



## Illinois Biotechnology & Our Opportunity To Turn Strength into Greatness

***“Why Go Bio?” Summit  
May 30, 2008***

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President & CEO  
iBIO / iBIO Institute



# Illinois is quietly making huge contributions to:

Industrial products and processes  
Agriculture  
Health care

## Illinois is asserting leadership in biotechnology!

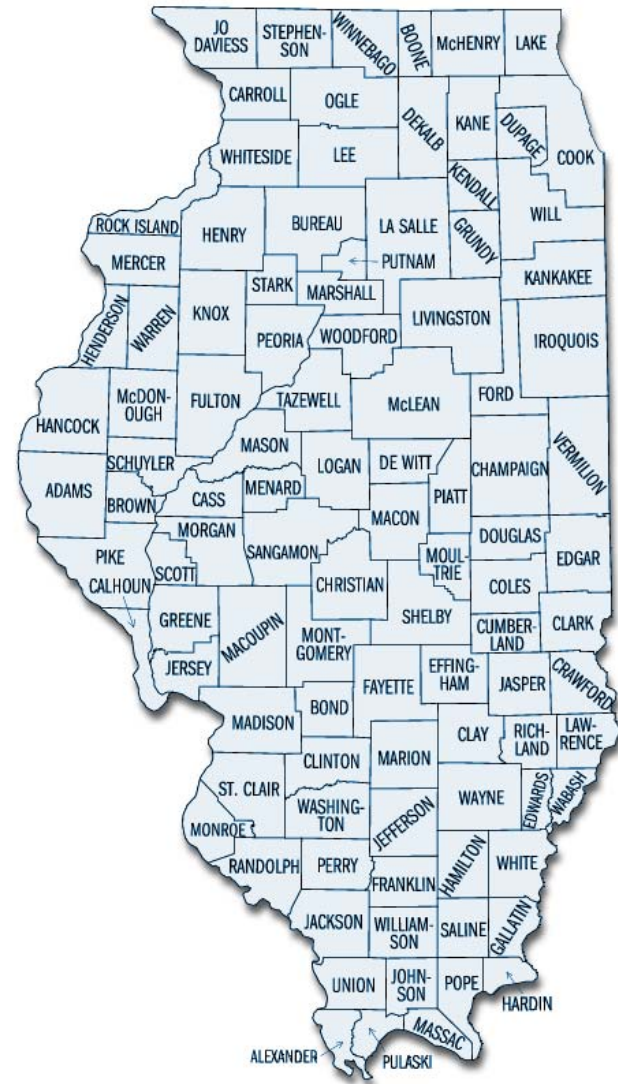


# Biotechnology Defined:

The application of what humans know  
about biology to  
making products and services that help  
people and improve life

