



THE UNIVERSITY OF  
**TOLEDO**

# University IP & Technology Transfer

**Syed Kashif Haque, MS, MD**

Patent Technology Associate

March 25, 2019



# What is Common in All of the Following?

- Nicotine patch
- Allegra®
- Taxol®
- Warfarin®
- Insulin
- Periodic table
- Flu shots
- CAT Scan
- MRI
- Gardasil & Cerverix
- Sovaldi (HepC)



# How About?

- Retractable Seat Belts
- Liquid Crystal Display
- Solar power
- Rocket fuel
- Web browser
- Google
- Facebook
- Gatorade
- Plexiglass
- GPS
- Internet

## 11 Important Innovations That Came From University Research



### Seat Belt

The first modern version was developed at Cornell University.



### Gatorade

Researchers at the University of Florida developed this drink for their athletes.



### CAT Scan

The CAT scan was patented by a researcher at Georgetown in the 1970s.



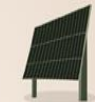
### The Internet

Numerous research innovations at universities have helped make the Internet what it is today.



### Flu Shots

The vaccine comes from research done at the University of Rochester.



### Solar Power

Some of the earliest applications of solar power in housing were pioneered at MIT.



### Periodic Table

The first version of the periodic table was created by a professor at Saint Petersburg University.



### Chemotherapy Drugs

A number of these drugs were developed at various universities.



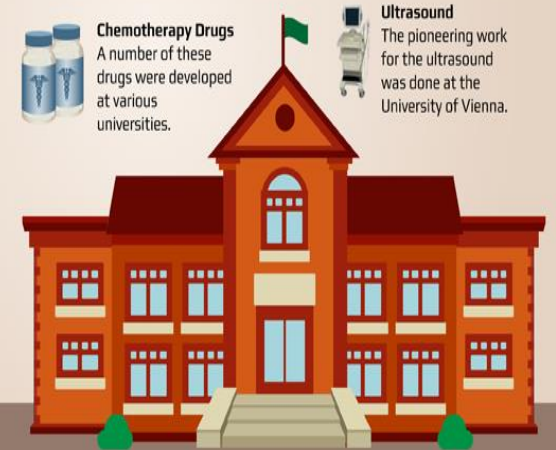
### Ultrasound

The pioneering work for the ultrasound was done at the University of Vienna.



### Rocket Fuel

Robert Goddard created the first liquid-fueled rocket while at Clark University.



Sources: en.wikipedia.org | wou.edu | history.com | boston.com | genesis-ultrasound.com | nytimes.com | gatorade.com | inventors.about.com

Source: OnlineUniversities.com  
[\(https://www.onlineuniversities.com/blog/2012/08/100-important-innovations-that-came-from-university-research/\)](https://www.onlineuniversities.com/blog/2012/08/100-important-innovations-that-came-from-university-research/)



# University Inventors

- Contribute to Saving Lives
- Enhance the Quality of Life
- Increase economic productivity
- Help create totally new industries and business enterprises



# UT Mission

- **The University of Toledo is a national, public research university where students obtain a world class education**
- **Become a part of a diverse community of leaders**
- **Committed to improving the human condition in the region and the world**



# UT Vision

- **The University of Toledo will be a nationally ranked public research university**
- **With internationally recognized expertise and exceptional strength in discovery, teaching, clinical practice, and service.**



# What If?



- Someone at UT develops something novel with commercial potential?
- Office of Technology Transfer works with you to help secure the Intellectual Property rights to the invention and transfer the technology.



# What is Technology Transfer?

- Process of transferring discoveries and innovations resulting from university research to the commercial sector.
- Technology transfer is part of the mandate for research institutions.
- The process of commercializing academic technology is accomplished predominantly by licensing intellectual property (IP); usually in the form of
  - Patents,
  - Copyrights, and
  - Trademarksto companies that have the desire and resources to further develop products and the technology for specific applications
- Can also involve formation and successful development of University spin-off businesses



