Introduction to Patents and Their Applications

Boston College Office of
Technology Transfer & Licensing

What is a Patent?

- A legal protection which gives an inventor the right to exclude others from performing certain activity in the country of issuance
- Sanctioned monopoly for a set number of years in exchange for disclosure to the public
- Does not give the inventor the right to make, use or sell the patented invention

Why Patent an Invention?

- Source of recognition for the inventor(s)
- Incentive to develop a commercial product
  - License to an existing company
  - Start up a new company
- Protection against imitators

What Can Be Patented?

- **Must be:**
  - Novel: not previously known or used by others
  - Useful: have a known use or produce a concrete and tangible result
  - Non-obvious:
    - Is it obvious to PHOSITA (Person Having Ordinary Skill In The Art)?
    - Can not be found in a single or reasonable combination of patents that would yield a predictable result
- **Can not be:**
  - Idea
  - Law of Nature
  - Scientific Principle

Notable Events in US Patent History

- **1790:** 1st US Patent Act entitled “An act to promote the progress of useful arts”
- **1850:** Introduction of the concept that an invention must be non-obvious as well as new and useful
- **1978:** Patent Cooperation Treaty put into effect; allows single worldwide filing
- **1980:** Bayh-Dole Act – Universities retain title to results of Federally funded research

Publication Vs. Patent

Scholarly Publication

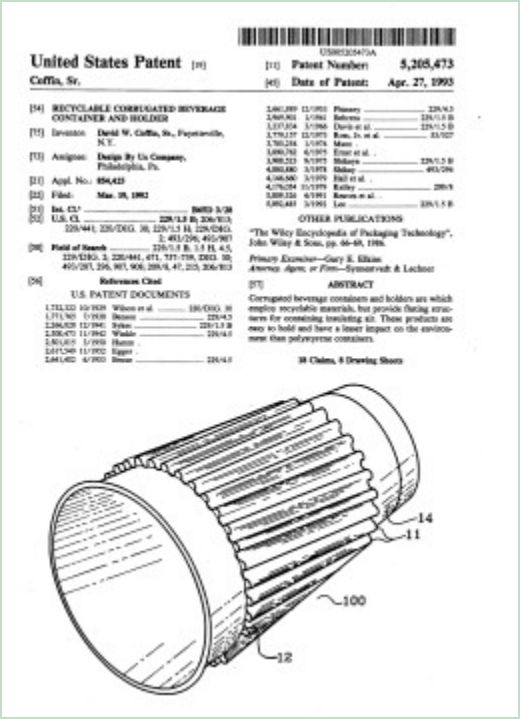
- Authorship somewhat negotiable
- Must have done the work
- Effort paramount
- Future ideas can interfere with subsequent patentability
- Only directly comparable results can lead to loss in priority

Patent

- Inventorship a matter of law
- “Constructive reduction to practice” encouraged
- Conception paramount
- Disclosure of ideas for as many future uses as possible strengthens the patent
- Results from analogous systems can result in prior art and obviousness rejections

What are the Parts of a Patent?

- Abstract
- Background of the Invention
- Summary of the Invention
- Figures with brief descriptions
- Detailed description or “specification”
  - Fully discloses what the invention is
  - How it is made?
  - How it can be used?
- Claim(s): sets the legal boundaries of protection
  - Independent
  - Dependent



United States Patent [19]
Ceffis, Sr.

[11] Patent Number: 5,205,473
[45] Date of Patent: Apr. 27, 1993

[54] RECYCLABLE CORRUGATED BEVERAGE CONTAINER AND HOLDER

[75] Inventor: David W. Ceffis, Sr., Fayetteville, N.Y.

[73] Assignee: Design By Us Company, Philadelphia, Pa.

