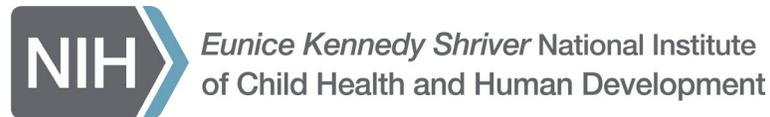


Fostering Innovative Science via Technology Transfer

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Patents before 1980: Pre Bayh-Dole Act

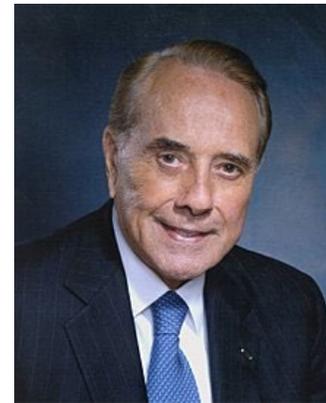
- Federally funded research:
 - ~28,000 patents owned by Government
 - Provided non-exclusive licenses to any interested party
- Resulting Societal Impact:
 - 0 drugs developed by research institutes
 - Low pharmaceutical company priority
 - Technology Transfer: low impact



Bayh-Dole Act - 1980

What did it do?

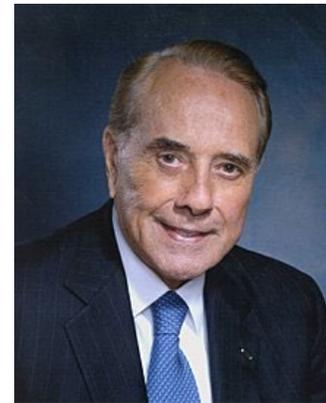
- Uniform patent policy - federally funded recipients retain ownership of inventions
- University responsibility for commercialization – how would they do it?



Bayh-Dole Act - 1980

Impact:

- 2013: 153 new drugs/vaccines developed via federal funding
- Examples include:
 - Synthetic penicillin, Hepatitis B vaccine, Citracal calcium supplement, Cancer therapeutics, Human growth hormones, Treatments for Crohn's disease, Avian Flu vaccine, Clean water technologies



Tech Transfer offices – Translational Resource

Goal: Get new Products on Market

- Establish innovative climate
 - Champion current faculty
 - Attract/retain world-class faculty
- Public Benefits
 - Convert discoveries into products/services
- Strategic partnerships
 - Private sector engagement
- Economic development
 - Think globally act locally

