

# Office of Technology Commercialization



**UNIVERSITY  
TECHNOLOGY TRANSFER**



# Traditional Role of Universities

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- Education
- Research
- Service
  - Provide solutions to societal problems
  - Fuel new economic opportunities



# UM Research Areas

## Information Science:

- artificial intelligence
- computer vision
- data mining and databases
- graphics and interfaces
- high-performance computing
- human-computer interaction
- information and network dynamics
- information system security
- mobile and wireless systems
- networks
- numerical analysis
- real-time systems and systems evaluation
- software engineering

## Life Science:

- analytical, inorganic, organic and physical chemistry
- animal health and infectious diseases
- biochemistry and biophysics
- biological resources engineering
- conservation biology
- crop management
- ecology and evolution
- entomology, plant biology and zoology
- microbiology
- molecular, cell and developmental biology
- neuroscience and behavior
- nutrition and food sciences
- plant and soil sciences

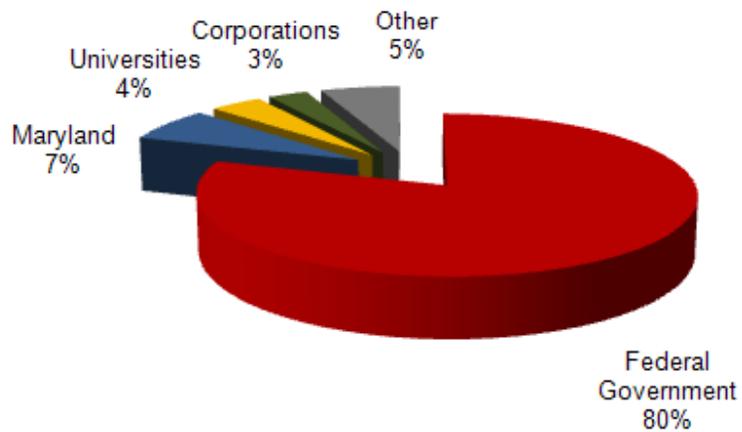
## Physical Science:

- advanced materials
- astronomy and Earth system science
- communications and networking
- electronic packaging
- optoelectronics
- rotorcraft technology
- smart small systems
- superconductivity
- systems engineering
- transportation systems and space engineering