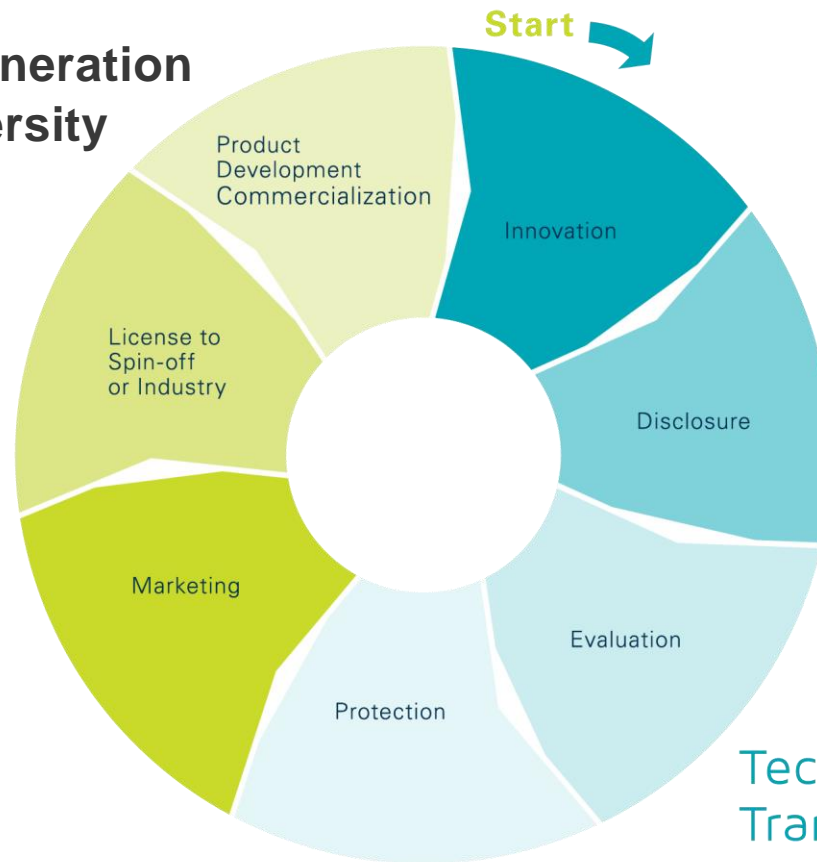
# Technology Transfer Office

- We work with faculty, staff, and students to:
  - Identify novel technologies
  - Protect IP through patents or copyrights
  - Identify potential firms to help commercialize and develop the intellectual property, and
  - Market the technology
  - License the technology
- The ultimate goal is to license the technology to a company and find ways to commercialize research so that this invention is in the best position to become a commercial product.



# Tech Transfer Process

**Royalty generation  
from university  
innovation**



**Identifying IP to  
protect**

**Diffusion of innovation &  
transfer of technology from  
university labs to marketplace**



# Why Disclose to TTO?

There are several reasons:

1. Disclosure to the Technology Transfer Office starts a process of protecting and commercializing the innovation which provides the greatest opportunity for the innovation to be used in practice for the public good.
2. The same process provides the greatest opportunities for the innovation to generate revenue to be shared among the innovator(s) as well as the University.
3. Employees of University of Toledo are required as a condition of employment or matriculation to disclose their inventions or discoveries.
4. Federal reporting requirements for researchers and universities, as per Bayh-Dole, need to report to federal agency funding research





# UT Tech Transfer Statistics

- 349 Invention Disclosures\*
- 141 Issued Patents (92 U.S. and 49 International)\*
- 68 licenses and/or option agreements\*
- 10 start-up companies\*
- Ranked among the top 100 universities in the world for patents issued in 2017, by the National Academy of Inventors.
- UT was ranked among the top 75 universities for technology transfer and commercialization in 2017, by the Miliken Institute.
- This 2017 report measures public and private research universities' four-year averages of research expenditures, patents, licenses executed, licensing income and startup companies.

\* FY '13-'17



# University Policy

- Recognizing that time is of the essence in the protection of the legal interests of both the University and its employees in their inventions, it shall be the duty of each employee to:
  - Report in writing to the Universities all patentable inventions resulting from research or investigations. Such report shall include all the information requested in a standard Invention Disclosure Form (IDF)
  - Cooperate with agents to enable the evaluation and disposition of the submitted invention.
  - Cooperate with agents to secure all legal protection for such inventions, including preparation and signing of all papers attendant thereto



# Types of Property

## Real Property



## Personal Property



## Intellectual Property



Trademark Registration#: **GE**: 3386370, **Kellogg's**: 3445274

# Intellectual Property

- Any product of the human mind that the law protects against unauthorized use by others
- Intangible property includes:
  - Copyrights
  - Trademarks
  - Trade Secrets
  - Patents





# Copyright

Definition: A form of protection provided to the authors of “original works of authorship”.

Protects:

- Literary, dramatic, musical, artistic, and certain other intellectual works.
- Against author’s original content and expression
- Protection is against COPYING of a work

Duration: Author’s life + 70 years.

(Many countries offer little or no copyright protection, therefore wise to investigate local copyright laws before publishing abroad!)

For more information on copyright, visit the U.S. Copyright Office website at <http://www.copyright.gov>



# Trademark

Definition: Any word, name, symbol, or device, or any combination, used, or intended to be used, in commerce to identify and distinguish the goods or services.

