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**TOTAL FEDERAL AND NON-FEDERAL RESEARCH FUNDING FY15 (MILLIONS OF DOLLARS)**

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<tr>
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**FY15 SPONSORED RESEARCH**

- **BY SPONSOR TYPE**
  - Federal: 52%
  - Industry: 21%
  - State: 11%
  - Other: 16%

- **BY FEDERAL AGENCY**
  - NIH: 73%
  - NSF: 9%
  - Defense: 4%
  - Other: 6%

**TECHNOLOGY TRANSFER**

Through the University of Iowa Research Foundation and UI Ventures programs, the University of Iowa helps faculty, student, and staff researchers translate their work into commercial products, services, and businesses; secure patents; and license intellectual property.

**FY15 STARTUPS AND BUSINESS SUPPORT**

- **43 STARTUPS** in the pipeline, **18 ADDED THIS YEAR**
- **18 COMPANIES** located at UI Research Park’s BioVentures Center (CLOSE TO 100% OCCUPANCY)
- **42 COMPANIES** at UI Research Park employing more than 1966 EMPLOYEES
- With UI John Pappajohn Entrepreneurial Center, faculty/student teams completed **54 BUSINESS CONSULTING PROJECTS** at **49 COMPANIES** in 6 IOWA COUNTIES.

**FY15 PATENTS AND LICENSING**

- **147 Patent applications filed in FY15**
- **50 patents issued**
- **40 licenses/options**
- **$1.5 million** in licensing income
- **$1.2 million** in patent cost reimbursements

**FY15 PRODUCT CATEGORIES**

- **TOP EIGHT**
  - Medical Device: 24%
  - Therapeutic: 21%
  - Therapeutic Pathway: 8%
  - Diagnostic: 7%
  - Medical Imaging: 7%
  - Medical-Other: 5%
  - Engineering: 4%
  - Other: 24%

**FY15 RESEARCH HIGHLIGHTS**

- **3%** increase in total number of awards granted
- **21%** increase in industry and corporate funding

**FY15 hhs (including NIH)**

- Federal: 52%
- Industry: 21%
- State: 11%
- Other: 16%

**BY FUNDING CATEGORY**

- Education: 9%
- Defense: 4%
- Other: 9%

**By Source**

- Federal: 52%
- Industry: 21%
- State: 11%
- Other: 16%

- hhs (including NIH): 73%
- NIH: 73%
- NSF: 9%
- Defense: 4%
- Other: 6%

**FY15**

- Patent applications filed in FY15
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY16**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY17**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY18**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY19**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY20**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY21**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY22**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY23**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY24**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements

**FY25**

- 43 startups in the pipeline
- 18 added this year
- 18 companies at UI Research Park
- 42 companies at UI Research Park
- 54 business consulting projects at 49 companies
- 147 patent applications filed
- 50 patents issued
- 40 licenses/options
- $1.5 million in licensing income
- $1.2 million in patent cost reimbursements
Safeguarding Soldiers
On the battlefield, every second and every ounce of energy counts. It can mean the difference between success and failure, life and death. So it’s essential that the equipment members of the armed forces depend on—from the packs they wear, to the vehicles they ride in—work as intended. To help make that happen, Karim Abdel-Malek and his team at the UI Center for Computer Aided Design created SANTOS. This biomechanically accurate “virtual soldier” can be used to test computer renderings of equipment and gear as a preliminary step toward—and at a fraction of the cost of—field testing, checking things like freedom of movement and load levels. Abdel-Malek presented his simulations to the North Atlantic Treaty Organization as a U.S. Delegate, where he shared the results of his GrantSim research funded by a five-year, $8.6 million project administered by the National Science Foundation.

Preserving Texts
Timothy Barrett’s research on paper quality, stability, and aesthetics has helped determine some of the longest-lasting historical papers were made. He and his student co-workers make papers for use in the preservation and conservation of rare books that have a similar look and feel to the books that have a similar look and feel to the preservation and conservation of rare books. With his help, they do a better job preventing browning and its adverse impacts on youth. A study co-authored by Barrett showed that while policies alone cannot completely eradicate bullying, legislation does represent an important part of a comprehensive strategy to prevent bullying.

Fighting Cyberbullying
Cyberbullying is the fastest-growing form of youth violence, which is why Marison Ramirez in the College of Public Health researches ways to stop it. Ramirez and her team have developed a smartphone app to track cyber communications of schoolchildren, in order to gain a better understanding of the language that constitutes cyberbullying and where online it occurs, so they can help schools do a better job preventing bullying and its adverse impacts on youth. A study co-authored by Ramirez showed that while policies alone cannot completely eradicate bullying, legislation does represent an important part of a comprehensive strategy to prevent bullying.

Studying Storms
Extreme hydrometeorological events—from hurricanes to heavy rains and flooding—frequently affect the continental United States and can have extensive negative social and economic impact. Gabriele Villarini, Assistant Professor of Civil and Environmental Engineering, studies the physical processes responsible for these events, including precipitation patterns, high and low temperature extremes, and tropical and extratropical storms. With a prestigious NSF CAREER award, Villarini hopes to uncover whether these extreme events occur in clusters, with periods of enhanced activity alternating to quieter periods, and if they do cluster, what physical processes are responsible for their behavior. By better understanding past events, it’s possible to be better prepared to predict future ones.