[21] Appl. No.: 854,423

[22] Filed: Mar. 19, 1992

[51] Int. Cl.[5] B65D 3/20

[52] U.S. Cl. ..... 229/1.5 B; 206/813; 220/441; 220/DIG. 30; 229/1.5 H; 229/DIG. 2; 493/296; 493/987

[58] Field of Search ..... 229/1.5 B, 1.5 H, 4.5, 229/DIG. 2, 220/441, 471, 737-739, DIG. 30; 493/287, 296, 987, 908; 289/4, 47, 215; 206/813

[56] References Cited

U.S. PATENT DOCUMENTS

OTHER PUBLICATIONS

"The Wiley Encyclopedia of Packaging Technology", John Wiley & Sons, pp. 66-69, 1986.

Primary Examiner—Gary E. Elkins
Attorney, Agent, or Firm—Synnestvedt & Lechner

[57] ABSTRACT

Corrugated beverage containers and holders are which employ recyclable materials, but provide fluting structure for containing insulating air. These products are easy to hold and have a lesser impact on the environment than polystyrene containers.

10 Claims, 4 Drawing Sheets

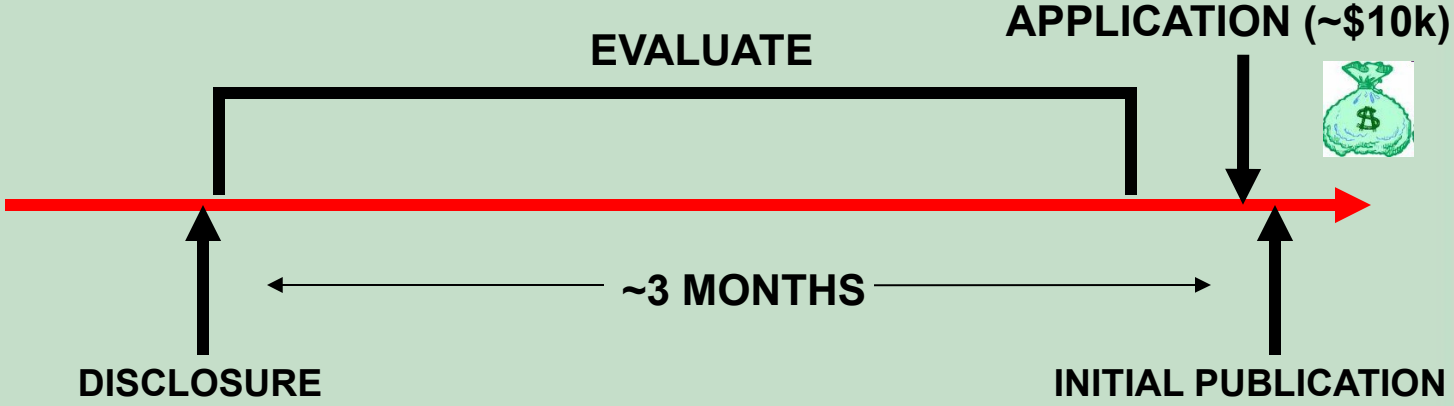
3 Different Types of Patents

- Utility Patent
  - Most common type granted
  - Works to produce a useful result
    - Process (ex. making a new chemical or a new business method)
    - Machine (ex. camera)
    - Article of Manufacture (ex. carpet)
    - Composition of matter (ex. adhesive)
- Plant Patent
  - Distinct & new variety of asexually propagated plant
  - Not by tuber propagation, found in an uncultivated state, or by seeds
  - Can also be protected by a utility patent if it meets those requirements
  - Ex. hybrid rose plant with a novel color
- Design Patent
  - Ornamental appearance of an article of manufacture
  - Design and the applied object are inseparable
  - Can also be protected by a utility patent if it meets those requirements
  - Ex. surface ornamentation of flatware

How Does One Obtain a Patent?

