

Vision for Commercialization

“Bridging the Gap”

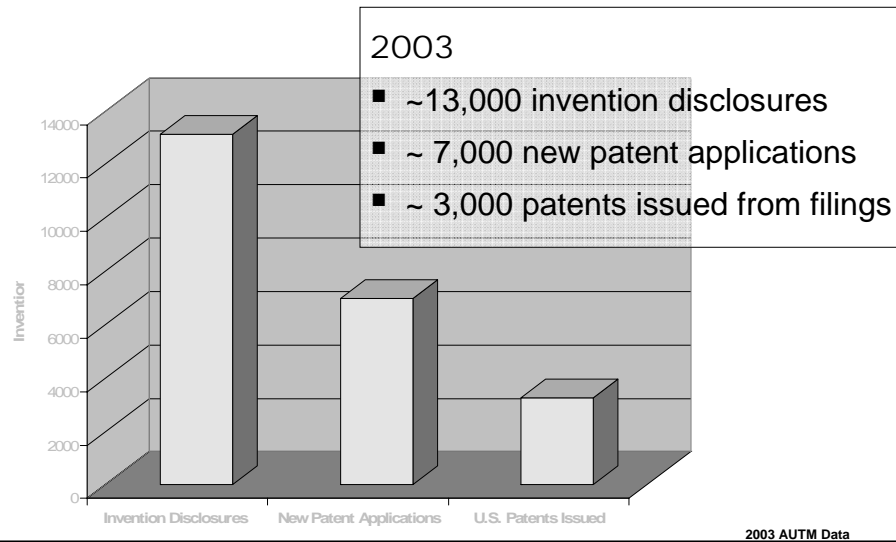
Nancy Patterson, Vice President
Alfred E. Mann Foundation for
Biomedical Engineering

US Technology Transfer 2003

- 153 AUTM reporting US universities in 2003
 - ~21,000 active licenses available for transfer
 - \$32.5 billion total research expenditures
 - \$831 million licensing income received FY03 from ~ 8 thousand licenses yielding income
 - ~ \$100,000/license is generated annually

AUTM = Association of University Technology Managers

1:4 Ratio Annual University Based Disclosures → Issued US Patents



Commercialization of Compelling Ideas

- Innovation fuels entrepreneurial enterprise and is the key to a thriving economy
- As a nation, and even as a world, we are failing to develop and commercialize the majority of promising research.
- Discoveries that could lead to new medical devices, therapeutic drugs, and other life-saving or life-enhancing technologies are languishing within the walls of our universities
- There are endowments from a range of philanthropic entities and foundations targeted to change this social and technical challenge
 - Examples: Whitaker, Kauffman, Beckman, Coulter, Stowers

Alfred E. Mann Foundation for Biomedical Engineering

- \$1 billion non-profit foundation has been endowed by entrepreneur and philanthropist Alfred E. Mann
- Mission is to expedite development of promising new technologies at selected universities to create products that benefit mankind, while generating substantial value for universities and inventors
- 12 universities will be selected, and each will receive a minimum of \$100 million dollars to establish an Alfred E. Mann Institute on their campus
- The Foundation is seeking universities with strong biomedical engineering programs and commitment to interdisciplinary research
- Funded projects at the selected universities will include medical devices, pharmaceuticals and biotechnology

Alfred E. Mann Institute Model

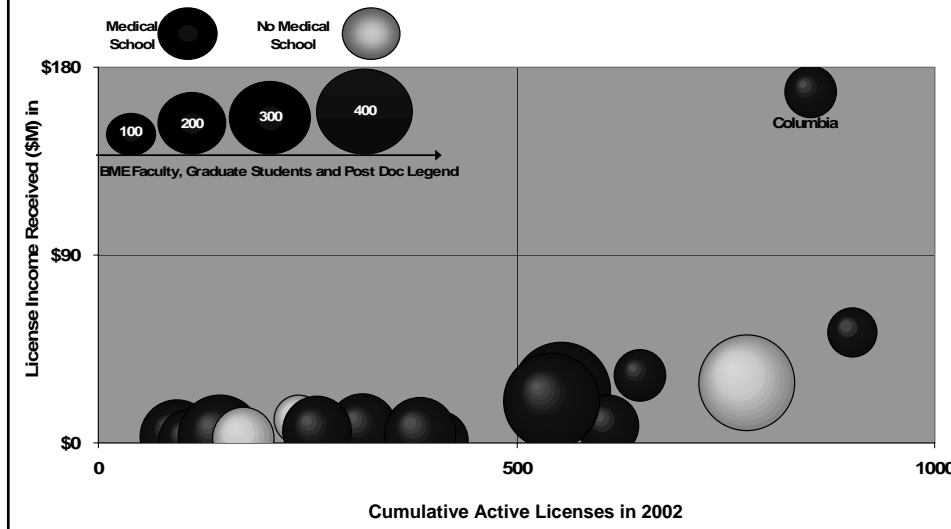
- Following the model of the first Alfred E. Mann Institute at University of Southern California
 - Institutes will operate under affiliation agreements with their universities.
 - Institutes will operate under the umbrella of their university
 - Institutes will function as nonprofit angel investors, shepherding new technologies through the development process
 - Products, developed with undiluted capital, will be commercialized via license agreements or the establishment of new start-up ventures

