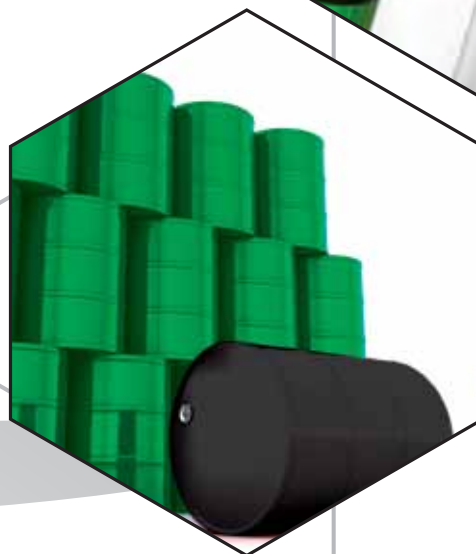
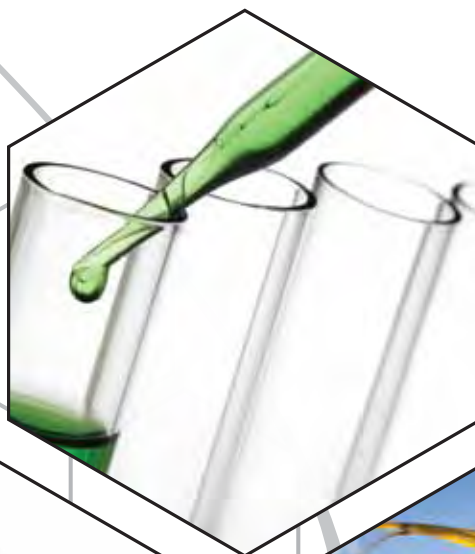




CALIFORNIA  
**Industrial Biotech**

**Executive Summary:  
Survey of California Industrial Biotechnology Companies**



**October 2011**

## **Executive Summary**

BayBio and BIOCOM are proud to announce the results of our targeted survey of industrial biotechnology companies with operations in California. The survey, conducted in late summer of 2011, shows that industrial biotechnology is a thriving industry sector with great potential for job growth in the state. Indeed, in the past five years, this sector has increased employment by a whopping 632 percent – with job growth steadily increasing each of the five years detailed.

These companies overwhelmingly maintain corporate headquarters and research and development facilities in California—and intend to keep these facilities within the state. California should not, however, take this industry for granted – at least half of the companies surveyed have built, or intend to build, pilot production facilities, commercial production and product distribution and logistics outside California.

The most frequently cited reason these companies consider out-of-state manufacturing is the incentives offered by other states to locate facilities within those jurisdictions. Other commonly iterated challenges of doing business in California include high taxes, salaries, and land costs as well as a complex and onerous regulatory framework.

California policy makers can and should evaluate policies through the lens of interstate competitiveness. Mandatory single-sales factor, net-operating loss carryback and carryforward, sales and use tax exemptions for R&D and manufacturing equipment, as well as property tax relief and new hire tax credits are all incentives currently offered by other states. To the extent feasible, this survey strongly suggests that the state needs to examine its current package of incentives for this growing startup industry.

Finally, workforce development and investment in higher education will be critical to maintaining the industrial biotechnology industry in California. With impressive job growth in the past five years and an increased focus on green technology, including biofuels, California can capture the lion's share of employment growth in the industrial biotechnology sector, but only if a well-prepared workforce exists in the Golden State. Companies reported difficulty in finding qualified candidates for several highly technical functions, particularly in the areas of chemical engineering, purification, and fermentation.

## **Results and Data Points in Detail**

### **Respondents**

- 33 companies, revenues from \$0 to \$9.7 billion
- Full range of industrial biotech: biofuels, chemicals, improved feedstock, genomics, food/beverage and new technologies
- Emerging industry: 85 percent of respondents founded since 2000.

### **Employment**

- Among the 15 companies that reported having at least one employee in 2006, there was an aggregate increase of 75 percent in total number of employees.
- 18 companies reported having no employees in 2006. Today, those companies account for 3,254 jobs.
- Taken together, the 33 companies surveyed employed 712 employees in 2006. Today, they employ 4,504 – an increase of more than 632 percent.

### **California Presence**

Among respondents, California is predominantly the location for corporate headquarters and research facilities:

- 78 percent of respondents have corporate headquarters in California. Only 40 percent intend to remain in California, while the remaining 60 percent are unsure/did not respond.
- 81 percent of respondents have R&D facilities in California. One third intend to remain in California, while less than five percent intend to expand outside of the state. The remainder are unsure/did not respond.

The picture is much different for pilot scale facilities, commercial production, and distribution/logistics—no more than half expect to locate these functions in California:

- *Pilot Facilities*  
45 percent of respondents have pilot facilities in California, and 37 percent have them outside the state.
- 20 percent of respondents intend to maintain pilot facilities in California, while only 4 percent intend to expand pilot facilities outside the state. The remainder are unsure/did not respond.
- *Commercial Production*  
20 percent of respondents have commercial production in California. 45 percent have facilities outside of the state. Interestingly, all of the respondents intend to maintain their facilities where they are presently sited.
- For those without commercial production facilities in California, all are unsure/did not respond to where they plan to site these facilities in the future.