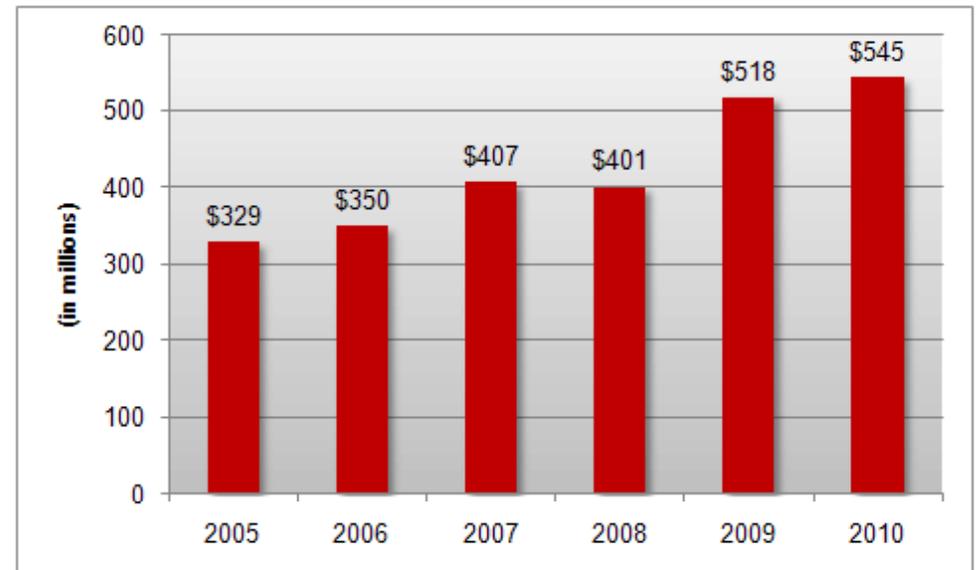


# Research Awards

ORAA Grant Activity Sponsors FY2010



Sponsored Research Dollars



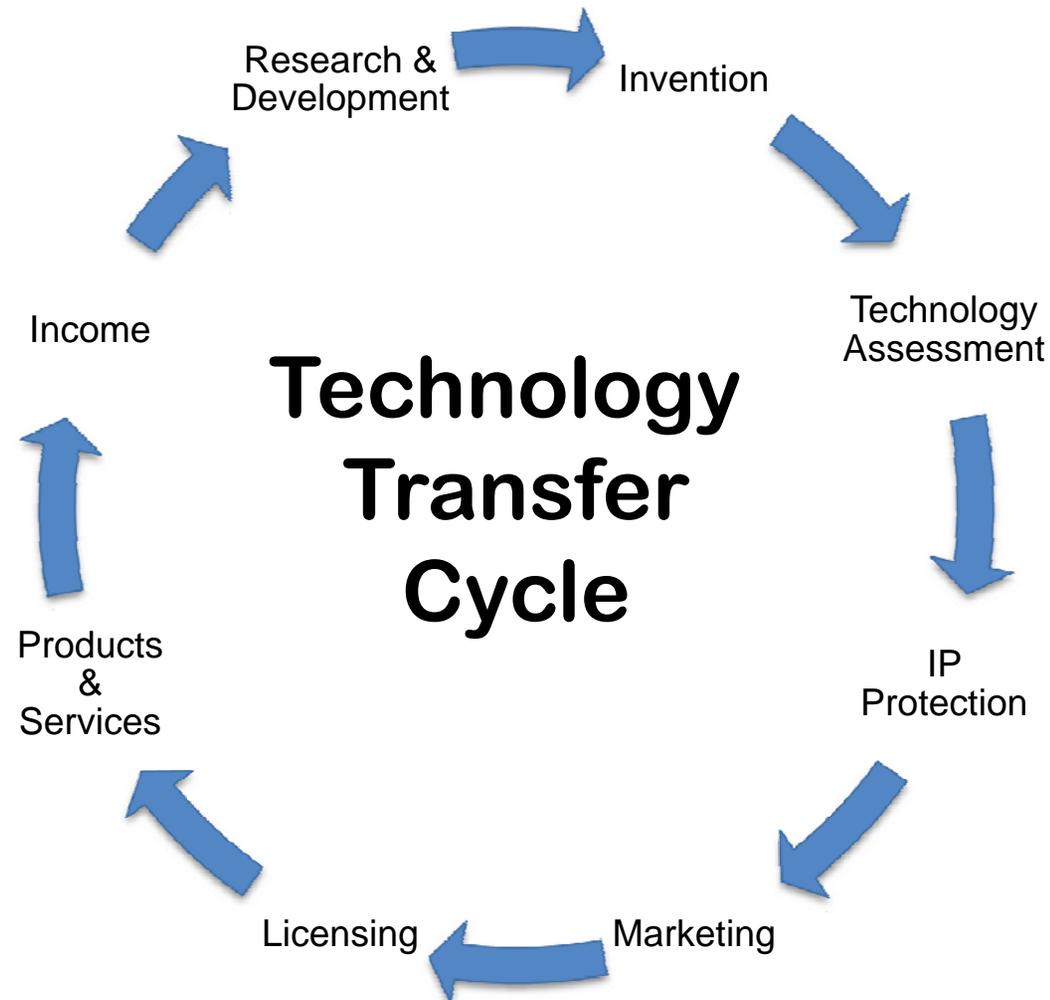


# OTC Mission

*To facilitate the transfer of intellectual property to business and industry through the development and management of a high-quality portfolio of diverse technologies; ensure **intellectual property rights**; negotiate and execute **licensing agreements**; and, when feasible, assist in the formation of **start-up businesses** that utilize the university's technology in order to provide benefits to the university and the regional economy.*



# Technology Transfer Cycle





# Technology Transfer Offices

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- Seek and receive reports of inventions from investigators
- Market technology and negotiate and administer license agreements
- Record income and administer income distribution
- Provide oversight of patent prosecution
- Decide whether to elect title for inventions developed with external funding and file patent applications
- Provide reports to government and other sponsors



# Technology Transfer Offices

## Many Different “Customers” With Sometimes Conflicting Objectives

- Inventors, who often have expectations of research opportunities, income, public use, and recognition
- Companies, with expectations of securing commercially viable technology at a fair price
- University administration, which expects the office to encourage and participate in the University entrepreneurial community and wants to prevent conflicts of interest
- Sponsoring agency, which insists on compliance with provisions of the Bayh-Dole Act
- Taxpayers, with expectations that state and federal resources are used in an effective and nondiscriminatory manner
- Governing board, which needs assurance that the university’s name and reputation are protected



# *Bayh-Dole Act of 1980*

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- Universities **retain rights to inventions** made from government-funded research
- Universities are encouraged to **collaborate with commercial entities** to promote the use of university research
- Universities are **encouraged** to license inventions to small business firms-500 employees or less
- Universities must **share licensing income with faculty inventors** and **use royalty income to further research activities**



# UM's Policy on Intellectual Property: **Patents**

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The University owns patentable works that were:

1. Produced by Personnel within the scope of employment
2. Created by Personnel with the use of University Resources Beyond those Usually and Customarily Provided
3. Created by Personnel or Students under Sponsored Research Agreements



# UM Intellectual Property Policy Effective May 1, 2005

The UM Intellectual Property Policy applies to all disclosures of intellectual property made on or after May 1, 2005. The former policies apply to intellectual property disclosed while those policies were in effect.

## BASIC OWNERSHIP PRINCIPLES UNDER THE NEW POLICY

University owns:

- Copyrightable works that faculty, staff or students are required to produce under Sponsored Research Agreements.
- All data and records that are created or collected under Sponsored Research Agreements.
- Inventions first conceived of or reduced to practice in the performance of Sponsored Research Agreements.
- Copyrightable works and inventions created outside of Sponsored Research Agreements by faculty and staff using Resources Beyond Those Usually and Customarily Provided unless prior authorization to use those Resources was obtained.





# IP POLICY (CONT'D)

## BASIC OWNERSHIP PRINCIPLES (CONT'D)

- Copyrightable works and software not required to be created under Sponsored Research Agreements and created without the use of Resources Beyond those Usually and Customarily Provided are owned by faculty.
- The IP Policy includes a process for faculty inventors and authors to recommend, with the support of the department chair, to the University that it waive its rights in IP and place it in the public domain.
- Students own inventions and copyrightable works they create as part of their University academic and research activities provided they are not created under a sponsored research agreement.



