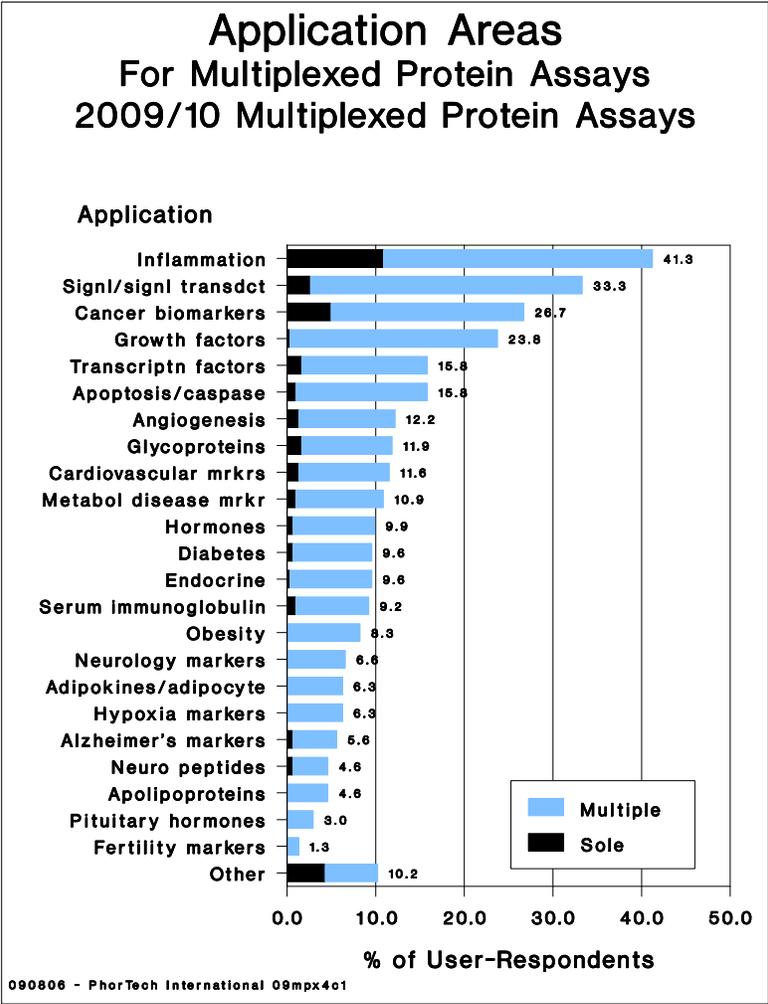


# Press Release

## Multiplexed Protein Assay Market Expands in Breadth and Depth

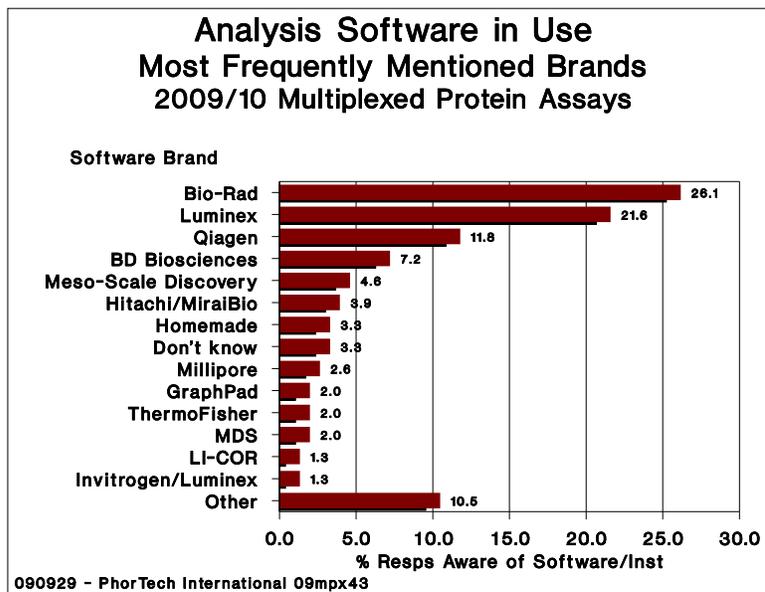
San Carlos, February 16, 2010: A recent report by PhorTech International provides in-depth coverage of the multiplex protein assay market for North American bioresearchers involved with a broad range of application areas.



