conditions are therefore standardized and independent of content-specific reactions, allowing ultimate flexibility in assay design.