# How does UM measure success?

## Tangible

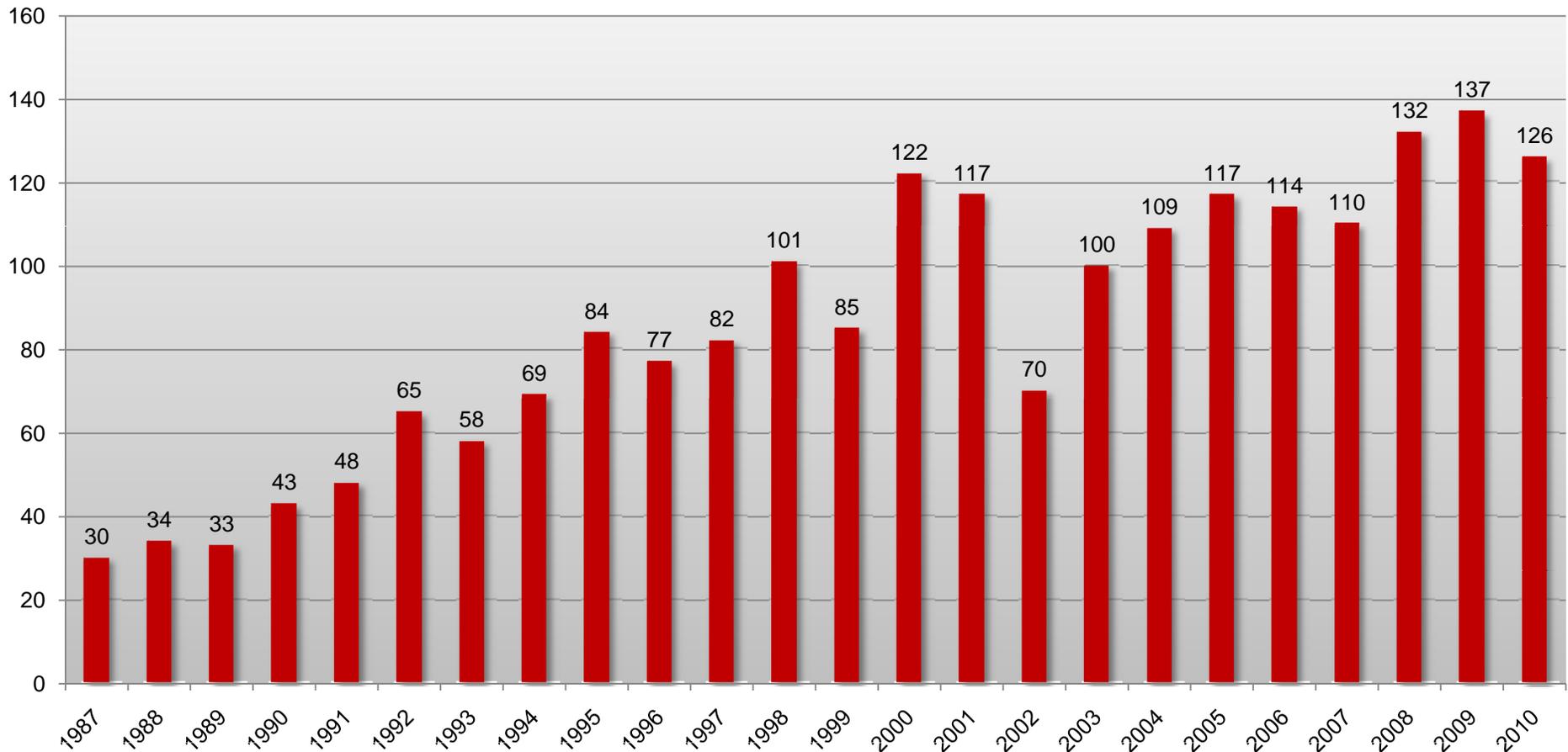
- Inventions disclosed
- Patents issued
- Licenses
- Licensing income
- Commercial products, processes, and services
- Research projects funded
- Spin-off companies

## Intangible

- University's capability to retain entrepreneurial faculty and attract outstanding graduate students
- Reputation for innovation
- Enhancement of university research
- Promotion of the university's name
- Impact of university-originated products and services



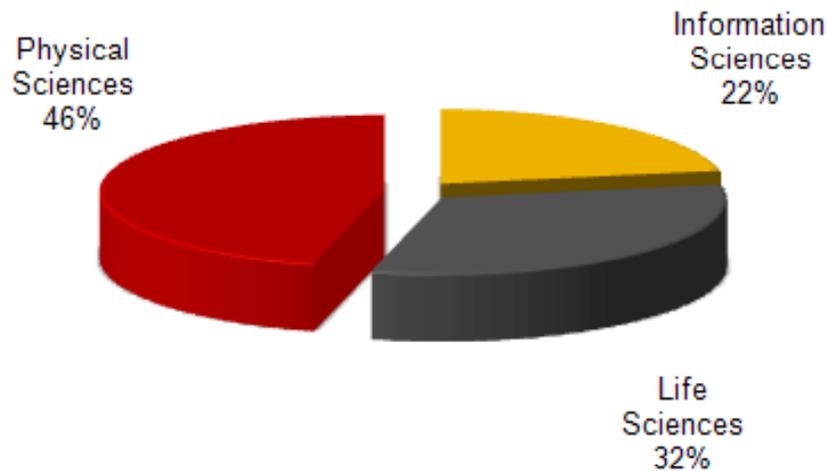
# UM Invention Disclosures



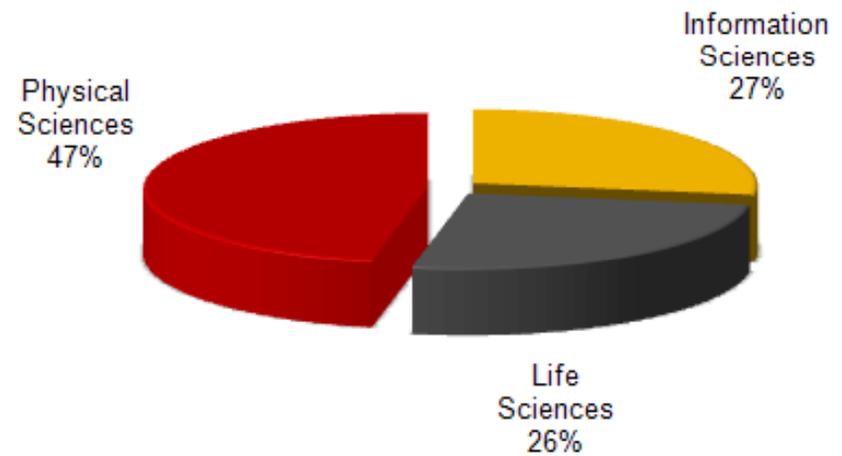


# UM Invention Disclosures by Technology Type

FY 2010



FY 2006-2010





# Technology Assessment

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- Technology Manager determines preliminary intellectual property protection, technical merits, and commercial potential
- Technology manager writes non-confidential description - “Executive Summary”
- Full assessment is not determined until after the technology has progressed through the other stages of the technology transfer cycle