This analysis is based upon more than 480 responses to an in-depth, web-based survey, conducted in mid-2009. Including both current users, those analyzing results from a commercial service and bioresearchers planning to start multiplexing in the next 18 months, the prevalence of commercial services in addition to the anticipated usage by first time users is examined. This sampling of a wide cross-section of North American life science researchers from a variety of disciplines and representing over 250 different organizations provides a complete picture of current usage and identifies future trends in usage of this technique.

This resulting comprehensive 300 page study, part of PhorTech’s MSPPSA series, reveals the breadth of usage of this technique as exemplified not only in the wide range of application areas involving multiplexed protein assays, but also in the class of proteins and research activities. We estimate that these results reflect the work of over 16,000 North American bioresearchers currently using this technology.

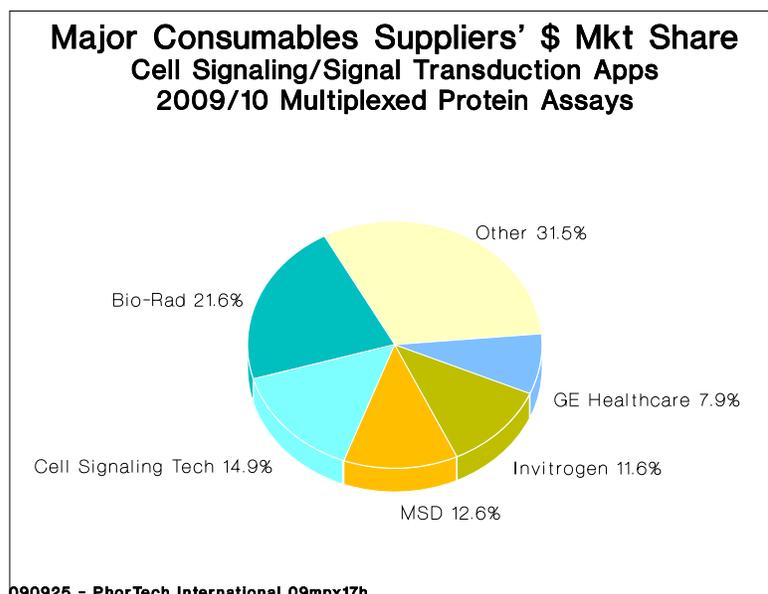
With annual sales of multiplex platforms rising through 2008, placements per year are typically estimated to be in the range of 300 to 500 units. From the instrument platforms used for multiplexed protein assays and year of acquisition, not only is the growth of platform sales tracked, but also expansion for two major companies, identified by the share of the units reported. From this data, unit market shares reveal the major players and the most popular models of multiplexed protein assay platforms from three different companies. Analysis software is also examined, separately, revealing the most frequently mentioned brands, shown below, and to some extent, programs.