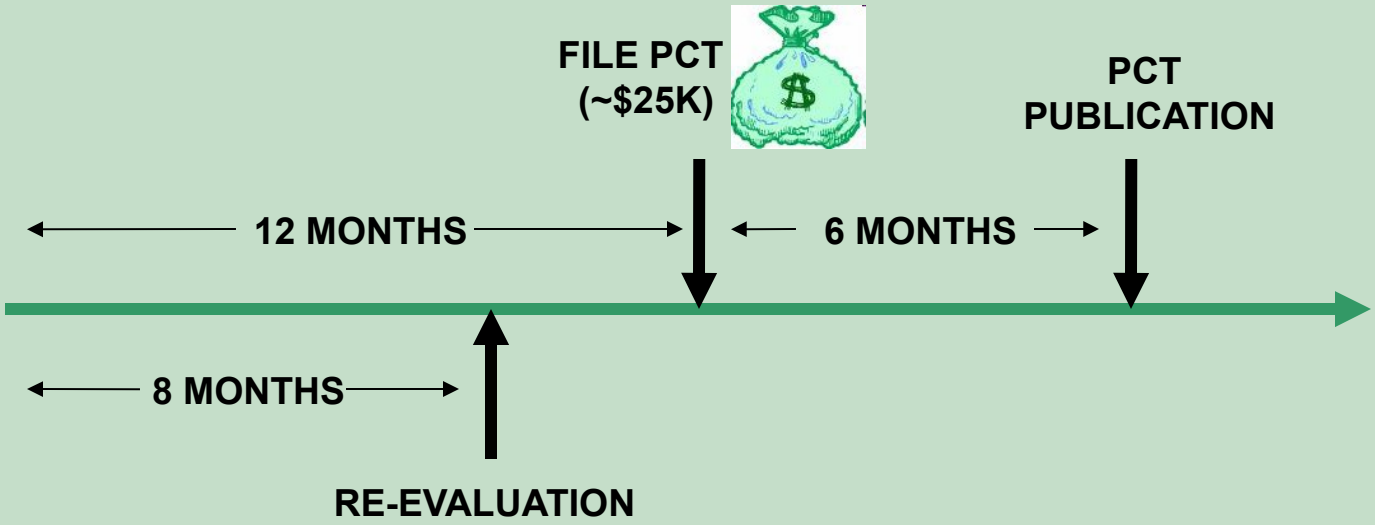
- First assessment for whether or not the invention is patentable AND marketable
- File provisional application (~$10K)
- International (PCT Application) (~$20-30K) – non-binding examination and allows an applicant to postpone the applications for up to 30 months
- US Utility Application (~$20-30K) – binding examination
- Examination rounds and appeals require more time and money
- Total average cost of a US patent: $50K
- Total average time to obtain a US patent: 3-6 years