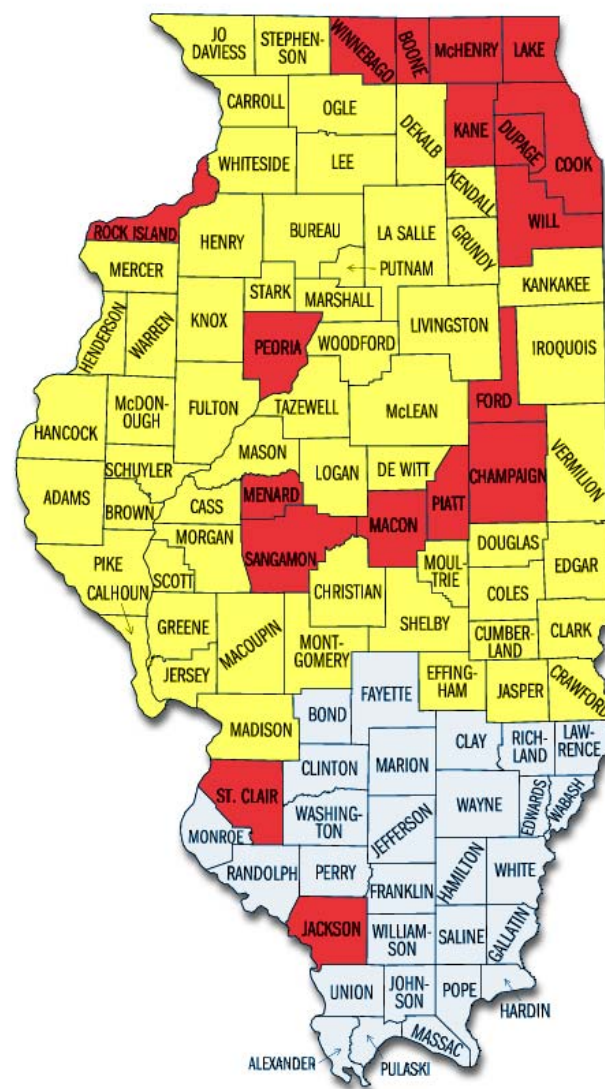


# Where in Illinois is Bioscience Important to the Local Economy?





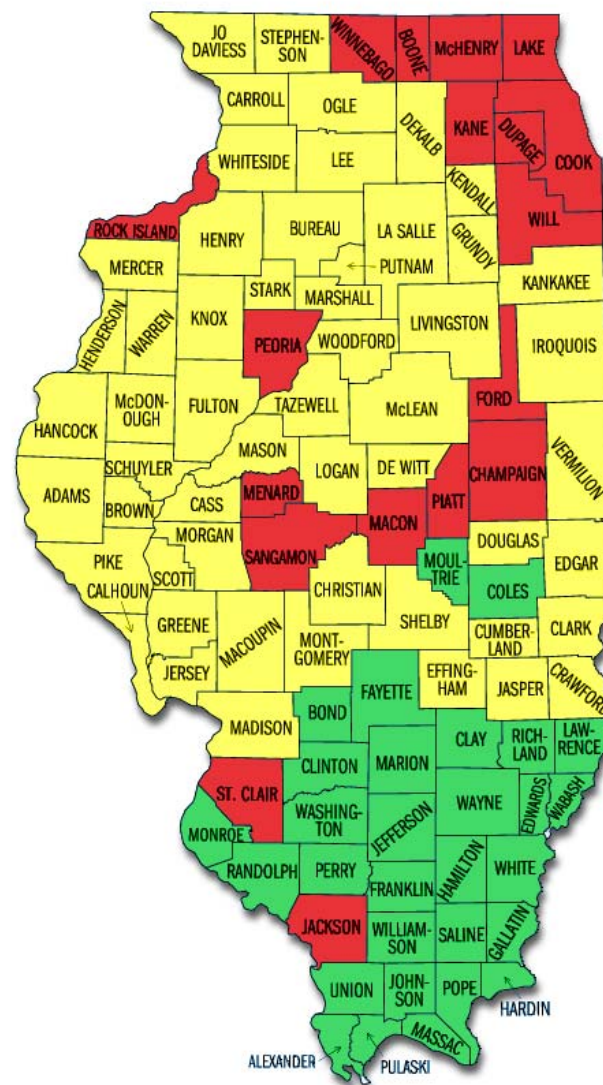
# Biotech Corn\*



\* Many counties have more than one type of bioscience activity



# Biotech Soybean\*



\* Many counties have more than one type of bioscience activity





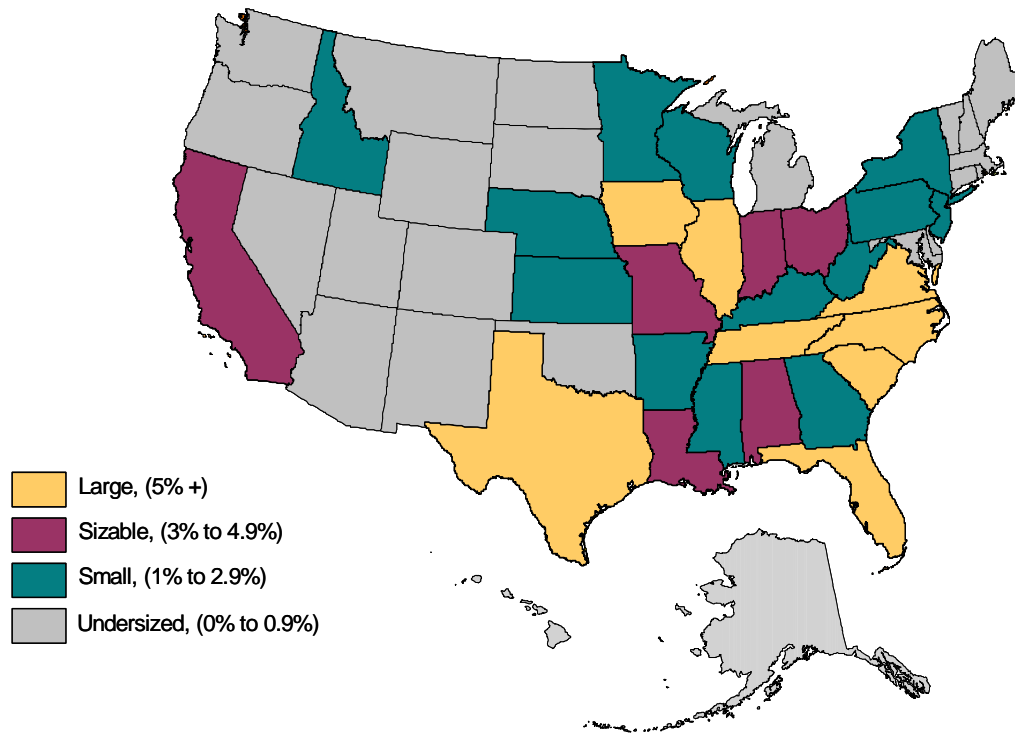
# Battelle Memorial Institute study- conducted in 2004 and updated in 2006– examined the composition, size