# Executive Summary

## PS-2010-070 Novel Membrane and Catalysts for Portable Alkaline Fuel Cells

Proton exchange membrane fuel cells (PEMFC) have been extensively investigated for possible commercial use as a next generation power source. However, the high cost of PEMFC electrolyte membranes and catalysts has hindered development. Many scientists have therefore turned to alkaline polymer electrolyte fuel cells (APEFC) and tried to develop solid anion exchange membrane (AEM) electrolytes as an alternative. Unfortunately, conductivity and mechanical problems persist, preventing the APEFC from practical applications.

Researchers at the University of Maryland have developed a novel copolymer, named QPMBV (quaternized poly methyl methacrylate-co-butyl acrylate-co-vinylbenzyl chloride), which is more resistant to temperature and mechanical stress than previous versions of AEM technology. QPMBV possesses superior OH-anion conductivity, resulting in improved fuel cell performance.

### Advantages:

- Greater durability than previous AEM technology
- Increased conductivity

### Applications:

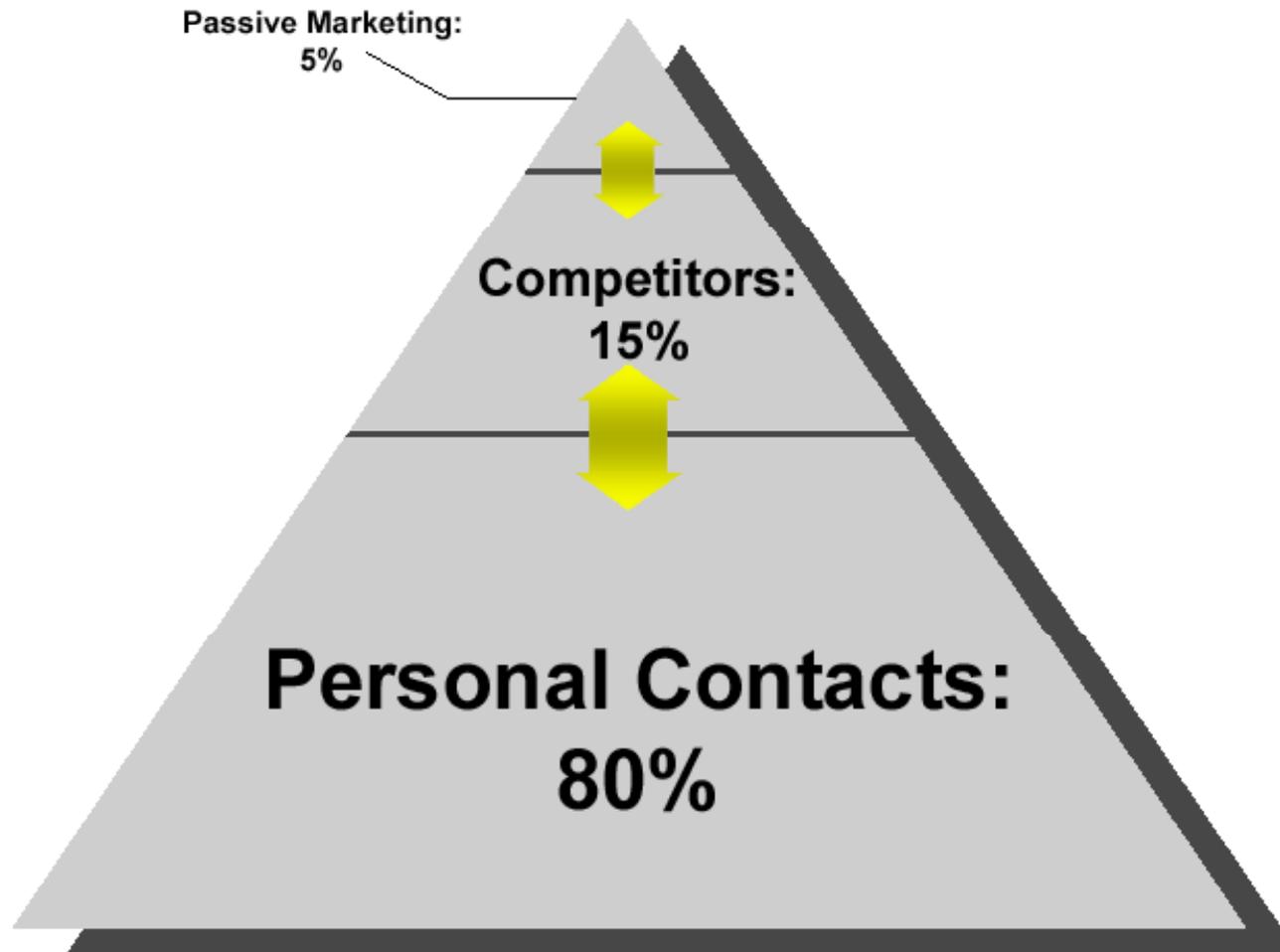
- Fuel cell technology
- Portable power sources

For additional information, please contact the Office of Technology Commercialization, University of Maryland College Park, via e-mail at [otc@umd.edu](mailto:otc@umd.edu) or phone at 301-405-3947.