Regenerating Bones
Alagia Saleh, Bighley Professor and Division Head, Pharmacuetics and Translational Therapeutics, in the College of Pharmacy and his research team have developed a bio patch to help generate and grow damaged bone by delivering the DNA blueprints to surrounding cells. In experiments, the bio patch regrew 44 times more bone tissue in damaged animal skin than fibroblasts, which carry genetic information. It has also stimulated growth in human bone marrow stromal cells. Next, Saleh hopes to create a bio platform that promotes new blood vessel growth.

Advancing Aviation
Tom Schnell (on cover), an Associate Professor in Industrial Engineering and director of the UI Operator Performance Laboratory, researches sensor fusion systems, pilot spatial orientation capability, assessment of operator performance in flight, airwarfare systems, and surface transportation. His most recent work involves a partnership with Rockwell Collins to study how unmanned aircraft systems—more commonly known as drones—might behave autonomously should they lose radio contact with their operators.

Supporting Veterans
One in eight new mothers may suffer from postpartum depression, which in turn can negatively affect the lives of their babies and families. That is why Michael O’Hara, founder and co-director of the Iowa Depression and Clinical Research Center, started the VA MomMoodBooster Program, which provides a free online treatment program to veteran women suffering from postpartum depression. The six-week program includes sessions on managing mood, increasing pleasant activities, managing negative thoughts, increasing positive thoughts, and planning for the future.

Curing Blindness
Spark Therapeutics Inc., whose leadership team includes scientific co-founder and advisor Beverly Davidson, former University of Iowa Roy J. Carver Chair in Biomedical Research, is on the cusp of getting FDA approval to conduct human subjects studies using a virus injected directly into the eye to deliver a correct gene to a patient whose original gene is mutated. For final clinical trials, Spark measured the amount of light a participant needed to navigate a mobility course, which entails following arrows on the floor and avoiding obstacles. After a year, patients treated in both eyes improved by 1.9 light levels, compared with an improvement of 0.2 levels in subjects who hadn’t been treated, according to University of Iowa principal investigator Stephen Russell.

Diagnosing Faster
Emergency room staff need as much information as they can get as they prepare for incoming traffic accidents and gunshot victims. One novel approach gives first responders digital tools to capture and send photographs of the vehicles back to the ER, images that can provide vital clues about the patient’s injuries. TraumaHawk is a pilot project developed by Chira Burush, Clinical Associate Professor of Emergency Medicine, and project principal investigator Daniel McGeehee, director of the Human Factors and Vehicle Safety Research Division at the UI Public Policy Center. The mobile phone app allows police to capture and upload an image of the scene of a crash to send photos of the damaged vehicle to the University of Iowa Hospitals and Clinics. This faster relay of information allows ER physicians and nurses to gain a better sense of the severity of patients’ injuries so they can have proper rooms, equipment, and personnel available even before the ambulance makes a preliminary medical report. The research is funded by the Iowa Department of Transportation, and the app was developed by Dennis Szecsei of the UI Department of Computer Science.

Improving Hearing
Cochlear implants have revolutionized the treatment of hearing loss, but more than 50% of implant recipients experience additional hearing deterioration after surgery. Currently, implants cannot be repositioned to compensate as hearing loss worsens, which limits the quality and range of sounds patients can hear—from music to children’s voices—and negatively impacts their quality of life. An accessory created by iotaMotion, a company co-founded by University of Iowa otolaryngology resident Chris Kaufmann with the help of UI Ventures, seeks to solve this problem by remotely moving the cochlear implant where it needs to be when it needs to be adjusted to improve hearing quality.

Targeting Cancer
How do yousmart cancer? One way being explored by University of Iowa cancer researcher Kristina Thel is to target it more accurately using personalized treatments. Thel is a co-founder of Immotaggen, a company that is enhancing personalized cancer treatment for each patient. Thel and her team are developing an exhaustive genetic sequencing tool so doctors can determine which drugs would be the most effective based on genetic mutations in each individual patient’s tumor.

Fighting Cystic Fibrosis
In 2016, the University of Iowa Research Foundation finalized a license and sponsored research agreement with Pizer Inc. to support the development of potential gene therapies for cystic fibrosis (CF) by University of Iowa laboratories. Pfizer, through its Genetic Medicine Institute, will collaborate with the labs to develop a potential unique gene therapy for cystic fibrosis, an inherited disease that causes severe damage to the lungs and digestive system. Cystic fibrosis is caused by a defect in a single gene, making gene therapy an attractive approach for attempting to find a potential cure for CF patients.

Research and Scholarship
The University of Iowa is a leader in research in the areas of medicine and bioengineering, but new discoveries are also being made in the areas of computer modeling, autonomous vehicles, space and weather, and humanities scholarship.

Tech Transfer
Over the past two years, the University of Iowa Office of the Vice President for Research and Economic Development has expanded investment for researchers across all disciplines. These resources are intended to help researchers be more competitive and successful in securing funding, to think beyond their disciplines and institutions and join major initiatives to address emerging challenges more creatively, and to shepherd investors toward a successful launch of their ideas into the marketplace.

Moving Knowledge Forward
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**FY15 PRODUCT CATEGORIES**

- **Top Eight**
  - Medical Device: 24%
  - Therapeutic: 21%
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