

# Texas Biotechnology and Life Sciences Industry Cluster

## *The Right to Play & The Right to Win*

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# Biotechnology and Life Sciences

## *Cluster Definition...*

*Broad range of disciplines, markets, products and services that draw primarily biology and the life sciences...*

Marine & Fisheries

Oil Spills & Toxic Remediation

Pharmaceuticals

Agriculture

Biohazard  
Sensors

Renewable Energy  
Sources

Medical Devices

Bioinformatics

# Biotechnology & Life Sciences Industry

## *Why Play...*

### **Revenues**

US '92 ⇒ '02 Biotech  
Revenues *quadrupled*  
\$8 Billion to \$33.6 Billion

### **Jobs**

US Dept of Labor projects  
between 2002 and 2012  
employment in Life  
Sciences grows 18%

- ✓ 19% *biological scientists,*
- ✓ 19% *biological techs and*
- ✓ 23% *in pharmaceutical and  
medicine manufacturing*

# Biotechnology & Life Sciences Industry

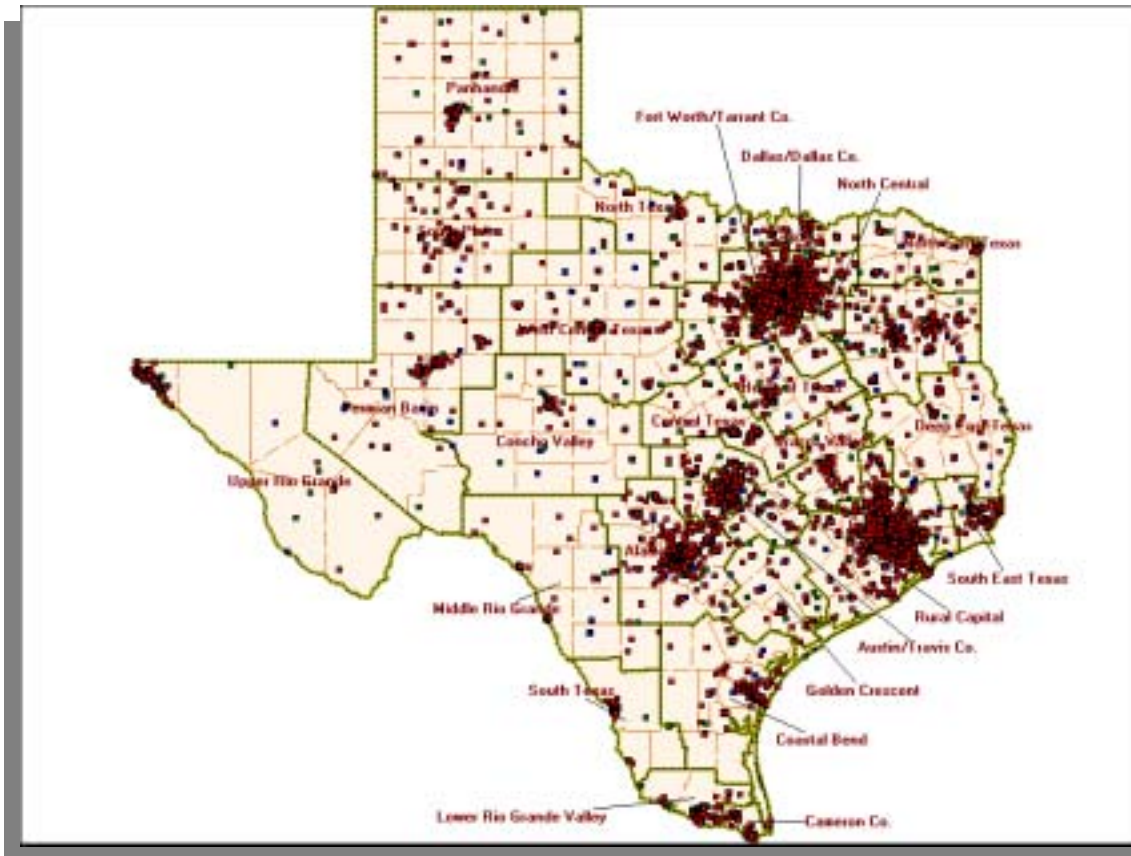
## *Why Play...*

- As of 2004 over 75,000 employed in industry cluster throughout Texas
- Average wage \$48,000 *nearly double* Texas state average of \$25,000
- Some occupations wage is three to four times state average