Robust Due Diligence Process

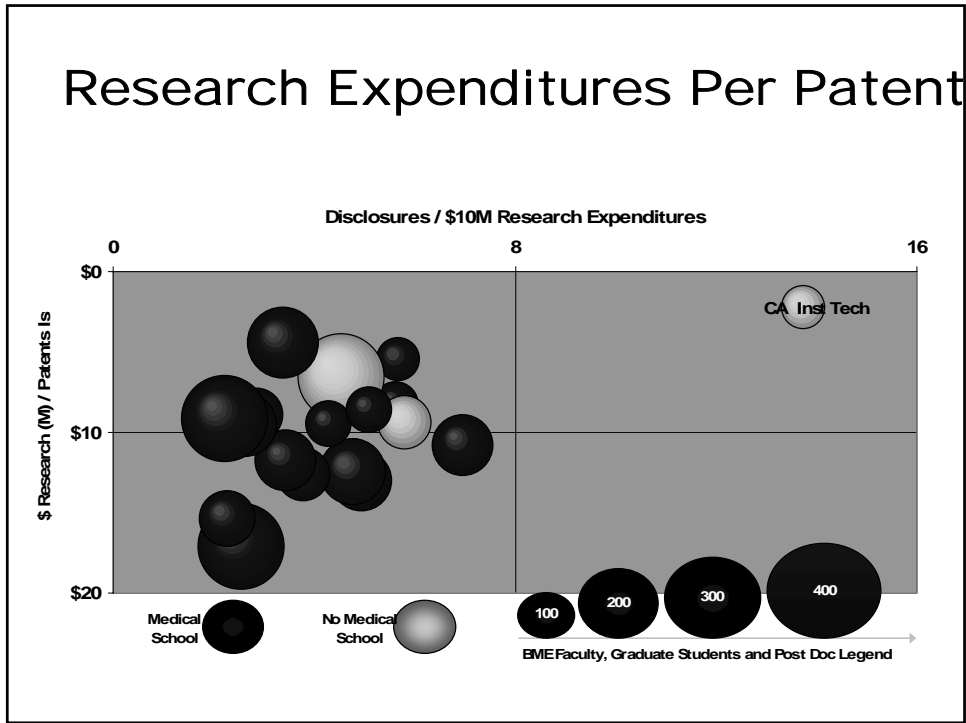
- A nine-member Search Committee has been established with significant experience in a range of scientific and financial areas
- On-going evaluation to select potential partnering universities is in process, with a total of 40 – 45 universities to be identified and evaluated
- Metrics include analysis of the current university “brain trust”, areas of research, collaborative research focus, grants received, technology transfer metrics and a range other points.
- Site visits will be requested as a component of the analysis

Examples of just a few of the metrics analyzed follows

Cumulative Active Licenses and Income Received



Research Expenditures Per Patent



Faculty Research Areas By University

Institution																Totals	
Tissue Engineering and Biomaterials	11	2	1	5	3	6	4	7		2	3		5	3	5	2	59
Cellular and Molecular Engineering	4	1		4	3	2	3	6	3		4	3	8			2	43
Neuroscience Engineering		3	1	5	2	3	8	5	1		9		4	3	6	1	51
Cardiovascular Engineering	2	1		2	3		4	2	2	1			1	1			19
Orthopedic and Rehabilitation Engineering			1	2	1			3					1		6	1	15
Biomechanics and Fluidics		2	4	2	1	1		4	2	1	4	3	3	3	1		31
Systems Biology and Bioinformatics	3	3	1	2	2		3		1		10	3	2				30
Biomedical Imaging and Optics	8	3	2	7	9	2	1	2	1	1	2	2	3	4	6	6	59
Device Design: Nano to Macro Scale and BioMEMS	3	2	2	1	1	2			2	1	1	4	4		1	2	26
Other		2	1	1		2								1	5	2	14
Total Faculty	31	19	13	31	25	18	23	29	12	6	33	15	31	15	30	16	347