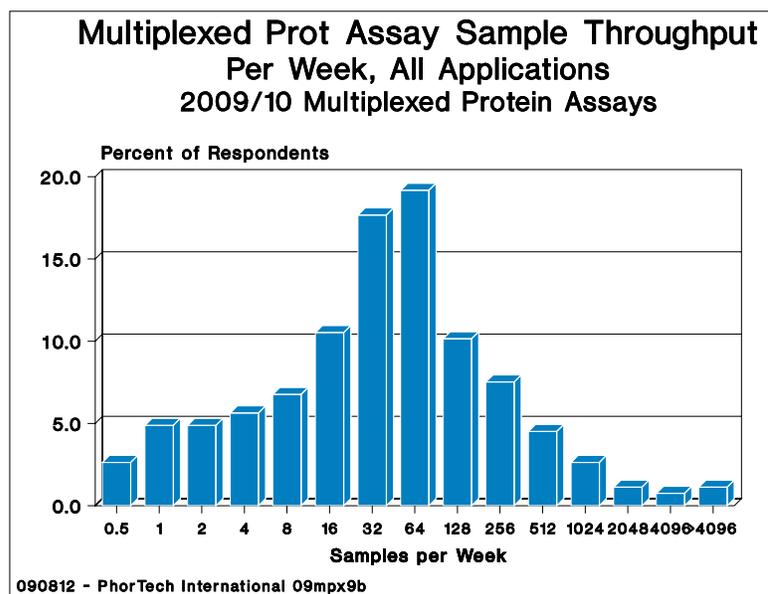
A simple query regarding the annual expenditure for assay kits associated with multiplexed protein assays is just the beginning of the examination of this market sector. From this, the annual spend per researcher, as well as for core and non-core laboratories is quantified. The

North American assay kit market, with projected sales of \$112.57 million annually distributed across 50 different suppliers, is characterized in detail. Applying dollar market shares for major players to the extrapolated market size produces annual sales estimates for nine major suppliers which are consistent with published sales figures. In addition, annual dollar sales volume estimates for assay kits purchased for each of the eleven most prominent application areas are also calculated.

Further evaluation of market shares for assay kits purchased for the three top application areas show that two suppliers dominate the cancer biomarker assay kit market. In contrast, kits for inflammation (cytokine/chemokine) applications and cell signaling or signal transduction applications are more diverse with numerous suppliers vying for market share.



Current methodology is examined in detail beginning with the measured throughput of samples per week overall, and for each application. The species of samples analyzed by North American bioresearchers are also appraised, along with the kinds of samples, the kinds of multiplexed protein arrays, and, if applicable, the type of positional arrays in use. In addition, open-ended responses describe the main reason for using multiplexed protein assays. Suppliers seeking to effectively promote the value of these assays should be able to utilize the perceived benefits revealed in these comments.



The subsequent presentation of how well this technique has fulfilled these reasons provides an initial measure of researchers' satisfaction with multiplexed protein assays.

**A Sampling of the Verbatim Comments Describing Reason for Using Assays & Satisfaction with the Results/Benefits Realized Using Multiplexed Protein Assays**

Main Reason for Using Multiplexed Protein Assays	Satisfaction
Speed, throughput, better than other formats	A quantum level improvement
Multiplexing saves time and sample, which is crucial for i.e. in vivo samples (Xenografts) or precious antibodies.	Analysis can be tricky, often correction methods (normalization) are necessary, sometimes signal to noise issues
Get results quickly	As the first screening, it is OK. Need single-plex ELISA to make sure the results obtained from multiplexed assays.
Because the limitations in my sample volumes and the need to reduce time and costs, multiplexed protein assay allow us to test many analytes at one time.	Comparing to the conventional ELISA, multiplex test is reliable and only one or a few samples at a time, reducing the throughput of the assay.
Improve prognostic power over single protein assay	Continuing problems with nonspecific binding / cross-reactivity / low target concentration.
We use multiplexed protein assays to measure host cytokine responses to microbial pathogens and agricultural chemicals.	Generally yes. The major benefit of using multiplex protein assays is that it allows us to examine various aspects of host responses based on a single set of samples, and thus helps reduce the number of experimental animals required and work load.
High throughput	High false positives, but reasonable recognition of novel targets
Convenience of multiple measurements; small sample size being analyzed	Intra- and inter-assay variability too great; quality of antibodies that are multiplexed drifts
Screen for multiple endpoints in valuable samples - protein biomarkers	Mixed feelings - results not as confident as ELISA
To assess complex protein expression level in the brain of Alzheimer's disease patients and relevant animal models	No, sensitivity is a huge problem for us as well as difficulty with reproducibility, especially with postmortem brain samples.