Protects:

- All of the above & logo, banner, sound, smell, etc.
- Source of a product, such as brand name.
- Against others using similar trademarks for related products

Duration: 10-year terms with 10-year renewal terms



Trademark registration #: **GE**: 3386370, **Kellogg's**: 3445274, **LG**: 3250589, **FedEx**: 3413407, **Starbucks**: 3428128, **IBM**: 30021964

# Leading Trademark Licensors by Revenue

Rank	Firm Name	Annual Licensing Revenues (U.S. \$ billions)	Typical Deals
1	The Walt Disney Company	\$45.1	Toy and apparel licensing for Disney movies such as <i>Little Mermaid</i> and <i>Toy Story</i> and characters such as Winnie the Pooh and Frozen Princess
2	PVH Corporation	18.0	Apparel licensing for such brands as Tommy Hilfiger and Calvin Klein
3	Meredith	17.7	Bedding, furniture, and other products related to the <i>Better Homes and Gardens</i> brand
4	ICONIX	13.1	Apparel licensing for such brands as OP, Umbro, and Danskin
5	Mattel	9.0	Toy manufacturer and licensor of iconic toy and game brands such as Barbie, Hot Wheels, and UNO
6	Sanrio	6.5	Toys and apparel tied to the Hello Kitty character
7	Warner Bros. Consumer Products	6.0	Toy and apparel licensing from movies such as Batman, Harry Potter, and The Hobbit
8	Major League Baseball	5.5	Baseball-related video games, apparel, toys
9	Nickelodeon	5.5	Toy and apparel licensing for TV programs such as SpongeBob SquarePants and Teenage Mutant Ninja Turtles
10	Hasbro	5.1	Toy and apparel licensing for TV programs and movies such as <i>My Little Pony</i> and <i>Transformers</i>

Sources: Based on annual reports of the individual firms; Company profiles at [www.hoovers.com](http://www.hoovers.com); Avanstarr, *Global License!*, "The Top 150 Global Licensors," May 1, 2015, pp. T1–T47, [www.licensemag.com](http://www.licensemag.com).



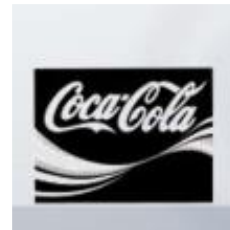
# Trade Secret

Definition: Any information that provides economic value that is not in the public domain and that has been reasonably kept secret.

Protects:

- Formulas, patterns, compilations, programs, devices, methods, techniques or processes
- Against misappropriation of the trade secret

Duration: As long as they remain secret





# Patent

Definition: A patent is a right granted by the federal government **to exclude others** from making, using, offering for sale, selling, or importing the invention into the United States for a term of 20 years from the date of filing.

Protects: Provides the patent owner the right to exclude others from practicing the patented invention for duration of time.

Duration: [Utility/Plant] 20 years from date of filing;  
[Design] 14 years from patent grant

Purpose: *A quid pro quo*; Disclosure of the invention to the government in specific terms, in exchange for exclusive rights to the inventor



# Rights Included in a Patent

- A US patent grants a right to **exclude** others from:
  - Making
  - Using
  - Offering for Sale
  - Selling the invention throughout the US
  - Importing the invention into the US



# Patent Infringement

- What is Patent Infringement?
  - A Violation of any of the patent rights
  - Owning a patent on an invention *only* means that you have the right to **exclude** others from making and selling your invention
  - When you infringe on an existing patent, you are preventing the patent holder from exercising that right.
- Who Enforces a Patent?
  - Up to patent owner, NOT the USPTO.
  - The USPTO-granted rights are valid only in the U.S.



# Patentability Requirements

In order to patent an invention, the invention must be:

- Something New (Novel)
- Useful
- Non-Obvious
  - An invention must **not be obvious to one skilled in the art** of the relevant prior art or trade.
- Fully Disclosed



# What is an Invention?

An “invention” occurs when there is a “conception” and “reduction to practice”:

- **Conception:**

- Formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention, as it is to be applied in practice

- **Reduction to Practice:**

- The embodiment of the concept of the invention
- Actually making the invention
- Filing of an application is considered a type of reduction to practice



# Patentable Subject Matter

A patent can be obtained for any new and useful:

- Process (Method)
- Machine
- Manufacture
- Composition of matter

Patentable:

- “Anything under the sun that is made by man”