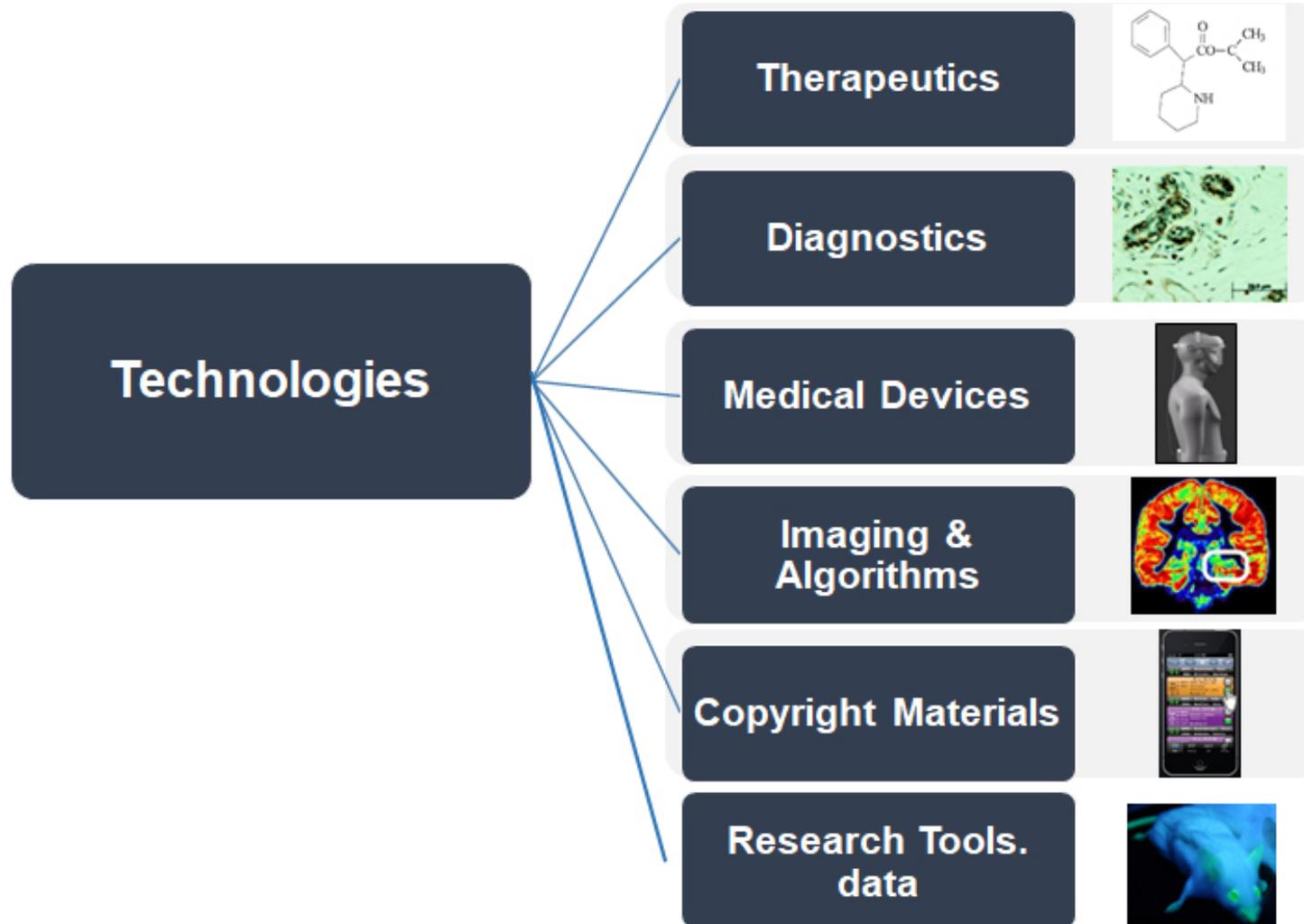


A Common Arrangement: Know your Rights

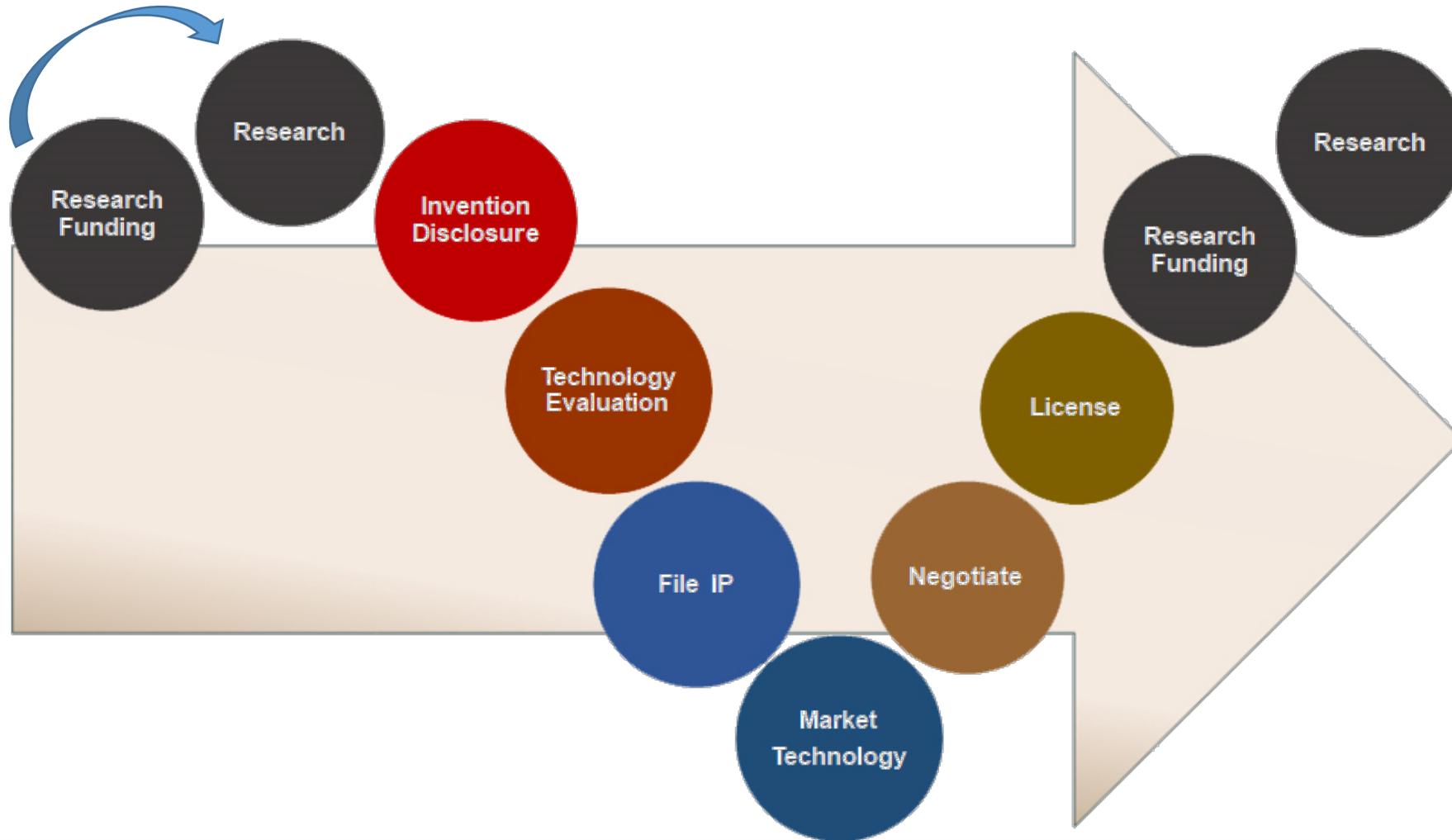
- Ownership of ideas
 - Condition of employment, studentship, and/or resource usage
- Requirements:
 - Employees and Students must disclose Intellectual property
 - Ownership is then determined
 - Traditional academic copyrights owned by author(s)
- Revenue from licensing IP shared with Inventors



What interests Tech Transfer?



When to engage Tech Transfer: shepherding innovation



When would one want Copyright Protection

- Creator granted legal rights for:
 - Exclusive copying
 - Preparing derivative works
 - Distributing, performing
 - Displaying and transmitting copyrighted work
- Author granted legal right for exclusive use on expression of an idea
 - Specific expression of words, design or other form
 - Allows for multiple expressions to be available for same idea



Copyright Protection Length

- Vests immediately © upon fixation
- Lasts the lifetime of author plus 70 years
 - 120 years for a work made for hire
- Copyright infringement: when exclusive right granted to creator is carried out by someone else without permission



Copyright Benefits/Detractors

Pros

- Automatic rights
- Easy and relatively cheap registration and fees
- Provides right to control exclusive rights, such as reproduction, distribution, and derivation

Cons

- Copyright protects expressions of idea, not idea per se
- Expensive to enforce



Example: Duck, Duck, Punch



- © protection
- Stroke rehabilitation game
- Dissertation project
- FDA approved



Know How

Distinct and unique body of knowledge

- Capitalizing on know-how “is still a bit of black magic,” says **Dipanjan “DJ” Nag**, a director at intellectual capital equity firm Ocean Tomo. “It’s very hard to define exactly what know-how is.” Nag defines it as **trade secrets** and unfiled patents. Other technology transfer experts believe source code and research notes on software also would fall under the “know-how” umbrella.
- <https://techtransfercentral.com/reprints/ttt/1207-licensing-your-know-how/>
- Usually a high hurdle for replication



Know-How: Benefits and Detractors

- **Pros**

- Unlimited duration
- Worldwide protection
- No application required and no registration costs
- Effective immediately

- **Cons**

- Not easily enforceable
- Not effective when reverse engineering possible



Do Research Tools Qualify as Know-How?

