

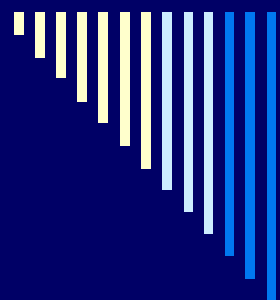
Commercialization of University Technology

Patents, Patentability and Benefits

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What's An Invention?

Conception

+

Reduction to Practice =

Invention



Who's An Inventor?

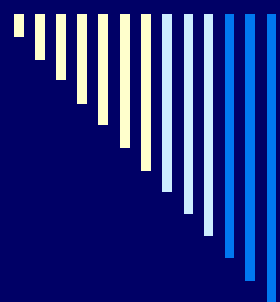
- ❑ Inventorship cannot be determined until the patent application **claims** are drafted.
 - ❑ Inventor is one who contributes significantly to either the conception or reduction to practice of a claim.
 - ❑ Co-author does not necessarily mean co-inventor.
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What is patentable?

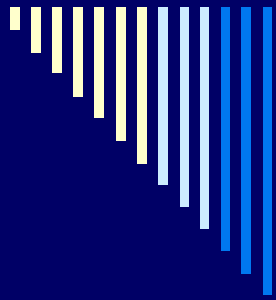
The Supreme Court has said that patents cover “anything under the sun that is made by man.”

Diamond v. Chakrabarty, 447 U.S. 303 (1980)
(genetically-engineered bacteria that broke down crude oil)



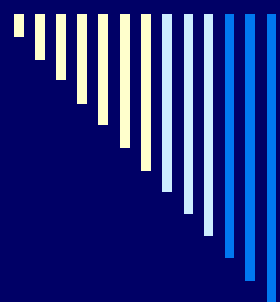
Patentable Subject Matter U.S.

- 1) New compounds: chemical entities, including new intermediates, certain new salts, enantiomers and polymorphs.
- 2) Methods of making new compounds or compositions.
- 3) Methods of treatment, diagnosis etc using new compounds.
- 4) New methods of making both old and new compounds.
- 5) New compositions, possibly containing known compounds but in different dosage amounts or forms.
- 6) New methods of treatment, diagnosis etc. using old or new compounds.



Patentable Subject Matter U.S.

- 7) New methods of modulating biochemical processes which are carried out in a human, animal or plant.
- 8) New kits, e.g. containing a new combination of materials or of materials and equipment used for diagnosis or treatment.
- 9) Newly identified DNA and RNA when claimed in a form that differs from naturally occurring form (i.e. claimed as purified or isolated form). Newly created synthetic DNA or RNA is treated as a new chemical compound.
- 10) New organisms and parts of organisms such as seeds, for example those containing modified DNA.
- 11) New vaccines.
- 12) New vectors, such as plasmids, new hybridomas and new antibodies.
- 13) New research techniques and in some cases at least the products obtained from using these techniques



Unpatentable Subject Matter U.S.

- Abstract ideas and laws of nature
- Newly discovered natural and physical phenomena
- Examples:
 - Mere algorithms or equations lacking concrete (e.g. business) utility or result
 - Naturally occurring siRNA molecules



Patentability Tests

What are the “patentability tests?”

- I. Usefulness – 35 U.S.C. § 101.
- II. Novelty – 35 U.S.C. § 102.
- III. Non-Obviousness – 35 U.S.C. § 103.



Patentability Tests

I. Usefulness/Utility

Does the invention really *do* anything and, if so, does it solve the problem it is designed to solve?



Patentability Tests

II. Novelty

Is the claimed invention disclosed anywhere in prior publications?



Patentability Tests

III. Non-Obviousness

Even if new and novel,
would the claimed invention
have been obvious to one
skilled in the art at the time
of the invention?



– STOP –

Do Not Do Any of the Following:

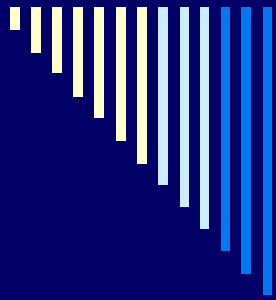
- ☠ Display or discuss the invention at a seminar, lecture, workshop, poster presentation or trade show open to the public, OR
- ☠ Disclose the invention without a signed Confidentiality (or Non-Disclosure) Agreement, OR



Do Not :

- ☠ Disclose the invention on inventor's or University's web site, OR
- ☠ Submit an article to a journal for publication, OR
- ☠ Publish a manuscript, letter, note or chapter in format available to the public, OR