Oil eating bacteria

Software and business methods





# Patentable Subject Matter

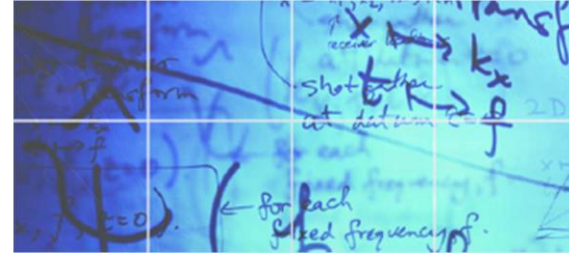
- Software
- Process or Method
- Machines
  - Concrete thing, consisting of parts, or of certain devices
- Article of Manufacture
  - May have parts but interaction is usually static
- Methods of modulating biochemical processes
- Isolated and purified, or altered naturally occurring substances
- Research Tools
- Research techniques and methods
- Chemical compounds or compositions
- Methods of creating compounds or compositions
- Drugs and drug targets
- Novel plants and plant derivatives
- Biological targets
- Man-made micro-organisms



# Not Patentable

NOT Patentable include:

- A mere idea or concept,
- Pure mathematical formulas
- Algorithms
- Laws of Nature, Physical phenomenon

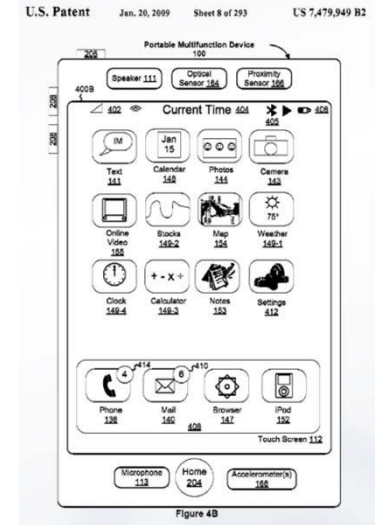


- If your invention is not patentable, that does not mean that you can't manufacture it and earn proceeds from its sale
  - It only means that you don't have the right to exclude others from making and selling your device
  - Example: No one can get a patent on a chair as a device for sitting, however companies/people can still build and sell chairs.

# Types of Patents

## Utility:

New and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof  
→ How an invention works



## Design:

New, original & ornamental design  
→ How an invention looks



## Plant:

Asexually-produced distinct and new variety of plant



# Research Tools

Research Tools are defined as: Full range of resources that are used in the laboratory or clinical setting, including but not limited to:

- Research techniques and methods
- Methods of treatment and diagnosis
- Medical devices and equipment
- Animal models
- Reagents
- Cell lines
- Antibodies
- Proteins/Peptides
- Clones and cloning tools

Federal funding agencies sponsoring research often require that newly discovered research tools be reported.

A Research Tool Disclosure Form (RTDF) should be completed for any novel research tool developed at UT

Once a disclosure is made, appropriate agency reports are filed.



# Am I an Inventor?

- You are an inventor if you contribute materially to the conception of at least one of the patent claims.
- If your name is listed on the patent as an inventor and you did not contribute to the conception of the invention, the patent could ultimately be invalidated.
- You are NOT an inventor if:
  - You simply follow the instructions of another in performing experiments
  - You merely suggest how to realize the invention



# Co-Inventors

- CoAuthor  $\neq$  CoInventor
- Not subjective, this is a legal determination.
- Each must materially contribute to the conception of at least one claim
- Contributions need not be equal
- CoInventors do not need to physically work together





# Things to Watch Out For

Upon public disclosure or “publication”:

- All foreign rights are lost
- One year bar date is set to file a patent or all rights are lost in the U.S.



# What Constitutes Publication?

- An invention is not novel if it is published and forms “part of the state of the art”
- In U.S. patent law, “state of the art” is defined as “everything made available to even one member of the public anywhere in the world by means of a written or visually displayed oral description, by use or in any other way.”



# Examples of Publication?

- Publication in research papers, journals, or magazines
- Giving a talk at a conference
- Abstracts
- Thesis
- Disclosing in job interviews
- Publishing on the internet
- Poster displays
- Corridor presentations
- Social media
- Exhibitions
- Oral and casual disclosures (**outside the institution**)



# Summary

- The UT Tech Transfer Office works with faculty, staff, and students to:
  - Identify novel technologies
  - Protect IP through patents or copyrights
  - Identify potential firms to help commercialize and develop the intellectual property, and
  - Market the technology
  - License the technology
- The ultimate goal is to license the technology to a company and find ways to commercialize research so that this invention is in the best position to become a commercial product.



# Questions?

Kashif Haque, M.S., M.D.

The University of Toledo

Office of Research and Sponsored Programs

Technology Transfer Office, MS 218

Phone: 419.530.6229 (phone)

Email: [syed.haque@utoledo.edu](mailto:syed.haque@utoledo.edu)

*Thank You*