# 3 Tiers of Marketing





# 3rd Tier of Marketing

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- [www.iBridgenetwork.org](http://www.iBridgenetwork.org)
- [www.techex.com](http://www.techex.com)
- [www.knowledgeexpress.com](http://www.knowledgeexpress.com)
- [www.anidea.com](http://www.anidea.com)
- [www.uventures.com](http://www.uventures.com)
- [www.Pharma-Transfer.com](http://www.Pharma-Transfer.com)
- [www.pharmaventures.com](http://www.pharmaventures.com)
- [www.biolicense.com](http://www.biolicense.com)
- [www.techtransferonline.com](http://www.techtransferonline.com)
- [www.ideaMD.com](http://www.ideaMD.com)
- [www.yet2.com](http://www.yet2.com)
- [www.brainsupply.com](http://www.brainsupply.com)
- [www.universityinventions.com](http://www.universityinventions.com)
- [www.pharmalicensing.com](http://www.pharmalicensing.com)
- [www.activecycle.com](http://www.activecycle.com)
- [www.invenioip.org](http://www.invenioip.org)



# Confidential Disclosure Agreement

## TWO-WAY CONFIDENTIAL DISCLOSURE AGREEMENT

WHEREAS, the University of Maryland, having an address at 6200 Baltimore Avenue, Suite 300, Riverdale, MD 20737, (hereinafter the "University") has certain confidential and proprietary information relating to **LS-2003-009, 3-Sugar Iron X-Gal Chromogen Agar; LS-2003-010, New Salmonella Enrichment Broth; LS-2003-011, Modified MM**, which embodies scientific concepts or processes which may be needed for successful practice or commercialization of technology developed by staff members of the University (hereinafter "Information ") and;

WHEREAS, **[Company Name Here], [Company Address Here]** (hereinafter [Co] ) is interested in examining and evaluating University Information in order to determine the utility of the technology (hereinafter "Stated Purpose");

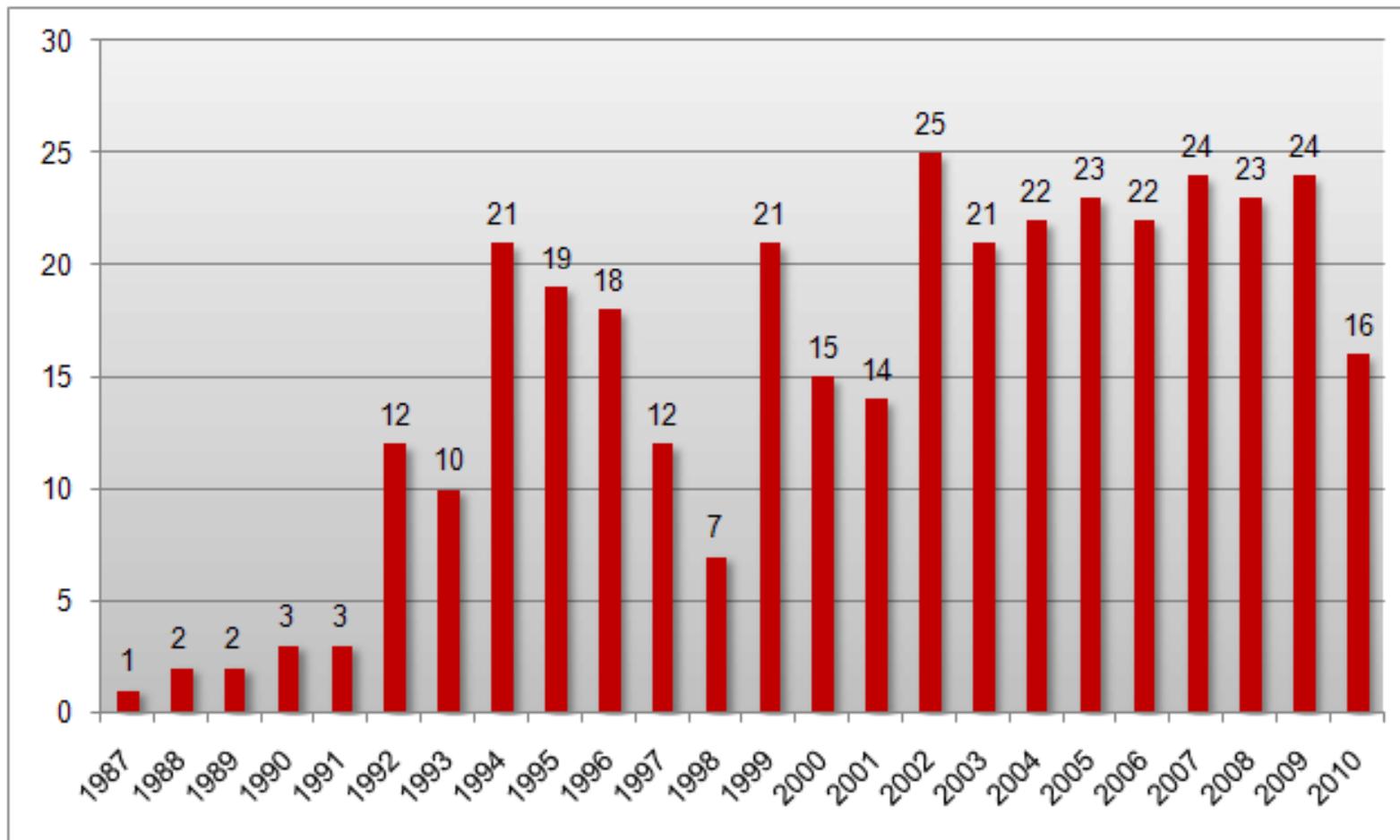
WHEREAS, University desires to disclose proprietary and confidential Information to \_\_\_ and;