and geographic distribution of the biosciences

- **Size of employment measures:**
  - None
  - Small
  - Sizable
  - Large
- **Sectors: pharma, medical devices, agriculture related products, and basic research and testing**
- **Only IL and CA have “sizable” or “large” employment in all four categories!**



# Agricultural Applications Employment

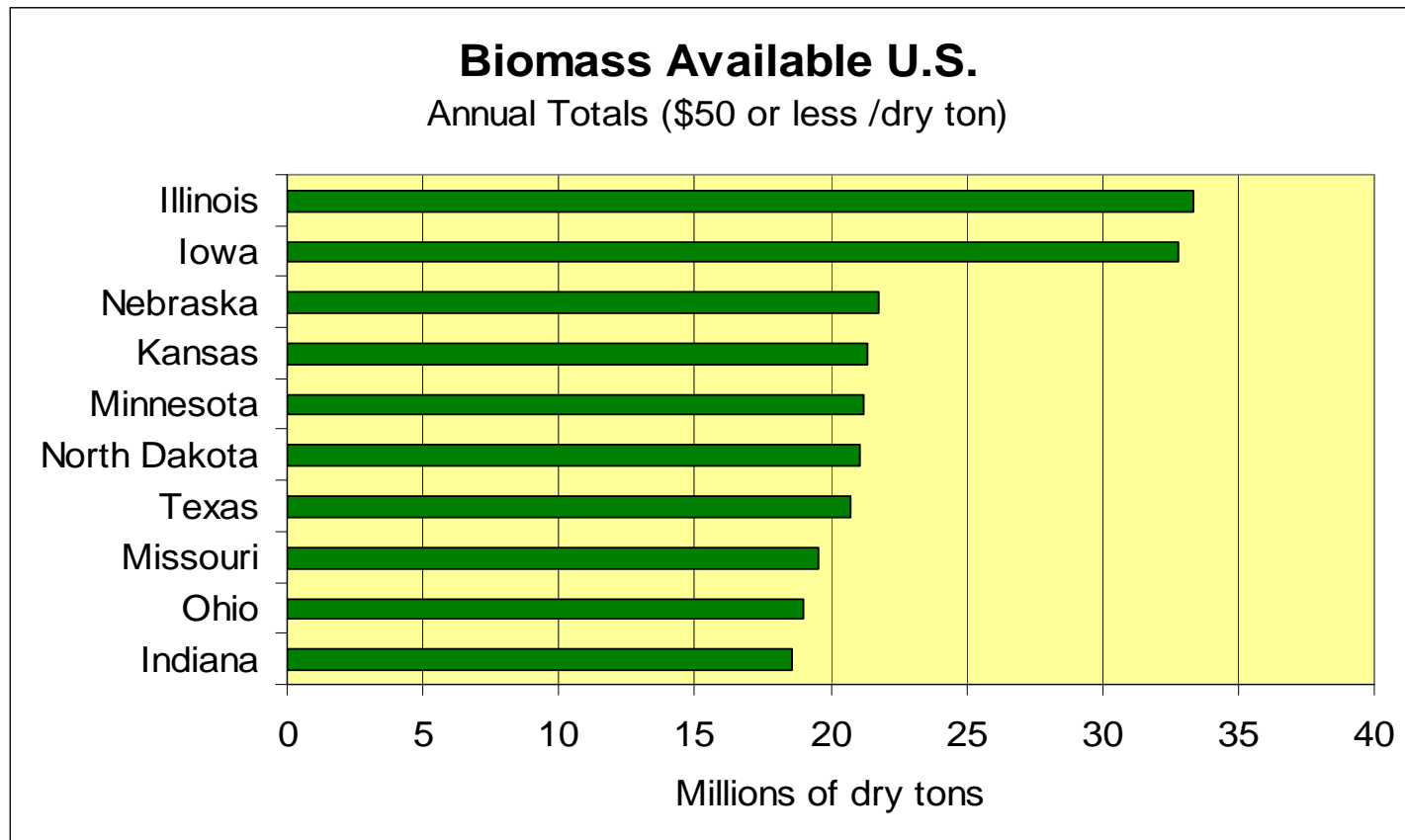
## Agricultural Feedstock & Chemicals Employment Size as share of total U.S. Employment