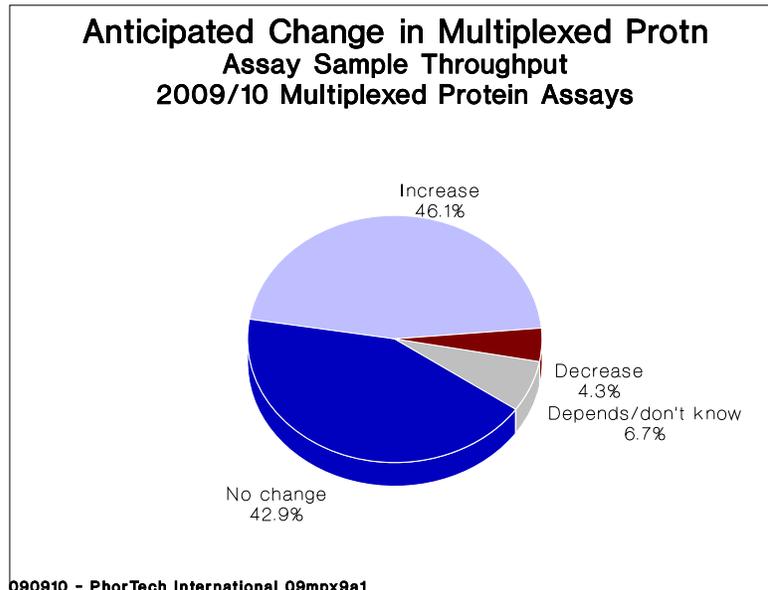
Main Reason for Using Multiplexed Protein Assays	Satisfaction
Efficiency; You get results for multiple analytes in the same time as it takes to get results for a single target. Cost. The price of a multiple analyte plate is not proportional to the number of analytes determined per plate.	Somewhat. Everything is a compromise. The dilution of a sample which is necessary to enable optimal assay of one analyte may not be optimal for another analyte on the plate.
As a broad basis to look at proteins that can then be validated by more specific and more sensitive assays such as ELISA	The assays are often insensitive and buffered in a way that diminishes the analysis of certain proteins. Concentration ranges for individual cytokines are often inappropriate. Lots of individual well problems which is difficult to compensate for as the idea of multiplexing is to run experiments in singles. As a broad based screen it is good but as a stand alone set of data it should be treated with caution.
It saves time and money compared to the traditional ELISA.	Well, it is not perfect because we are STILL having trouble with lot-to-lot consistency, but it is still better than the ELISA. No question there. We just couldn't do the work we do with an ELISA.

In addition, we asked respondents the reason behind selecting their assay kit supplier. From these verbatim comments, fifteen themes are identified. Linking these themes with the supplier reveals significant variations in the main reasons researchers select each of three major suppliers.

Satisfaction with assay kit suppliers is based on whether there were any consumable suppliers from which they refused to buy. From responses to this, we can calculate satisfaction rates for each major assay kit supplier and discern problem areas for each. Asking a similar question about instrumentation shows that respondents appeared to be unified in their satisfaction with instrument platforms.

The open-ended responses to a separate more general query highlights suggested areas of improvement to multiplexed protein assays, in general, and more specifically, to instrument platforms. Reading these comments is equivalent to spending weeks of time in the field with end-users and provides essential insight for companies in this field.

In addition to examining historical growth and current markets, anticipated future usage of multiplexed protein assays is examined in detail. As shown next, nearly half of the current users describing their anticipated change in sample throughput and plex level in their own words indicate that they intend to increase their volume of samples in the near future.



Additional queries identify future plans to add new protein targets, new applications and associated suppliers under consideration, and whether respondents are considering using a different assay methodology. The possibility of drilling down from a high to low-content array or vice versa, and the reasons for considering this are also presented in this report.

The likelihood of a repeat/replacement instrument purchase and brands under consideration include sixteen different companies is also studied. This reveals which manufacturers are likely to maintain or increase their share of this market.