- *Product Distribution and Logistics*  
33 percent of respondents have product distribution/logistics in California, and 23 percent have these out-of-state.
- 14 percent of respondents intend to maintain distribution/logistics in CA, whereas 23 percent intend to expand out-of-state. 42 percent of respondents are unsure where they will site these facilities in the future.

#### **Reasons for Locating Facilities Outside of California**

Companies were presented with a list of factors that impact their decision to locate outside of California. Respondents selected the following factors:

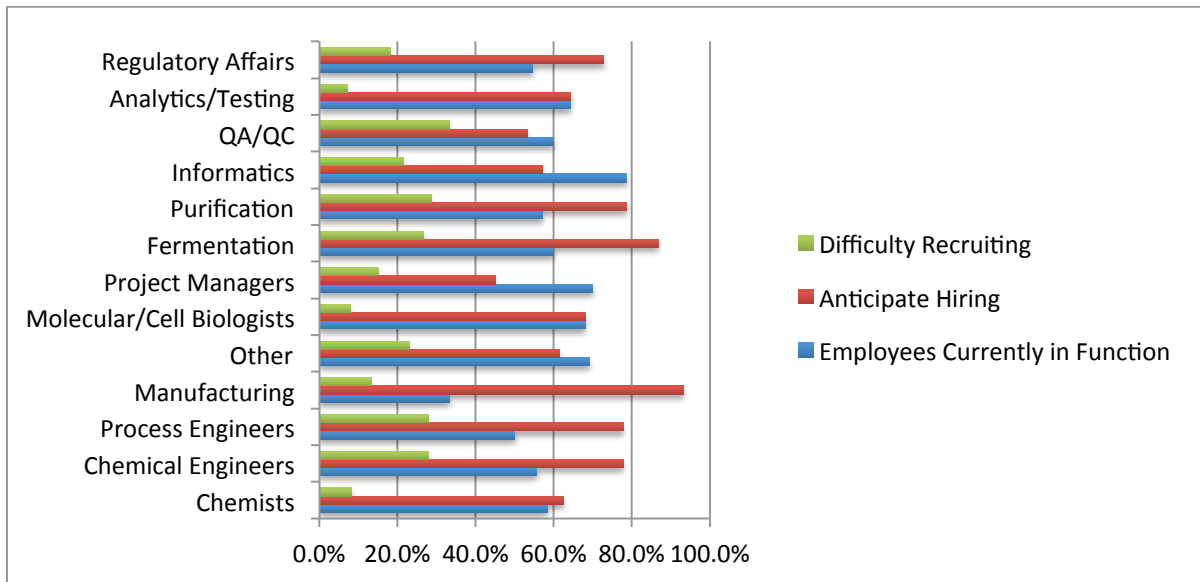
- 76 percent – Incentives from other states
- 61 percent – Onerous regulatory environment
- 61 percent – High taxes
- 53 percent – High salaries
- 38 percent – Permitting delays
- 23 percent – High rents

None of the respondents selected lack of available talent, even as it was presented as an option. Among other factors that impact the decision to locate elsewhere, respondents cited:

- Existing presence in another state
- Lack of appropriate contract manufacturing facilities in California
- Supply chain difficulties within the state

**Workforce Trends**

Industrial biotechnology companies employ a wide array of researchers, scientists, regulatory experts, and project management staff. Employment data and anticipated hiring trends represented in the table below show promising job growth for many of these functions which require highly technical training.



Job functions that respondents find most difficult to fill include fermentation specialists, chemical engineers and purification specialists.

Companies are recruiting primarily from within the biotechnology industry, with a few recruits coming from related industry sectors. By percentage, new employees in industrial biotechnology last worked in:

- Biotechnology – 90 percent
- Academia or national laboratories – 53 percent
- Chemicals – 46 percent
- Energy – 30 percent

The most commonly stated challenges to recruiting new employees are funding salaries, enticing employees to live in California due to a high cost of living, and lack of specific skill sets across the multiple disciplines required for industrial biotechnology work.

### **About BayBio**

BayBio is Northern California's life science association. We support the regional bioscience community through advocacy, enterprise support, and enhancement of research collaboration. We maintain Northern California's leadership in life science innovation by supporting entrepreneurship, science education and life science career development through the BayBio Institute. Our members include organizations engaged in, or supportive of, research, development and commercialization of life science technologies. Online at [www.baybio.org](http://www.baybio.org)

### **About BIOCOM**

BIOCOM is the largest regional life science association in the world, representing more than 550 member companies in Southern California. The association focuses on initiatives that positively influence the region's life science community in the development and delivery of innovative products that improve health and quality of life. This includes initiatives in capital formation, public policy, workforce development, group purchasing and member services such as networking events. Online at [www.biocom.org](http://www.biocom.org)