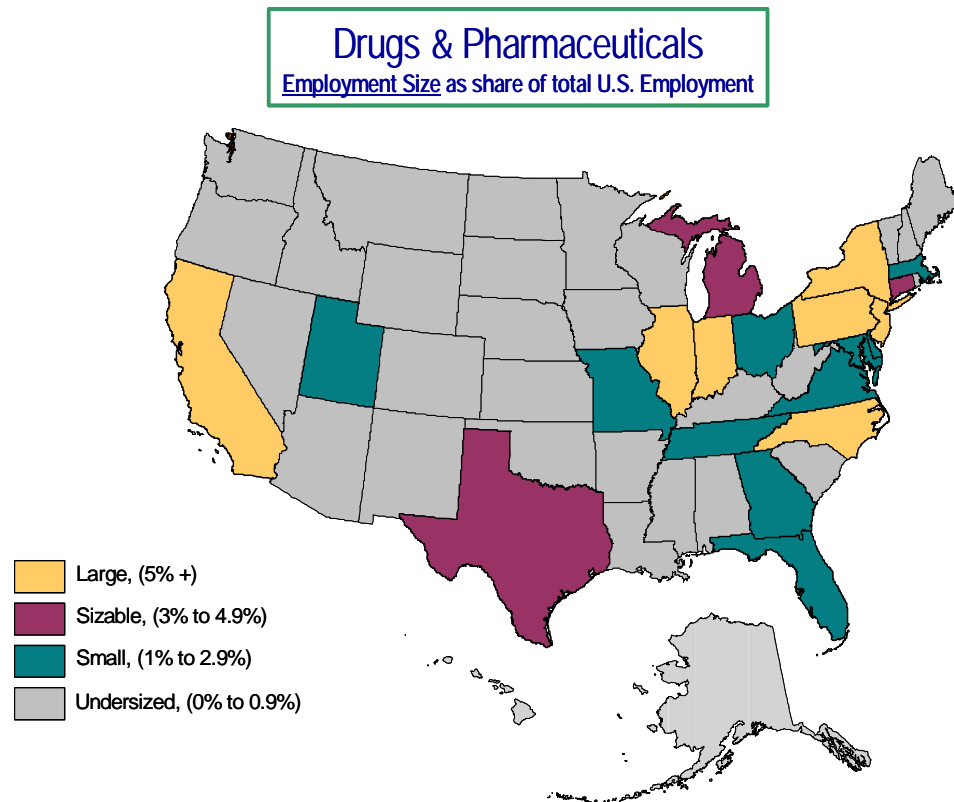
# Illinois is the number 1 producer of biomass— plant material other products can be made from

