

Protein Biotechnologies, BioServe Launch Microarrays for Breast Cancer Biomarker Research

By [Tony Fong](#)

Protein Biotechnologies and BioServe this week launched a reverse-phase protein microarray aimed at researchers trying to discover breast cancer biomarkers.

Called SomaPlex Reverse Phase Protein Microarray, the technology combines serum samples from BioServe with Protein Biotechnologies' microarray technology.

The arrays are priced at between \$295 for a qualitative array with a single serum spotted in triplicate and \$495 for a quantitative array with six sera four-fold serial dilutions spotted once.

While reverse-phase arrays have been around since around the start of the decade, up to now, researchers interested in using the technology to investigate serum-based protein biomarkers associated with breast cancer had to get the serum samples from a biorepository and then either print the specimens on arrays themselves or contract out the array development.

"The challenge has always been about acquiring content," Phillip Schwartz, president and CEO of Protein Biotechnologies, told *ProteoMonitor*. "It's not very easy for an individual researcher to obtain hundreds or thousands of unique biological specimens. ... We're giving researchers access to something they wouldn't otherwise have access to."

Using BioServe's repository of 1,387 breast cancer serum samples, Protein Biotechnologies prints them "essentially in a small format like a microscope slide, so you can screen literally hundreds, thousands, or tens of thousands of different unique biological specimens for specific binding activity," Schwartz said.

The SomaPlex RPPM is for discovery work, but in addition to screening specific proteins for expression levels, it can be adapted to other protein-specific probes such as labeled peptides, proteins, nucleic acids, and drugs or ligands, the two companies said.

According to Rama Modali, president of BioServe, the data that comes with a clinical serum sample is typically limited to tumor type, tumor percentage detected in the tumor, the age of the patient, and gender. But BioServe's specimens are accompanied by more than 300 data points, including information about a patient's diet and exercise regimen, her ER and PR hormone status, and different kinds of tumor types within the cancer.

"So the uniqueness comes from the fact that a researcher can analyze this and maybe correlate it with demographic data," Modali said. The company, he added, provides three generations of family data with each sample.

"What we have is what the subject might have been exposed to and what the genetic risks [are] that they carry with them," he said.

Such arrays, Schwartz and Modali said, are not available elsewhere. "And not from a collection of human clinical specimens as vast as BioServe's," Schwartz said.

The arrays are being made available to facilitate biomarker research in the research community, and neither Protein Biotechnologies nor BioServe plans to perform any biomarker development of its own on the arrays.

"That [work] requires huge resources that we don't have," Modali said.

Based outside of San Diego, Protein Biotechnologies is a provider of human clinical specimen derivatives and protein and tissue microarrays.

While the arrays that were introduced this week use serum as the biological matrix, Protein Biotechnologies also sells SomaPlex protein microarrays based on tissue lysates. Those products include arrays for breast cancer tumors, liver tumors, colon tumors, and others.

BioServe, headquartered in Beltsville, Md., has traditionally provided "comprehensive 'biomaterial to validated data' genomics services," according to the company, and its collaboration with Protein Biotechnologies is its first foray into the proteomics market.

The two firms first broached the possibility of working together about two years ago, Schwartz and Modali said, and, since then, have been exploring the best indication for their first product launch.

Based on trial runs on small sample sets, they began developing the SomaPlex RPPM for breast cancer about two months ago. Schwartz and Modali declined to disclose financial terms of the partnership, which has not yet been formalized into a written agreement. Modali said he and Schwartz have agreed to work together for three years and "we are in the process of getting a firm agreement between the two companies in place."

Modali said he hasn't yet decided what the next step will be as BioServe looks to move further into the proteomics arena. He said he expects the new arrays to be received "very well. But once we get a feel for how well this product does in the market, we will formulate a plan" on how to proceed.

The breast cancer SomaPlex RPPM is also the first in a series of cancer-specific microarrays the two companies anticipate launching this year. BioServe has serum cancer specimens covering almost all cancer types — the only one missing is brain cancer, according to Modali.

Also in the works are SomaPlex RPPMs for prostate cancer, followed by lung cancer. The plan is to release a SomaPlex RPPM for a different cancer every month or two, Modali said.

BioServe also has serum samples for cardiovascular diseases, diabetes, multiple sclerosis and other indications, and "there is a possibility that we can come up with arrays for those diseases," though at this point, the two companies are focused on developing the technology for other cancers, he said.

Serum was chosen as the matrix for its first product because among biomarker-based diagnostic developers, it is the most prevalent biosample used due to its easy access and the wealth of information contained in it.

"A lot of companies are buying serum from us and the only reason companies obtain serum is to look into biomarkers," Modali said.

Schwartz added: "I think more reliable or more consistent diagnoses are made from serum-based tests for biomarkers than perhaps from biopsy samples, where pathologists have to give a kind of more subjective score to what they're seeing under the microscope."

In a statement, the companies said that each serum specimen is spotted in duplicate at six different serum concentrations "that permits most soluble proteins to retain their native, or non-denatured, structure and activity." Different stages of disease progression are also represented, and within each stage specimens are included for positive and negative progesterone and estrogen receptors.

Based on how successful the serum-based SomaPlex RPPMs are, though, Modali said the collaboration may be extended to include other matrices such as DNA, RNA, and frozen tissue samples that BioServe has in its biorepository.

Genome Web URL: <http://www.genomeweb.com/proteomics/protein-biotechnologies-bioserve-launch-microarrays-breast-cancer-biomarker-rese>