NOW, THEREFORE, the parties agree to the following terms and conditions:

1. University to disclose the Information to [Co] in writing, insofar as practical, and marked as "confidential", "proprietary", or a similar legend, and in sufficient detail to enable evaluation of the same. [Co] shall be permitted to retain possession of any material submitted to it hereunder or copies, drawings or photographs thereof in order that a record of the material submitted may be preserved. In the event University orally or visually discloses Information to [Co], [Co] shall not be bound by the obligations of this Agreement unless



# U.S. Patents Issued





# Licensing

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Standard, pre-approved license agreements:

- Confidential Disclosure Agreement
- Non-exclusive and Exclusive License Agreement
- Non-exclusive and Exclusive Option Agreement
- Biological Materials Transfer Agreement

Agreement terms may include:

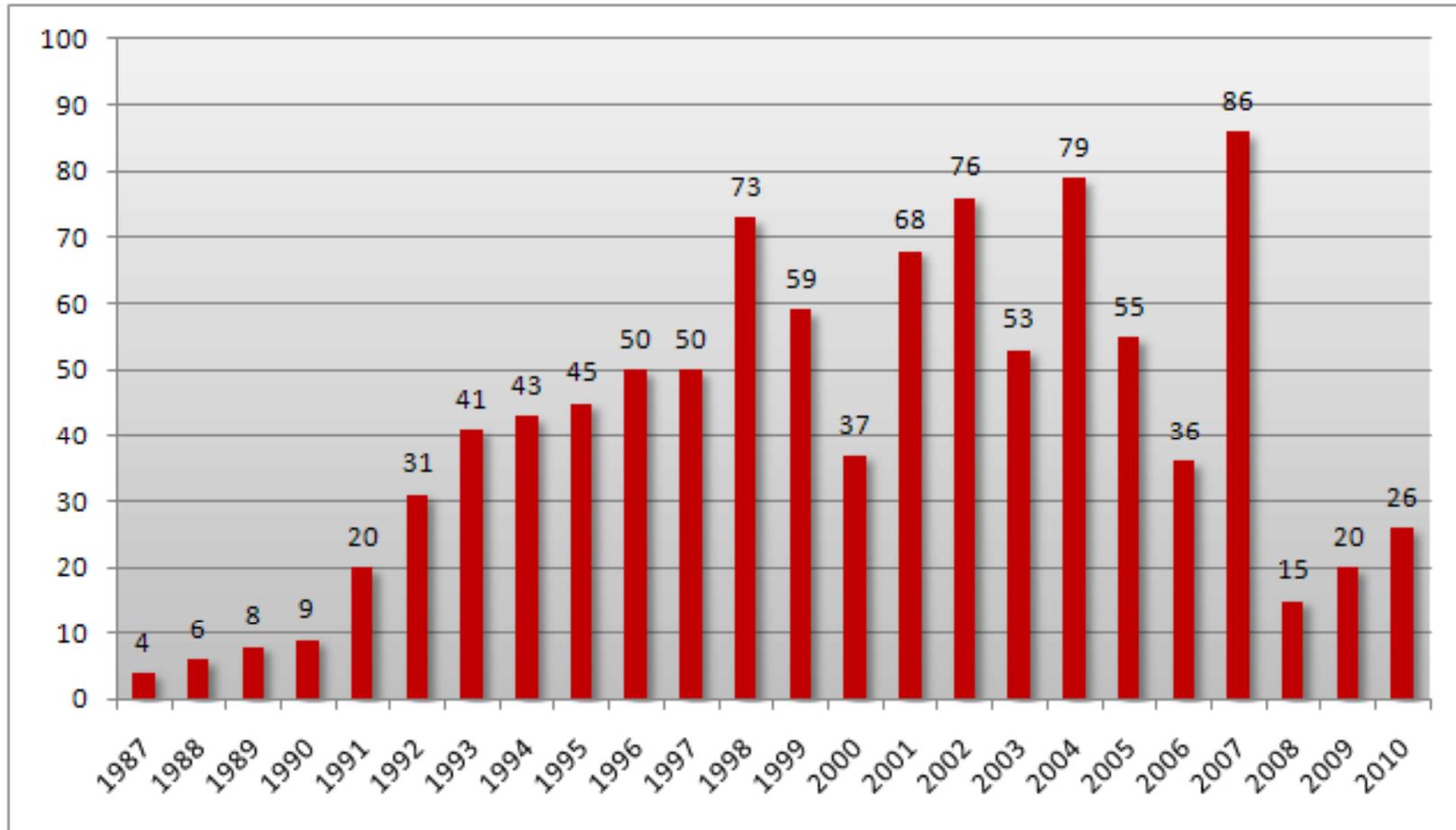
- License Execution Fees
- Annual Payments
- Minimum Payments
- Royalty Payments
- Technology Development Fees

OTC has negotiation and signature authority for these agreements





# UM Technologies Licensed



OFFICE OF  
TECHNOLOGY  
COMMERCIALIZATION



# UM Start-Up Companies

## **Fiscal Year 2010**

- VisiSonics Corporation Highland, MD
- MedSense Technologies LLC Oswego, IL
- Precision Polyolefins, LLC College Park, MD

## **Fiscal Year 2009**

- Remedium Technologies, Inc. Germantown, MD
- Traffax, Inc. Centreville, MD
- FLEXEL, LLC Silver Spring, MD
- BioSpecimen Technologies Davis, CA

## **Fiscal Year 2008**

- Purrfect Gourmet, LLC Cantonsville, MD
- Columbia BioSystems, Inc. Columbia, MD