*“Illinois is to biomass as Saudi Arabia is to oil”*

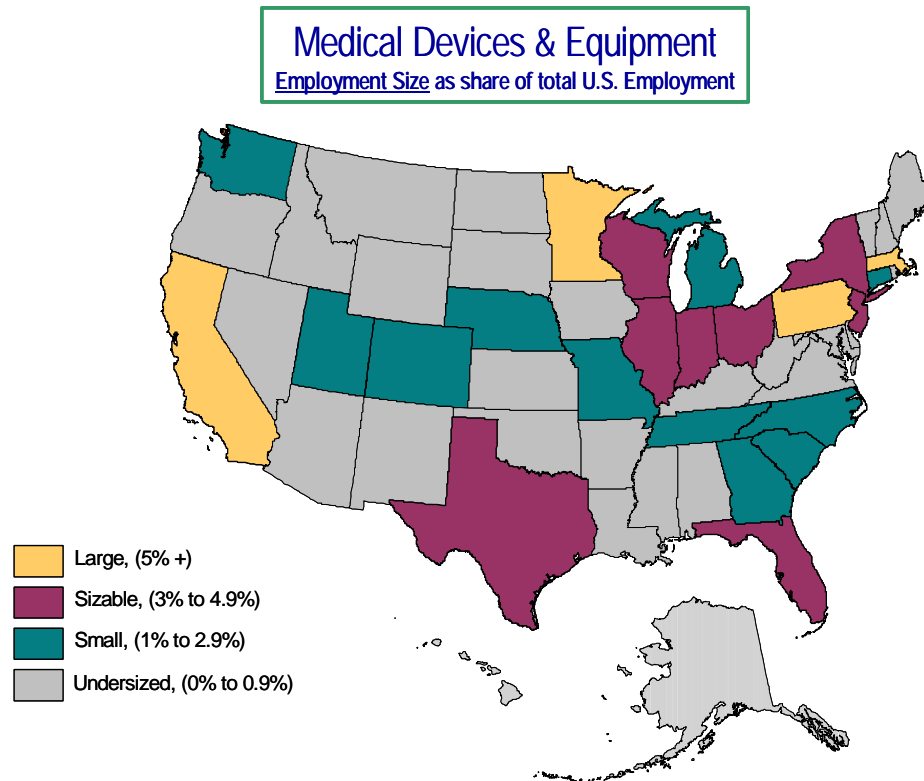
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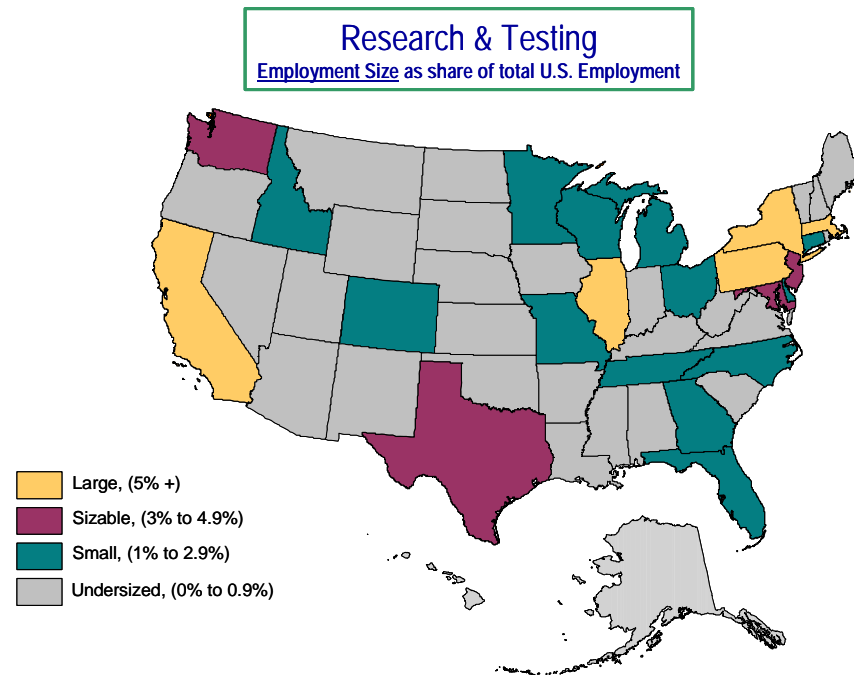
# Drugs and Pharmaceuticals Employment