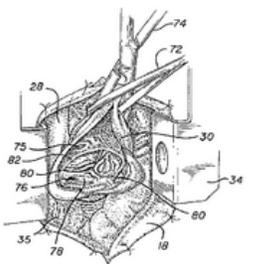


- Knock-out mice
- Cell lines
- Reagents



Patents

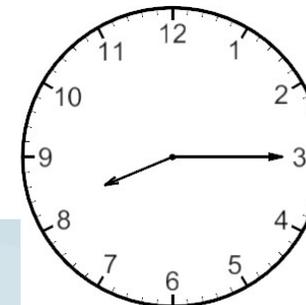
(12) United States Patent		(10) Patent No.: US 6,182,664 B1
Cosgrove		(45) Date of Patent: *Feb. 6, 2001
<p>(54) MINIMALLY INVASIVE CARDIAC VALVE SURGERY PROCEDURE</p> <p>(75) Inventor: Delos M. Cosgrove, Hunting Valley, OH (US)</p> <p>(73) Assignee: Edwards Lifesciences Corporation, Irvine, CA (US)</p> <p>(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).</p> <p>Under 35 U.S.C. 154(b), the term of this patent shall be extended for 0 days.</p> <p>(21) Appl. No.: 08/801,494</p> <p>(22) Filed: Feb. 18, 1997</p> <p>Related U.S. Application Data</p> <p>(63) Continuation-in-part of application No. 08/603,313, filed on Feb. 19, 1996, now Pat. No. 5,752,526.</p> <p>(51) Int. Cl.: A61B 19/00</p> <p>(52) U.S. Cl.: 128/898; 623/902; 623/914; 623/918; 623/922</p> <p>(58) Field of Search: 607/122, 126; 128/898; 604/19, 28, 49; 623/1, 2, 3, 1, 26, 2,1, 3,1, 902, 904, 915, 921, 922, FOR 101</p> <p>(56) References Cited</p> <p>U.S. PATENT DOCUMENTS</p> <p>Re. 35,352 10/1996 Peters 607/122 4,351,345 * 9/1982 Carney 607/122</p> <p>(List continued on next page.)</p> <p>FOREIGN PATENT DOCUMENTS</p> <p>WO 93/01768 2/1993 (WO)</p>		
		<p>WO 93/18712 9/1993 (WO)</p> <p>WO 94/18881 9/1994 (WO)</p> <p>WO 95/18364 3/1995 (WO)</p> <p>WO 95/10218 4/1995 (WO)</p> <p>WO 95/15192 6/1995 (WO)</p> <p>WO 95/15715 6/1995 (WO)</p> <p>WO 95/17919 7/1995 (WO)</p> <p>WO 95/21573 8/1995 (WO)</p> <p>WO 95/24040 9/1995 (WO)</p> <p>WO 96/00033 1/1996 (WO)</p> <p>WO 96/17644 6/1996 (WO)</p> <p>WO 96/21469 7/1996 (WO)</p> <p>WO 96/30073 7/1996 (WO)</p> <p>WO 96/32882 10/1996 (WO)</p> <p>WO 97/20506 6/1997 (WO)</p>
		<p>OTHER PUBLICATIONS</p> <p>J. Card Surg., 1995, 1995, 10:529-536, M. Clive Robinson, MD et al.; "Minimally Invasive Coronary Artery Bypass Grafting: A New Method Using an Anterior Mediastotomy".</p> <p>(List continued on next page.)</p> <p>Primary Examiner—V. Millin Assistant Examiner—Kelley O'Hara (74) Attorney, Agent, or Firm—James W. Inskip; Guy L. Cumberbatch; Debra D. Coadino</p> <p>ABSTRACT</p> <p>(57) A minimally invasive approach for surgery on portions of the heart and great vessels located between a point approximately three centimeters above supra annular ridge and the mid ventricular cavity. A parasternal incision is made extending across a predetermined number of costal cartilage, e.g., a right parasternal incision extending from the lower edge of the second costal cartilage to the superior edge of the fifth costal cartilage. One or more costal cartilages, e.g., the third and fourth, are then excised to provide access to the portion of the heart or great vessels of interest, and a desired procedure completed. The minimally invasive approach enables repair or replacement of the mitral or aortic valve.</p>
		<p>24 Claims, 17 Drawing Sheets</p>