## **Fiscal Year 2007**

- CertusNet, Inc. Rockville, MD
- Fantalgo, LLC Elkridge, MD
- Leukosight, Inc. College Park, MD
- SD Nanosciences, Inc. Beltsville, MD
- SentiMetrix, Inc. Bethesda, MD
- ULTRANETX, LLC Columbia, MD
- Zymetis, Inc. College Park, MD
- NewAgriculture, Inc. Port Tobacco, MD

## **Fiscal Year 2006**

- ADF Solutions, Inc. Washington, DC
- Personics Holdings, LLC Del Ray Beach, FL

## **Fiscal Year 2005**

- Berrigen Biotechnology Columbia, MD
- Chausie Systems, Inc. Alpharetta, GA
- Horus Wireless Systems Inc. Derwood, MD
- Komoku College Park, MD
- Nuzzer Technologies, Inc. Derwood, MD
- Tradewinds Product Consultants, Inc. Potomac Falls, VA

## **Fiscal Year 2004**

- COSEmi, Inc. Silver Spring, MD
- CST Technology Group, LLC Port Washington, NY
- Data and Information Solutions Corp. Beltsville, MD
- Pervasive Technology Engineering Greenbelt, MD
- Thermal Analysis Partners, LLC College Park, MD

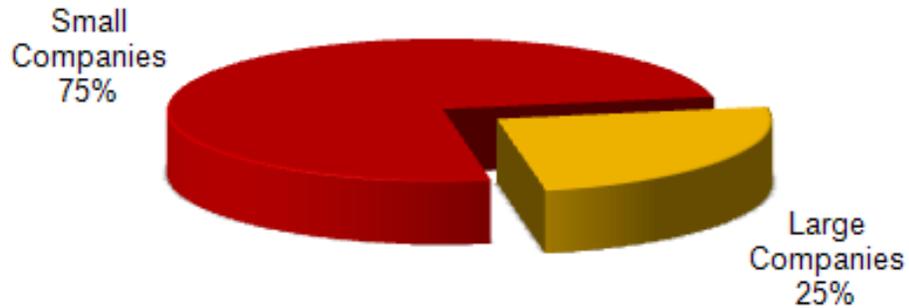
## **Fiscal Year 2003**

- Five Aces Breeding, LLC Laurel, MD
- Odexia, LLC Brinklow, MD
- Phytoextraction Associates, LLC Baltimore, MD
- Windsor Interfaces University Park, MD
- XMTT, Inc. Rockville, MD

