

## Frost & Sullivan Award for Technology Innovation



### AWARD DESCRIPTION

Frost & Sullivan's Technology Innovation Award is bestowed upon a company (or individual) that has carried out new research; which has resulted in innovation(s) that have or are expected to bring significant contributions to the industry in terms of adoption, change, and competitive posture. This award recognizes the quality and depth of a company's research and development program as well as the vision and risk-taking that enabled it to undertake such an endeavor.

### RESEARCH METHODOLOGY

To choose the award recipient, Frost & Sullivan's analyst team tracks innovation in key hi-tech markets. The selection process includes primary participant interviews and extensive primary and secondary research via the bottom-up approach. The analyst team shortlists candidates won the basis of a set of qualitative and quantitative measurements. The analyst also considers the pace of research and technology innovation and the significance or potential relevance of the innovation to the overall industry. The ultimate award recipient is chosen after a thorough evaluation of this research.

### MEASUREMENT CRITERIA

In addition of the methodology described above, there are specific criteria used to determine the final rankings. The recipient of this award has excelled based on one or more of the following criteria:

- Significance of the innovation(s) in the industry, and across industries (if applicable)
- Potential of the products of innovation(s) to become industry standard(s)
- Competitive advantage of innovation vis-à-vis other related ones
- Impact (or potential impact) of innovation(s) on company or industry mindshare and/or company bottom line
- Breadth of intellectual property related to the innovation(s), i.e. patents, scientific publications, papers in peer reviewed journals.

### AWARD RECIPIENT:

#### SOMALOGIC, INC.

Frost & Sullivan's 2004 Technology Innovation Award in the field of biomarker technology- specifically, for protein arrays- goes to Somalogic Inc. This award recognizes the company's vision and its excellence in technology innovation and development, as is exemplified by its development of the Photoaptamer array technology.

Protein arrays are a powerful tool for researchers because they help them decipher the conundrum of the proteome. Since a proteome is composed of a large number of

## SomaLogic

proteins, technology that offers multiplexing along with high throughput would be the best bet in decoding. Traditional protein arrays use antibodies for binding to the target proteins of interest. Since antibodies themselves are proteins they are very sensitive and they get inactivated or denatured when exposed to adverse conditions such as high temperatures, or extreme variation in pH. Use of these antibodies poses several bottlenecks, which when resolved would help in the development of more sophisticated and robust array instruments with superior scalability and performance.

This is precisely the opportunity the Boulder, Colorado-based Somalogic's technology addresses. The company's protein arrays utilize photoaptamers as their capture agents. Photoaptamers are single-stranded nucleic acids, most often DNA, that assume three-dimensional shapes and can bind their target molecules with high affinity and specificity. Since DNA is more stable than proteins, arrays utilizing photoaptamers are more robust and are able to withstand harsher laboratory conditions.

ELISA tests offer good performance in terms of true quantification, excellent limits of detection, and superior reproducibility but scalability is still a major issue. Since these tests use secondary antibodies to label the proteins, scalability is reduced and the chances of the secondary antibodies cross talking are greatly enhanced when more than 50 proteins have to be identified simultaneously. However, Somalogic's photoaptamer arrays employ a universal protein stain (UPS) that interacts with proteins captured on the array and not with nucleic acids. Because the UPS binds only to the protein, the signal is proportional to the amount of protein present on the array. The scalability is also higher as there is no need to add more reagents to the array.

Somalogic has built up an impressive intellectual property portfolio protecting its photoaptamer technology and photoaptamer based arrays. It has more than 200 issued and pending patents in U.S. and other countries.

In all, Somalogic's photoaptamer based arrays promise to break the Gordian knot between the scale of analysis and assay performance. Somalogic's technology essentially delivers a scale that approaches that of 2-D gels but with the performance comparable to ELISAs. The Frost & Sullivan Award for Technology Innovation recognizes Somalogic Inc. for its outstanding efforts in developing protein array technology that would help overcome the industry's twin challenges of robustness and scalability.