BC's Approach to Obtaining a Patent & Commercialization



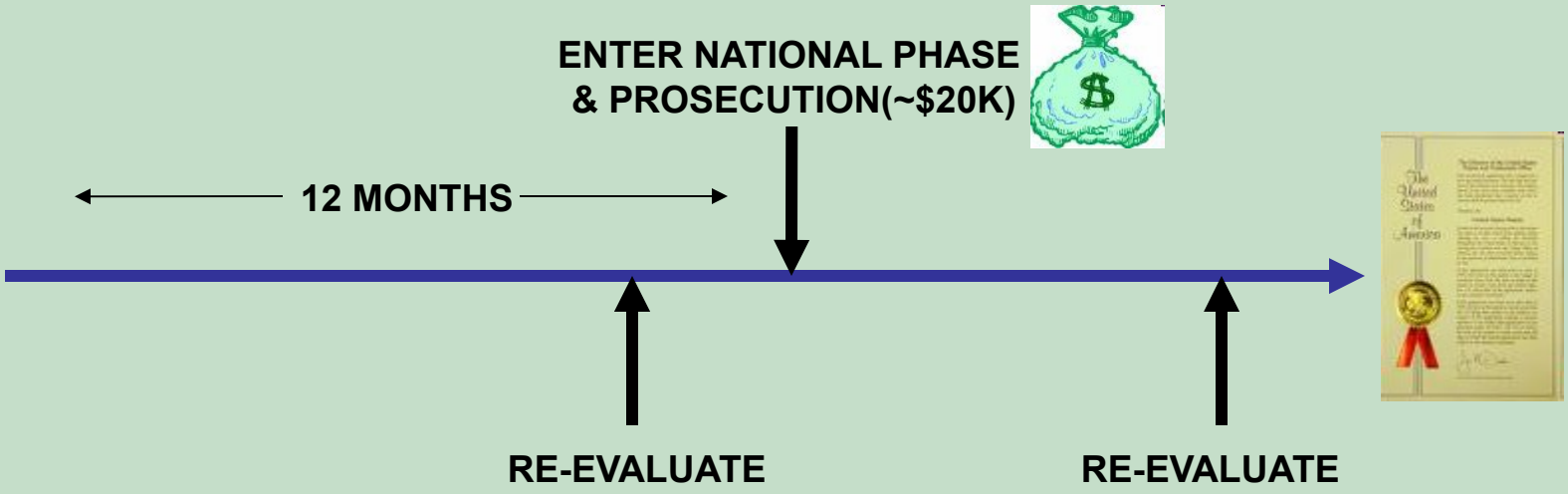
- **Disclosure:** Ideally when you can describe both what the invention is and what it accomplishes
- **Evaluation:**
  - Can this invention be patented?
    - Is there any prior art? Is this invention new, useful, & non-obvious?
  - Is it worthwhile to patent this invention?
    - What product could come from this patent? Is there a market for said product?
- **Provisional application:** Preserves worldwide rights against initial disclosure; gives you 1 year to decide whether or not to pursue patent
- **Initial publication:** If you publish prior to filing a provisional application you lose the rights to file internationally

BC's Approach to Obtaining a Patent & Commercialization



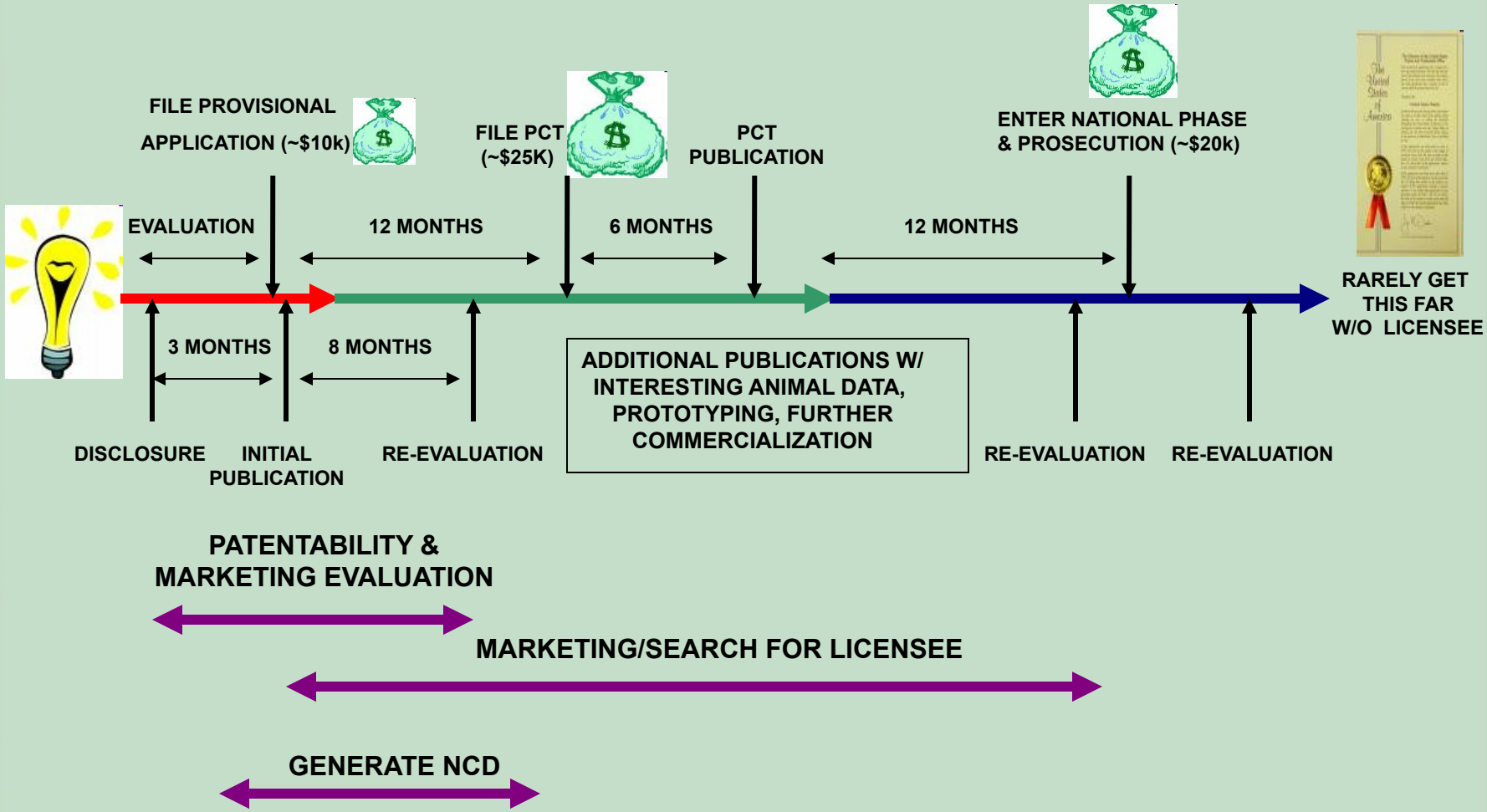
- **Patent Cooperation Treaty (PCT):** an international application which claims priority to a provisional US application & have option for protection for up to 111 countries.
- **Non-confidential disclosure (NCD)** is generated and summarizes the technology as well as the unmet need/opportunity.
- During this phase more **marketing & search for licensee** should be completed. If there is no market or the market is too narrow, then the application may not be pursued past this point.
- After the re-evaluation there may be **additional publications** with interesting animal data, prototyping, or further commercialization