# Medical Devices and Equipment Employment



# Research and Testing Employment



# Not only is Illinois big in biotech– it's also the hub of a Midwest Region with tremendous life sciences assets

- Our neighbors, like Illinois, have superb corporations, universities, and agricultural assets
- Chicago's transportation and meeting facilities make Illinois the capitol of this great region
- Illinois hosted the "Olympics of Biotech" in 2006– and broke every record– so the giant show returns to Illinois in 2010, making us the international showcase for the Midwest



# All this and much more— is within 90 minutes of Chicago

- Outstanding Research Universities

- Universities of Chicago
- Northwestern University
- University of Illinois
- University of Wisconsin
- Indiana University
- Washington University
- University of Michigan
- Iowa State University

- Outstanding Medical Clinics

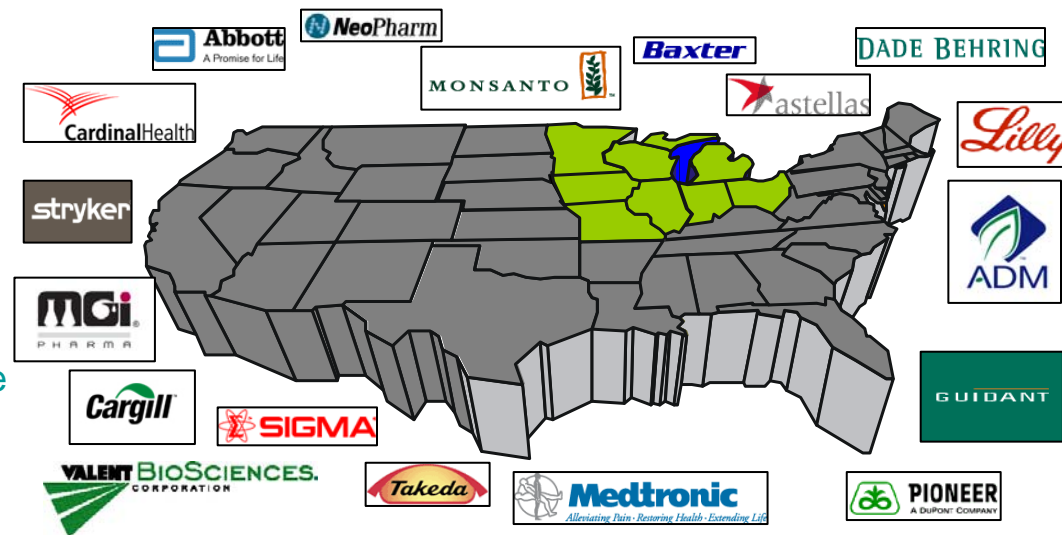
- Mayo Clinic,
- Cleveland Clinic
- Wisconsin Medical College
- Illinois Medical District

- Major US Research Centers

- Argonne
- Fermi
- USDA- National Center for Agriculture Utilization Research

## Other Companies

- Biomet
- Dow-Agroscience
  - Dow Chemical
  - Hospira
- Proctor & Gamble
  - Sigma-Aldrich
- St. Jude Medical
  - Stryker
  - TAP
- Zimmer



**But: does our status as a biotech powerhouse today mean we will be one tomorrow?**

**Modern biotechnology is only about 30 years old.**

**Compare where we are today to the development of another important technology: electricity**



Powerhouse Today = Powerhouse Tomorrow?

