

**Award Category:**  
**Technology Innovation of the Year****Award Description**

Frost & Sullivan's Technology Innovation of the Year Award is bestowed upon a company 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 on 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 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 versus 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.

2005

FROST & SULLIVAN

Medical Coatings & Biocoatings  
Technology Innovation of the Year Award

## Affinergy, Inc.



Frost & Sullivan's 2005 Technology Innovation of the Year Award in the field of medical coatings/biocoatings goes to Affinergy, Inc. in recognition of the company's development of novel "biological glue." This is essentially a proprietary all-biological technology platform of interfacial biomaterials that provides selected multifunctional coatings that significantly enhance the value of medical devices such as orthopedic implants. Frost & Sullivan believes Affinergy's unique all-biological coating technology has the potential to become an industry standard.

A spin-off from Duke University, Affinergy has been selected by Becton Dickinson (BD) to set up operations in the incubator at BD's research center. Notably, Affinergy has secured initial seed funding to commercialize the technology in orthopedics, growth factor immobilization, and cellular therapies. Affinergy's site specific biological delivery system allows the creation of a user defined bioactive matrix on the surface of devices as well as unlocking novel injectable capabilities.

Based on functional peptides, Affinergy's all-biological platform technology is unique in that it utilizes modular structures and a proprietary linker technology. One peptide selectively binds to specific biological material while another is specific to select synthetic materials. The advantages of Affinergy's technology include its selectivity in binding that offers unique flexibility. Affinergy has established a library of peptides for mix and match customizing coatings.

Other competitive advantages of the company's technology include the use of 'mild' chemistry (that is the process can be done at room temperature in water with no surface preparation required), which is so important for attaching fragile biologics. Affinergy's materials can be applied at the factory by spray, dip, print, or painting procedures, or they can even be applied directly by a surgeon, as needed. Affinergy materials are also stable to sterilization processes with proven shelf life and a low toxicology profile. What has attracted investors is the tremendous diversity of this technology platform that allows the creation of biological coatings to regulate biological processes on the surface of synthetic materials.

Applications of interest include attaching growth factors such as BMPs to carriers, attracting cells such as osteoblasts or stem cells to a specific site and targeting delivery of therapeutics. The market for biocompatible coatings is too big to ignore. For instance, by 2007, the use of implantable medical devices is expected to increase to over \$24 billion in the US alone. Furthermore, the global market for end user medical devices was estimated to be \$50 billion in 2004.

Although surface modification materials have been used for some time now, and the development of materials for the market is active, none of the competing technologies are 'all-biological' materials nor do they have the same level of flexibility, specificity and modularity, along with mild and easy application, as is offered by Affinergy's breakthrough technology. It is therefore without reservation that Affinergy Inc. has been recognized with Frost & Sullivan's 2005 Medical Coatings & Biocoatings Technology Innovation of the Year Award for its development of a novel interfacial biomaterial coating technology that can help unlock the potential of growth factors and stem cells, as well as site specific therapeutic delivery and vastly improve the success of medical device implants.