# Biotechnology & Life Sciences Industry

...*Where*

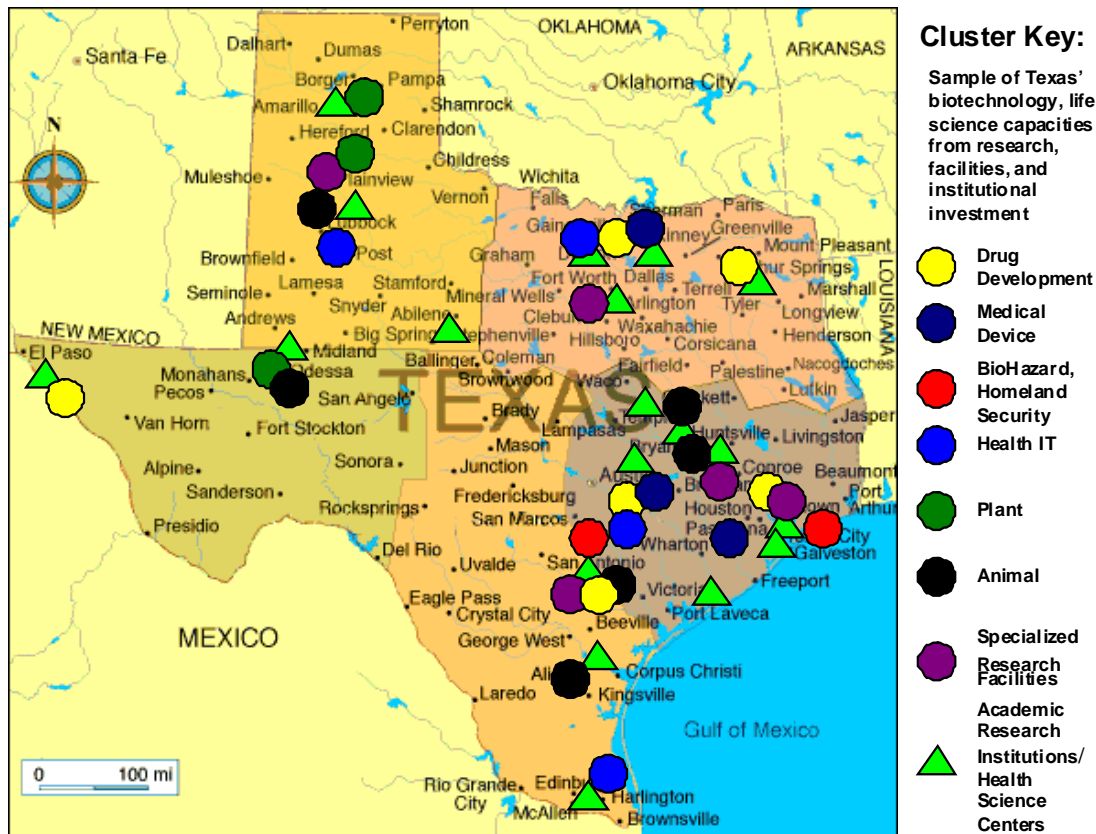
## Core Employment in the Biotechnology Cluster



# Biotechnology & Life Sciences Industry

... *Where*

## Texas Biotechnology and Life Sciences Industries



# Biotechnology & Life Sciences Industry

## *Right to Play...*

### 1. Capacity

- At least 55 biotechnology and life sciences program concentrations in Texas academic institutions including community college and university programs...biomedical engineering, bioinformatics, genetics and proteomics, nanotechnology, medical devices, biomanufacturing
- Over 7 million square feet research laboratory space

# Biotechnology & Life Sciences Industry

## *Right to Play...*

## 2. Facilities

- Largest Medical Center in world --Texas Medical Center in Houston
- Hospitals and Medical Centers in Dallas, San Antonio, Houston
- Texas A&M system
- Texas public and private universities



# Biotechnology & Life Sciences Industry

## *Right to Play...*

### 3. Intellectual, Knowledge and Skill Base

- Texas' second highest percentage of federal R&D spending 1993-2003 and growing
- Fourth state in amount of federal R&D
- National leader in clinical trials for global and domestic pharmaceutical, biotech and medical device firms
- Patent growth outpaces national average
- Strong engineering and technical base

# Biotechnology & Life Sciences Industry

## *Right to Win...*

- Awareness of Texas Biotechnology and Life Sciences Industry potential
  - Outreach
    - ✓ *State, national and international campaign*
    - ✓ *Website focused on Texas Biotechnology and Life Sciences*
    - ✓ *Communication within the industry*
  - Career and Employment Opportunities

# Biotechnology & Life Sciences Industry

## *Right to Win...*

2. Commitment from industry, government, educational institutions and public
  - Priority
    - ✓ *Curriculum identification and development*
    - ✓ *Programs to transform/train current workers*
  - Funding
    - ✓ *Statewide Biotech and Life Sciences Center of Innovation and Commercialization*
    - ✓ *Increase faculty recruitment and retention*
  - Improve K-12 science education to support new workers
  - Establish metrics to assess progress

# Biotechnology & Life Sciences Industry

## *Right to Win...*

### 3. Targets of Opportunity

- Agriculture
  - ✓ *Veterinary pharmaceutical, Animal heritage and Gene sequencing*
  - ✓ *Nutraceuticals*
  - ✓ *Alternative energy sources*
  - ✓ *Toxic remediation*
- Drug Development/Delivery/Vaccines
- Health-Related Information Technology
- Life Sciences Related Homeland Security
- Medical Devices

# Biotechnology & Life Sciences Industry

## *Right to Win...*

### 4. Enabling Factors

- Venture and investors *in Texas* recognizing potential of industry in own backyard
- Engineers and software developers
- Education of workforce
- Industrial and product design firms
- **FOCUS**