■ Highest number of faculty □ Second highest number of faculty

Insight Into Project Selection

- Overview of the technology selection analysis process for funding within an Alfred E. Mann Institute
- A university-based faculty develops a project development plan that includes a business analysis
- Resources at the Alfred E. Mann Foundation assist especially with the market and competitive analysis
- University-based researcher, as the project champion, presents a project overview to the Oversight Board
- Ensure the University is compliant with the concept and strategy

An example of four slides (out of a series) follow to provide a partial overview of the analysis

Technology Description

- What does the technology do?
- What is the projected clinical application?
- One potential competitive advantage
- Another potential competitive advantage

Common questions addressed by this slide:

1. What makes the technology unique?
2. What are the objective and measurable advantages of how this technology is better than other products/alternative methods for solving the problem?
3. How much better is the technology than other solutions?

Market Opportunity

- Estimated market size and market trends
- How will this technology be used?
- Limitations of current treatments
- Results of market analysis with projected customers

Common questions addressed by this slide:

1. How many patients are treated per year?
2. What is the disease or condition incidence and prevalence?
3. What procedures apply to your target market and how many are performed annually?
4. Examples of additional market size facts: expected market growth, treatment costs, etc.
5. What is the benefit of the technology that customers are willing to pay for?

Competitive Position

- Who/what are the current direct or indirect competitors
- What are their market strengths (e.g., annual revenue, breadth of product line existing field sales force and customer service, established distribution channels, etc.)
- What will it take to get customers to change current practice patterns?
- List emerging competitors and their timelines
 - (Emerging competitive technologies are those in development but not available for sale)

Common questions addressed by this slide:

1. How many existing/emerging competitors are there to your technology?
2. Why would this technology be able to compete effectively for the next ten years?

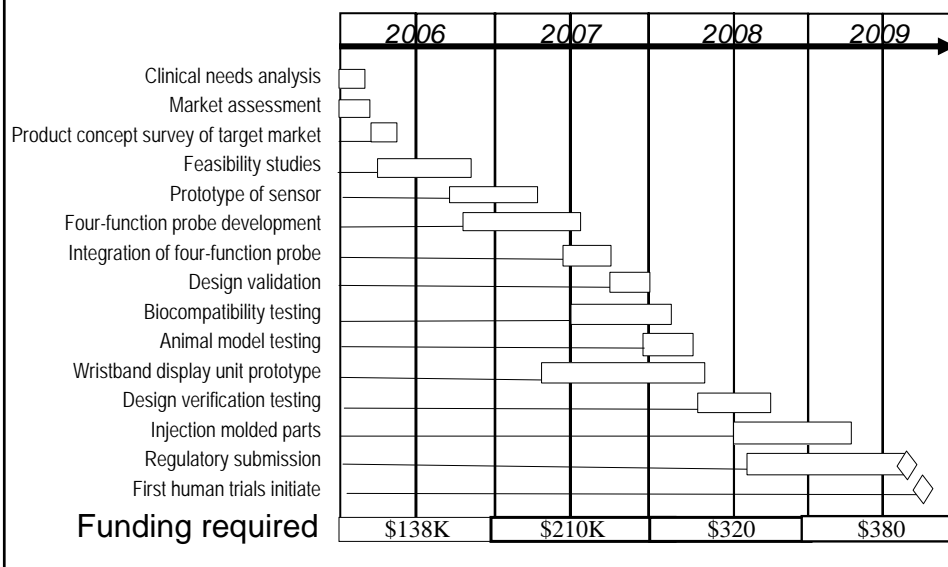
Product Development Tasks

- Outline the product development tasks in very specific detail
- Include the projected timeline to first-in-man
- Identify the needed resources (fiscal and human)
- Include any specific risks that are known

Common issues addressed by this slide:

1. What research has been completed to date to test the hypothesis of the research project?
2. What attempts have been made to solve this medical challenge in the past?
3. What makes you confident that your research may provide a solution to the clinical need?
4. What is the highest risk of product development for this technology?

Example: 48-Month Product Development Plan



12 Alfred E. Mann Institutes

- On-going analysis to select potential partnering universities is in process, with a total of 40 – 45 universities to be identified and evaluated
- 12 universities, with strong biomedical engineering programs and a commitment to interdisciplinary research will be selected, and each will receive a minimum of \$100 million dollars to establish an Alfred E. Mann Institute on their campus
- Institutes will operate under affiliation agreements with their universities
- Medical devices, pharmaceuticals and biotechnology projects will be funded at each Alfred E. Mann Institutes based on an evaluation process
- To initiate a project at an Alfred E. Mann Institute, a university-based faculty member will develop a project development plan that includes a business analysis. Resources at the Alfred E. Mann Foundation will be available to assist in the process.
- Products, developed with undiluted capital will create significant value for universities and inventors