## The Analogy to Electricity

- Electricity- known for a long time
- Before the end of the 1800's – not many applications
- Electricity became practicalized 1893-1895
- 30 years later (1925):
  - The electric clothes washer had been invented
  - The electric clothes dryer had not



# This is what a powerhouse looked like in 1925



# This is what a powerhouse looks like in 2006



# Powerhouse Today = Powerhouse Tomorrow?

How do we in Illinois make certain that we grow what we have so that we can remain a biotechnology leader in the future?



# This is an urgent mission...

- 40 + states have made biotech a top priority
- There is intense competition for the best resources
  - Other states are investing billions in education, training, business programs
  - Other states are now recruiting people, technology and companies from Illinois
- For all its many strengths, and the tremendous investments made by both political parties, Illinois lags other jurisdictions in development of supportive programs- especially for small companies and education



# To Be a Powerhouse Tomorrow

- Build a vibrant startup community- historically a big weakness for Illinois and the Midwest
- Fix the site permitting process so companies can afford to locate here.
- Align the rapidly evolving needs of industry with the capabilities of the educational system, and augment those capabilities as necessary
- Keep improving on the things Illinois already does well: funding research and attracting major corporations



# Our success at meeting this challenge promises Illinois:

- Economic development
  - Each bioscience job results in 5.7 additional jobs
  - Wages of biotech workers are higher than average private industry counterparts
  - Real earnings of biotech employees over the last 5 years are up 6.4% compared with 1.4% average private sector
- Global impact– a chance to contribute
  - Curing diseases and injuries
  - Eliminating hunger and malnourishment
  - More efficient, cleaner industrial products





**iBIO, and its educational subsidiary, the iBIO Institute, are dedicated to helping Illinois and the Midwest succeed!**



# iBIO Introduction

- iBIO: champions the biotechnology in Illinois and the nearby Midwest
- Mission: To make Illinois the center of one of the world's great life sciences centers
  - A great place to do business
  - A great place to develop businesses involving advanced technology



# iBIO Introduction

## Work plan: what we do

1. Promote sound public policy at the local, state, and federal levels
2. Align the rapidly emerging needs of biotechnology businesses with the capabilities of the school and workforce training systems, augmenting those capabilities as necessary
3. Improve our ability to create and retain businesses



# iBIO Introduction

Work plan: how we do it

Promote teamwork and interaction within and between the principal segments of our community:

- Business
- Government
- Research/education



# iBIO: A Community of Interests

- Leading Illinois global corporations:

Abbott

ADM

Astellas

Baxter

Hospira

Takeda

Tate & Lyle

- Other major agriculture and medical companies

Amgen

Dupont

J&J

Eli Lilly

MedImmune

Monsanto

Pfizer



# iBIO: A Community of Interests

- Many midcap, specialty, and emerging firms:

Advanced Life Sciences  
Chromatin  
KeraCure  
NanoInk

NanoSphere  
Ovation Pharmaceuticals  
Valet Biosciences (Sumitomo)

- All major Illinois Universities and Research Centers
- Top-Tier Product and Service Providers



# Board Representation at a Senior Level

## *Chairman*

**Norbert Riedel**

CVP, Chief Scientific Officer  
Baxter International Inc.

## *Chairman, iBIO Finance Committee*

**Jo Ellen Helmer**

Audit and Risk Advisory Partner  
Ernst & Young LLP

## *Immediate Past Chairman*

**Wilbur H. Gantz**

Executive Chairman of the Board  
Ovation Pharmaceuticals

## *Executive Committee Members at Large*

**William (Bill) Moffitt**

CEO  
NanoSphere

## *Vice Chairman, Food and Agriculture*

**Kris Lutt**

General Manager, Specialty Feed Division  
Archer Daniels Midland Company

**Michael Flavin**

Chairman & CEO  
Advanced Life Sciences

## *Vice Chairman, Human Health*

**Andrew Hull**

VP, Global Alliances  
Takeda Pharmaceuticals North America



# State of Illinois and City of Chicago Votes of Confidence

- iBIO and iBIO Institute received \$2 million in State of Illinois grants 2004-2008
  - Marketing efforts
  - Educational programs
  - BIO 2006 / 2010 International Conference preparation
- iBIO Institute winner of 2005-2008 City of Chicago delegate agency grants
  - Focus: education, community building
  - Total > \$250,000



# iBIO INSTITUTE

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EDUCATION • TRAINING • RESEARCH

An IRS-Certified 501(c)(3) Not for Profit Corporation



# Mission

To provide education, training, and research in biotechnology to members of the business and educational communities and to the general public.