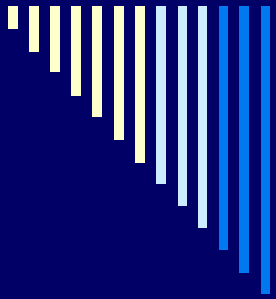




Do Not:

- ☠ Offer for sale or sell the invention, OR
- ☠ Distribute samples of the product to customers or collaborator, OR
- ☠ Consumer or market test a new product, OR

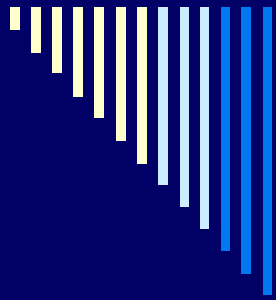




Do Not:

- ☠ Distribute advertising brochures about the invention, OR
- ☠ Demonstrate a prototype to a public group.

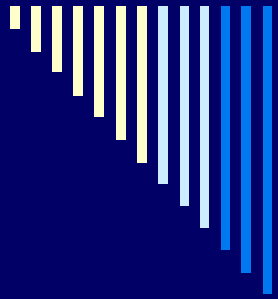




Why Not?

□ AVOID:

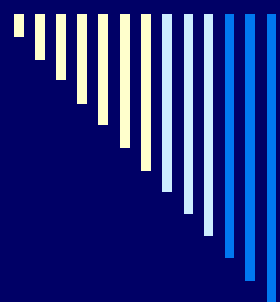
**Unnecessary loss of patent rights
in U.S. or abroad due to public
disclosure including public use, sale
or publication of otherwise patentable
technology**



Bayh-Dole Act

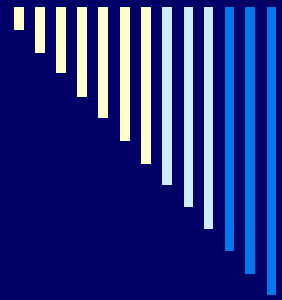
- Basic “Technology Transfer” Legislation
 - University takes title to inventions made through federally funded research
 - May issue exclusive licenses

- University is obligated to commercialize
 - Small business preference
 - Job creation & economic development focus
 - Revenue received
 - Share portion with inventors
 - Remainder goes into research



University Strategies

- ❑ Primary objective is technology transfer, not to maximize income
- ❑ Leverage intellectual property
- ❑ License exclusively
- ❑ Don't let greed obstruct license agreement
- ❑ Modest royalties geared to product success



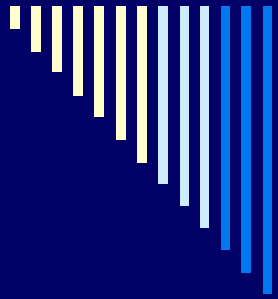
Environmental Success Factors

- ❑ Informed Inventors
- ❑ Strong tech transfer program, clear policies
- ❑ Financial – seed, angel, venture capital
- ❑ Contract services – design, prototype, manufacture
- ❑ Supportive culture – entrepreneur network, venture capital network, start-up clinics
- ❑ Legal services – low cost, mentoring



License Agreement Factors

- Given a potential licensee, tailor terms to fit
 - Shared risk
 - Low initial fees
 - Equity in partial-lieu of royalty
 - Modest royalty rates
 - Diligence provisions
 - Investment, personnel, milestones (development and sales), sublicensing requirements
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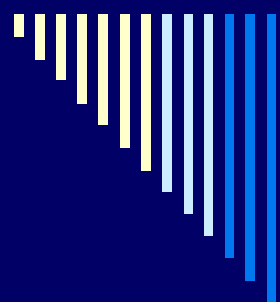
Incentives for University

- Follow-on technology development
- Institutional recognition
- Additional sponsored research
- Royalty income
 - Recover patent costs
 - License issue fees
 - Royalty income
 - Equity
- Employment for graduates
- Local economic development
- Political support: local, regional, national



Incentives for Inventors

- Invention becomes product
 - Opportunity to consult
 - Equity position in start-up
 - Inventor wants company to succeed
 - Royalty income
 - Inventor wants product to succeed
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Incentives for Companies

- Source of new technology
- Lower cost product development
- Patent position – exclusivity
- Easier to raise investment capital
- Shorter time-to-market
- Low-cost access to technical expert



Conclusions

- ❑ Commercialization of technology increasingly demanded by funding sources and public
 - ❑ Universities responding by enhancing Tech Transfer
 - ❑ Patent protection promotes commercialization
 - ❑ Patenting and Tech Transfer form powerful engine of economic development
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