- Power to prevent others from:
 - Making
 - Using
 - Selling
- the invention in country of patent
- Patents reward risk & fosters innovation
- Invention description crucial - know how to make & use it
 - Community gains knowledge in trade for inventor to have a limited period of exclusivity
- Last 20 years
- Can be designed around
- Does NOT give you the right to make/use/sell yourself (Freedom-to-operate)

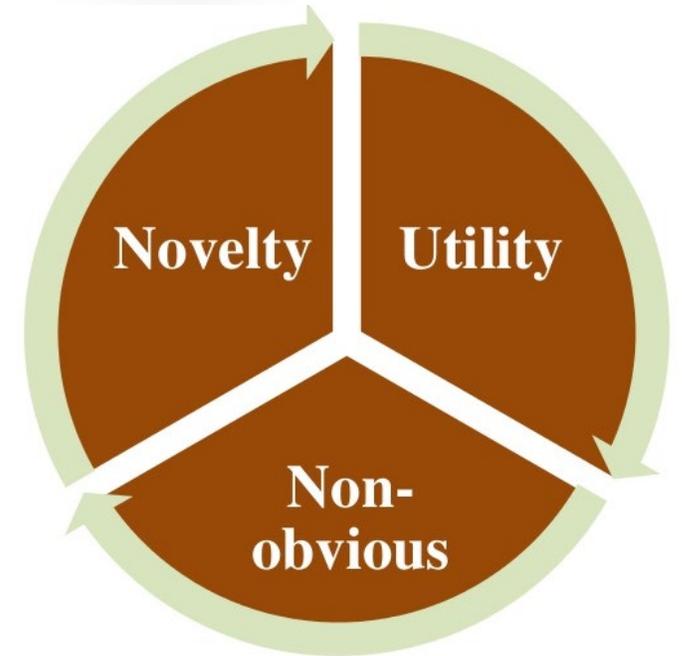
Cost and Time Associated with Patents

Typical Patent Process Activity	Money	Timeframe
Provisional Patent Filing	\$1k to \$5k	12 months
U.S. Utility Filing	~\$20k	30 months
International Filings	>\$100k	N/A
Issuance of patent claims and Maintaining applications	\$\$ to \$\$\$\$	2.5 to 4.5 + years
Defending patents and stopping infringers	\$\$\$ to \$\$\$\$\$	N/A



USPTO Patent Analysis

- PRIOR ART.—A person shall be entitled to a patent unless—(1) the claimed invention was patented, described in a printed publication, present in a patent application, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention;
- **In other words, any public disclosure from the inventor or otherwise before the patent is filed!**



Prior Art: Public Disclosures- Publish or Perish Problem in Academia

- Manuscripts, public presentations(internal or external), dissertations, posters in public places
- Grant abstracts for awarded federal grants are public disclosures
- Public uses and sales



Patent: Benefits and Detractors

Pros

- Effective Tool against infringers
- Product credibility
- Helps gather investments
 - Critical for high risk ventures, e.g., medical device and drug development
- 20 years of protection
- Others must be granted permission to use through licensing

Cons

- High cost, lengthy patent process
- Invention must be fully disclosed
- Litigation cost high



Tech. Transfer helps you, help people

- Bayh-Dole Act: Modernized Patent Policy
- Tech Transfer - Enabling innovation
 - Culture
 - Climate
 - Think globally, act locally
- Provide mechanism to commercialize your ideas to help people



Now, it's your turn

- Gratitude and Appreciations
 - Scott Davis, Ph.D., Patent Agent
 - Christine Dixon-Thiesing
 - Daniel, S. Johnston, Ph.D.