BC's Approach to Obtaining a Patent & Commercialization



- Continuation of marketing/finding a licensee as well as additional publications
- National stage applications with expensive examination rounds
- Rarely get this far in the patent process without a licensee

Overview of Pathway to Commercialization



What are the chances of obtaining a patent?

Figure US-8. New Patent Filings and Invention Disclosures Received, 1992–2006

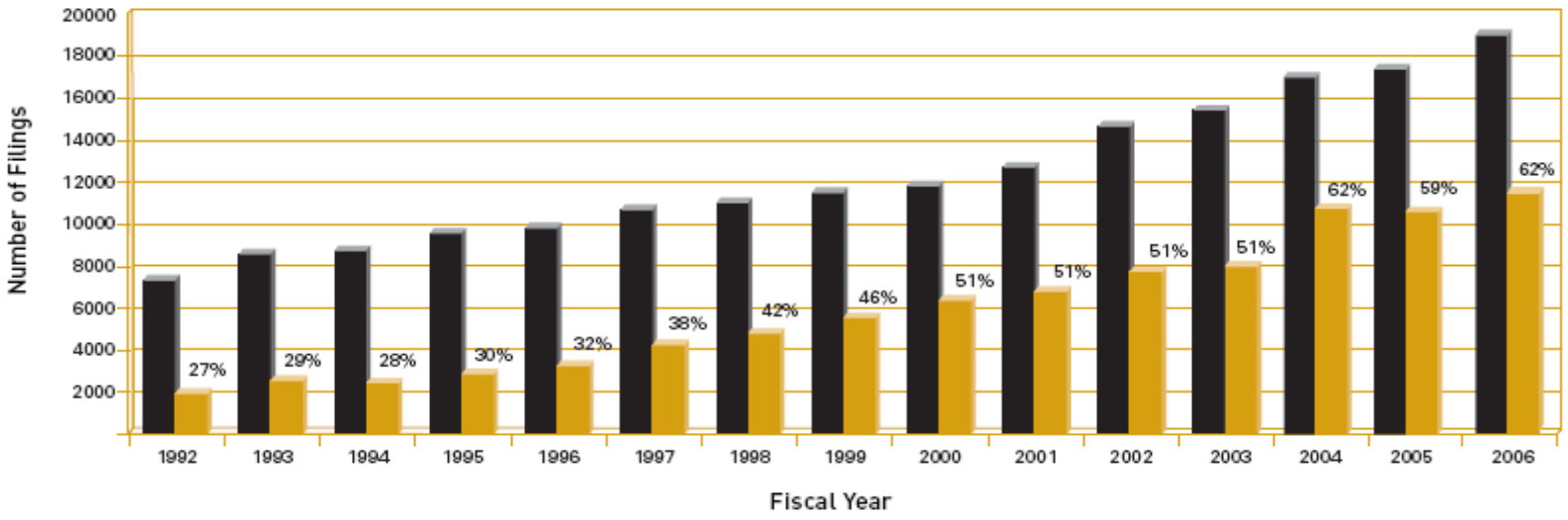


Table US-5. Patent Applications Filed by U.S. Respondents Since 2001

	2001	2002	2003	2004	2005	2006
Number of Respondents	170	189	198	192	191	189
New Patent Applications Filed	6,397	7,319	7,921	10,517	10,270	11,622