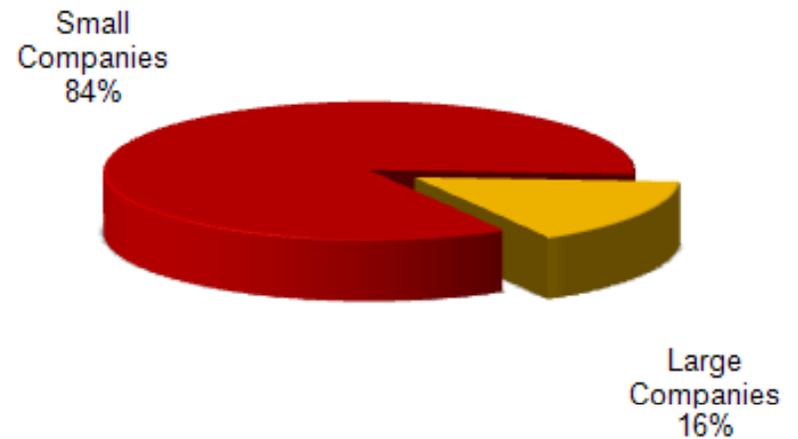


# Licenses by Company Size

**FY 2010**



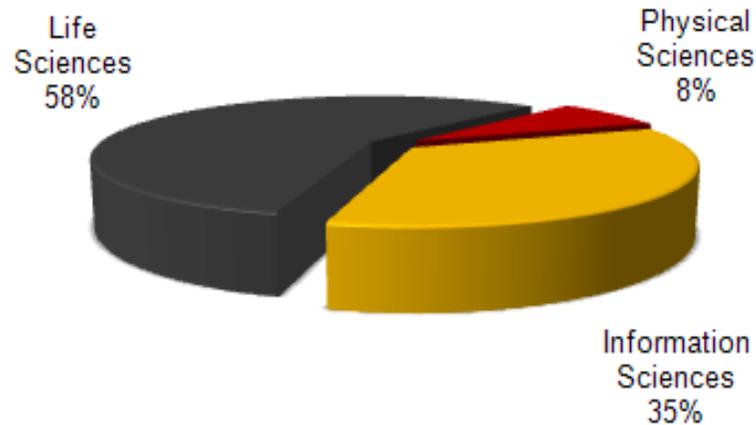
**FY 2006-2010**



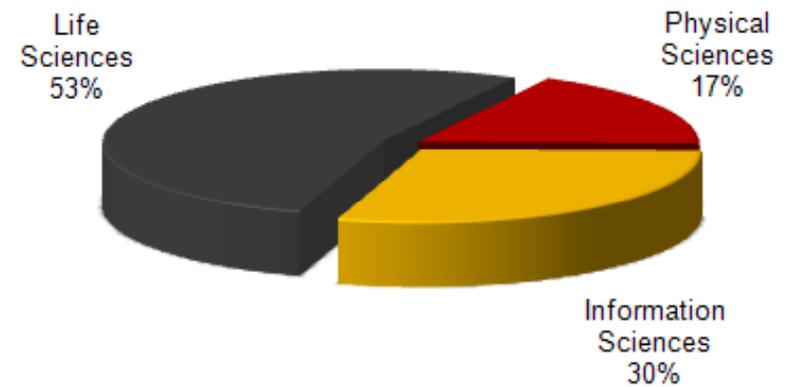


# UM Technologies Licensed by Technology Type

FY 2010



FY 2006-2010



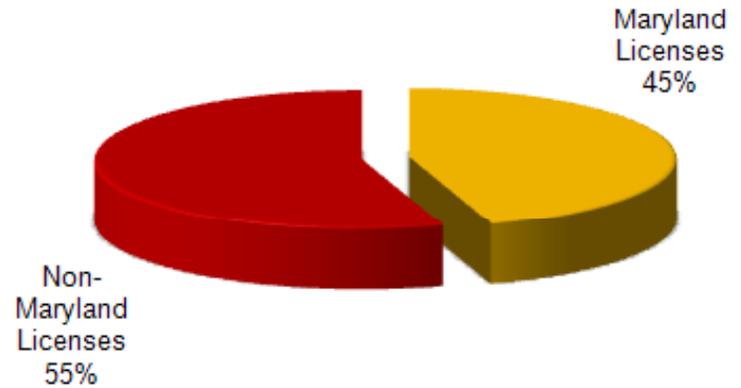


# Licenses by State

FY 2010



FY 2006-2010





# Technology Transfer Finances

## Costs:

### Expenses

- Patent prosecution
- Personnel
- Operating Expenses
  - Supplies
  - Equipment
  - Travel
  - Mail/Courier
  - Phone

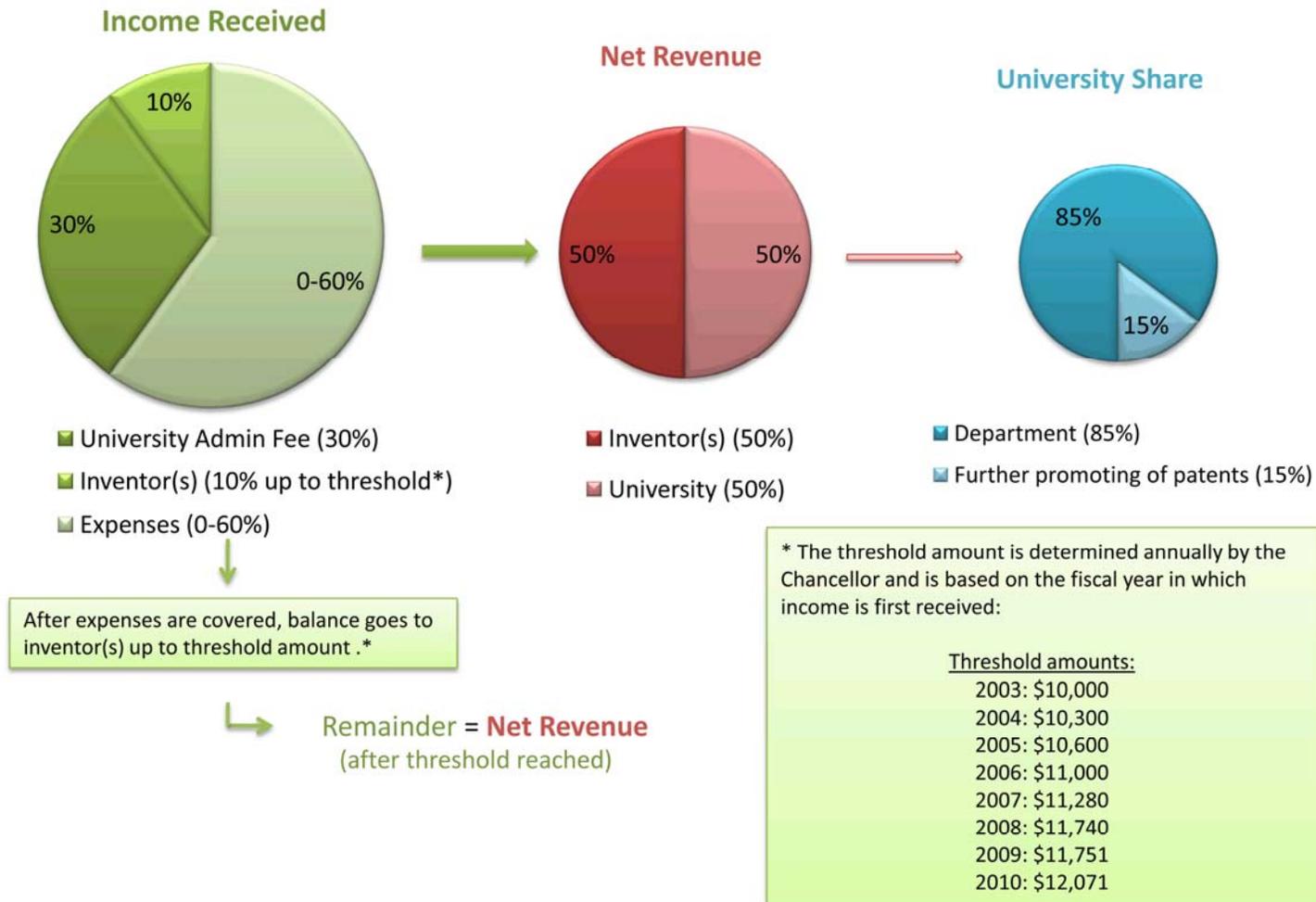
### Revenue

- Royalties and fees
- Expense reimbursement



# Revenue Sharing: Patents, Computer Programs, Software

## Current Royalty Distribution Policy (for disclosures received after 7/1/2002)





# UM Resources

**MTECH  
Ventures**



**OTC**



**Dingman Center for  
Entrepreneurship**



**Entrepreneur Office Hours**

**Tech Transfer Review Board**

**Faculty Venture Fairs**

**Capital Access Network**

**VentureAccelerator**

**TAP**



# For more information

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Check out OTC's web site at

[www.otc.umd.edu](http://www.otc.umd.edu)