In addition, current users were asked to identify multiplexed protein assay product suppliers they were familiar with from a list of 36 companies and subsequently, select the highest rated company for each of seven factors they consider important when selecting a product supplier. This analysis shows the relative importance of the following nine factors in manufacturer selection: Affordability/value for money, Minimal hands-on time, Time to result, Selection of available assays, Application-specific assay panels, Multiplexing factor, User-friendliness/ease of use, Ease of ordering, Sensitivity/low signal to noise, Consistent quality/reproducibility, Reputation of supplier, Dynamic range of the assay, Assay specificity/cross reactivity or an optional 'other' factor. It also identifies the highest ranked supplier for each. These ratings are invaluable both for companies to measure their own performance as well as to discover areas of weakness for their major competitors that can be used to obtain competitive advantage.

Responses from researchers not currently using multiplexed protein assays but planning to start in the near future suggest that the population of bioresearchers using multiplexed protein assays is expected to increase to over 20,000 by mid-2011. Verbatim comments describing the likelihood of purchasing a new instrument, application areas and the number of protein targets likely to be analyzed

by new users will point companies towards areas likely to expand so that companies can focus their efforts.

This report is undoubtedly the most comprehensive analysis of the current market for multiplexed protein assays in North America. Enhanced by over 260 graphs and tables, this study provides a penetrating analysis of the current methodology and future expectations. This report should be considered essential reading for anyone seriously intending to succeed in this competitive area.

The 87 companies mentioned in the report are identified in the following table.

Applied Biosystems	ArrayIt Corporation	Assay Designs, Inc.
Aushon BioSystems	Bachem, Inc	BD Biosciences/Pharmingen
BD/Clontech/Takara	Beckman Coulter	BioArray Solutions
BioGene Ltd	Biomedical Diagnostics (BMD)	Bio-Rad Laboratories
BioTek Instruments	Caliper Life Sciences	Capital Biosciences
Cayman	Cell Signaling Technology/CST	Chemicon
Ciphergen	Covance	DiscoverRX
eBioscience	EMD/Novagen	Full Moon Biosystems, Inc
GE Healthcare (Amersham)	GenScript	Gentel Biosciences
GraphPad Software, Inc	Hypromatrix, Inc	Illumina, Inc
Immunodiagnostic Systems	INDOOR Biotechnologies Inc	Innogenetics
INOVA Diagnostics	Inverness Medical Prof'l Diagnostics	IVGN/LTI (Gibco, BioSource)
Kinexus Bioinformatics Corporation	Kodak Imaging	KPL
LI-COR	Luminex Corporation	Marligen Biosci/OriGene
Melior	Meso Scale Discovery	Millipore Corp (Linco,Upstate)
MiraiBio (Hitachi)	Molecular Devices/MDS	Multimetrix GmbH
New England Biolabs	Nonlinear Dynamics	Nordic Biosciences
One Lambda	Panomics	PerkinElmer
Primorigen Biosciences	Promega	Protein One
Proteome Sciences	Qiagen	Quansys Biosciences
Quest Diagnostics	R & D Systems	Randox
RayBiotech, Inc.	Roche Applied Sciences	Rockland
Rules-Based Medicine Inc	SABiosciences (Formerly SuperArray)	Santa Cruz Biotechnology
Serotec	Sibiosignal	Siemens
Sigma-Aldrich	Stratagene	Syngene
Tecan	Techlab	Tepnel LifeCodes
Thermo Fisher Scientific	Thermo Fisher Scientific (Pierce, Fisher)	US Biomax, Inc.
Vector	VWR	Wampole Labs
Zeptosens	Zeus Scientific	

To obtain more information, contact Michael Eby at PhorTech International, +1 (650) 594-0785, or point your Web browser to [www.phortech.com](http://www.phortech.com). A detailed summary of the report including table of contents and list of tables and graphs, as well as the methodology and project objectives, the survey demographics, and a copy of the survey questionnaire can be downloaded from the site at no charge.