Total U.S. Patent Applications Filed	10,687	12,222	13,280	13,803	14,757	15,908
U.S. Patents Issued	3,559	3,501	3,933	3,680	3,278	3,255

Source: AUTM 2006 survey

What are the chances of licensing a patent?

Table US-7. Licenses Executed by U.S. Respondents in 2006: Exclusive vs. Nonexclusive

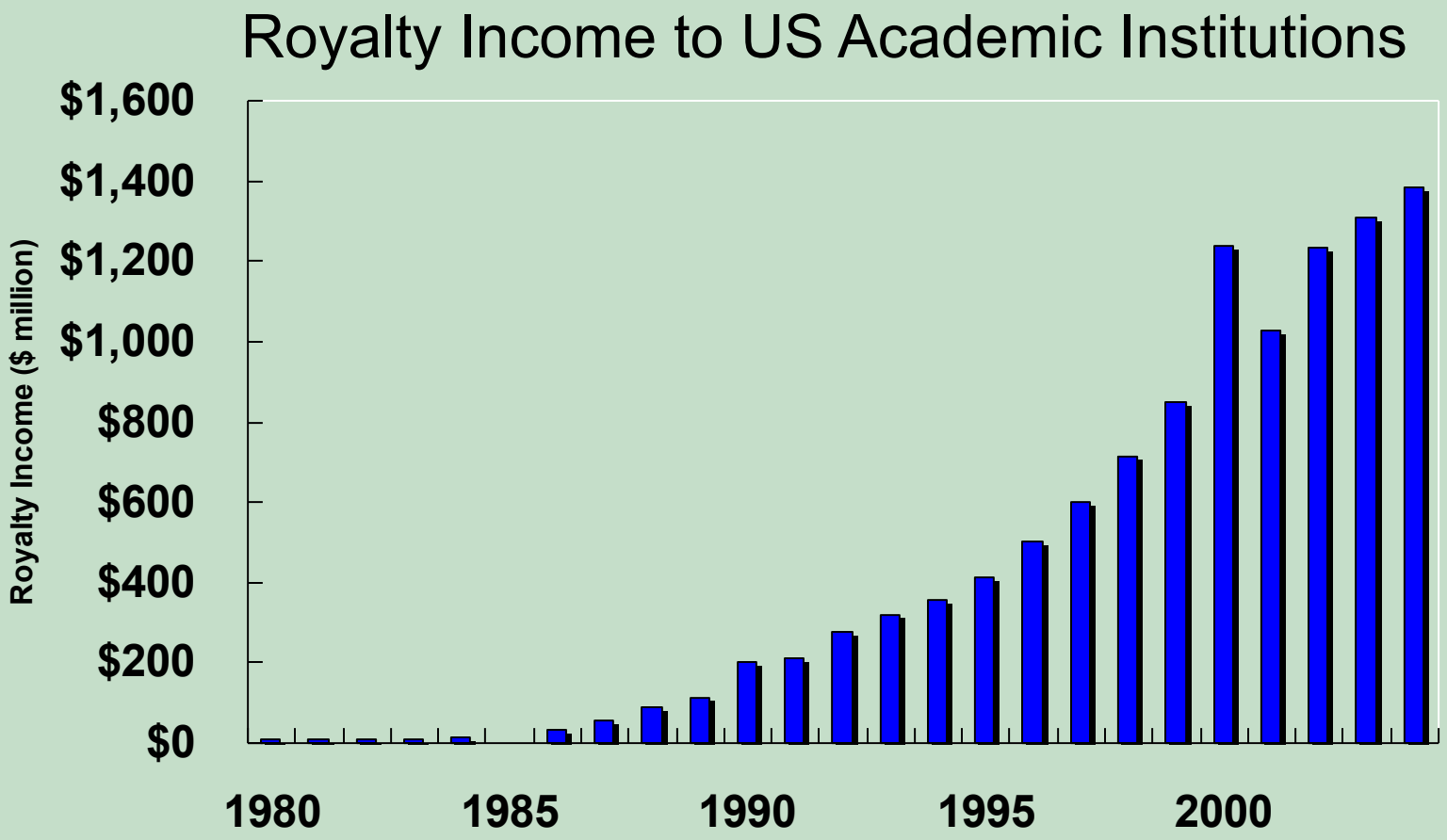
		Licenses and Options Executed				
FY 2006	Number of Respondents	Total Executed	Exclusive	Exclusive % of Total	Nonexclusive	Nonexclusive % of Total
U.S. Universities	161	4,192	1622	39%	2,570	61%
U.S. Hospitals & Research Institutions	28	755	208	28%	547	72%
Technology Investment Firms	1	16	2	12.5%	14	87.5%
All U.S. Respondents	190	4,963	1,832	37%	3,131	63%