# Activities

1. Education programs for K-12 and community colleges
2. Training for those entering or already in the biotechnology work force and for entrepreneurs
3. Public education
4. Research of particular concern to Chicago, Illinois, and the region



# Outreach

- As a dimension to all four activities: outreach to underserved segments of the community
- Reasons:
  - Biotechnology is still in its infancy and needs a deep and broad pool of talent
  - Fairness: high paying jobs at all levels should be available to everyone



# A Senior-Level Board

- Mark Booth: Previous President, Takeda Pharmaceuticals North America
- Ray Drymalski: Partner, Bell Boyd & Lloyd and Immediate Past Chairman, Northwestern Memorial Foundation
- Robert Easter: Dean, University College of Agricultural, Consumer and Environmental Sciences
- Lori Healey: Chief of Staff, City of Chicago
- Alicia Loffler: Founder and Director, Kellogg School of Business Biotechnology Center
- David Miller: President & CEO, iBIO and the iBIO Institute
- Norbert Riedel: CVP and Chief Scientific Officer, Baxter International
- James L. Tyree: SVP, Abbott and President, Abbott Pharmaceuticals US



# 2008 Planned Activities

- Continue building PROPEL programs for entrepreneurs
- Deliver programs benefiting industry & education system alignment
- Begin pilot programs for better preparation of students in high school



# The PROPEL Programs

- Jointly created by iBIO and the iBIO Institute in 2007
- A series of programs aimed at increasing the number and success rate of life sciences start-up companies in Illinois
  - Providing entrepreneurs with access to specialized resources and expertise
  - Industry, academia, service professionals, entrepreneurs, and government agencies connect to create and support a vibrant entrepreneurial community in Illinois and the throughout the Midwest



**PROPEL**<sup>SM</sup>



# The iBIO Entrepreneurship Center

- Supported through a grant from the Illinois Department of Commerce and Economic Opportunity
- Part of the Illinois Entrepreneurship Network
- Technical Assistance
  - Access to subject matter experts that can assist with specific questions or help tackle a specific challenge facing the start-up
    - Business plan reviews
    - Funding strategies
    - Licensing opportunities
    - Intellectual property issues
    - Sales and marketing strategies



**PROPEL**<sup>SM</sup>

# Entrepreneur Activities

- CEO Roundtables
  - Quarterly targeted networking dinners for life sciences entrepreneurs and business professionals
  - Expands professional networks, builds community
- SBIR/STTR Grant Writing Workshop
  - Three 2-day comprehensive workshops covering application strategy and submission
  - Focused on life sciences company applications to the National Institutes of Health



# Industry & Education System Alignment

- CAEL study of Illinois life sciences occupations
  - 20 + life sciences organizations participating
  - Result will be a map of life sciences careers from entry level to management with details on:
    - ✓ Job responsibilities
    - ✓ Salary range for each position
    - ✓ Education and experience prerequisites



# K-12 Education Programs

- *TalentSparks! Biotech Conference*, July 14-16, Skokie, IL
  - Teacher professional development workshop in biotechnology
  - 40 high school science teachers from all over the state (currently accepting applications)
- Innovation Talent Project: Bringing real-world science to life in the classroom
  - Industry scientists and high school educators partner to develop industry “challenge” projects that incorporate required science concepts
  - Students develop, validate, and present solutions
  - Demonstrates new NETS innovation learning standards which facilitate learning through team creativity, collaboration, and the use of technology



**Illinois' community colleges are going to be critical to our success.**

**You thus have a big role to play in our efforts to achieve greatness.**

**Thanks for investing the time today to learn more about this opportunity!**