Table US-8. Exclusivity of Licenses and Options Executed by U.S. Respondents in 2006 by Type of Licensee Company

		Licenses and Options Executed						
			Startups		Small Companies		Large Companies	
FY 2006	Number of Respondents	Total	Exclusive	Non-exclusive	Exclusive	Non-exclusive	Exclusive	Non-exclusive
U.S. Universities	161	4,192	638	60	947	1,180	466	859
U.S. Hospitals & Research Institutions	28	755	57	9	108	181	95	226
Technology Investment Firms	1	16	N/A	N/A	N/A	N/A	N/A	N/A
All U.S. Respondents	190	4,963	695	69	1055	1,361	561	1,085

Source: AUTM 2006 survey

How much money can be generated by a patent license?



Source: A. Stevens, les Nouvelles, 38, 133-140, September 2003; AUTM Annual Survey

Examples of Successful University Patents

- Gatorade & U. of Florida: more than $94 million in royalties since 1973
- Google & Stanford: could earn more than $200 million depending on how the stock performs
- Remicade & NYU: $650 million deal with Royalty Pharma in May 2007

Boston College's Commercialized Patents

- ChiroTech: exclusive patent license - catalysts for asymmetric olefin metathesis 1999; collaboration with MIT
- Solasta Inc: thin solar technology, company founded in 2006
- GMZ Energy: nanotechnology based materials, collaboration with MIT, patent granted in 2007

Resources

- For More Background Information:
  - www.autm.net
  - http://www.ladas.com/Patents/USPatentHistory.html
  - http://www.bitlaw.com/patent/requirements.html
  - http://www.columbia.edu/cu/ogc/practice_areas/patent_lic.htm
- To Search for Patents:
  - www.uspto.gov
  - www.google.com/patents
  - http://www.wipo.int/pctdb/en/