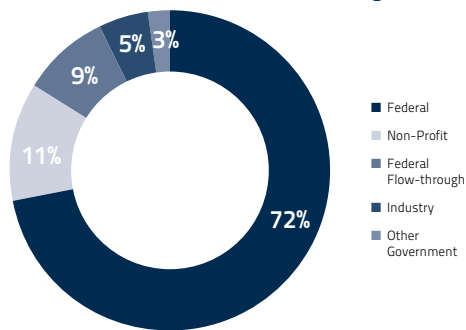


RESEARCH MATTERS

RESEARCH BY THE NUMBERS

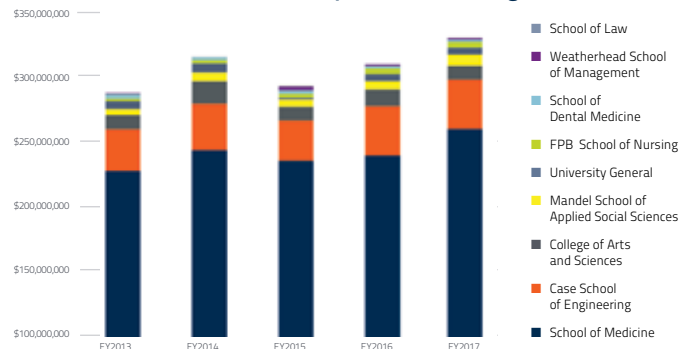
Fiscal 2017 continued a trend of overall growth in our external funding portfolio, with awards totaling just over \$337 million. All categories of funding sources (Federal, Non-profit, Federal Flow-through, Industry, and Other Government) saw increases.

FY2017 External Research Funding Sources



There were increases in funding across the whole campus, with the largest dollar increase seen in the School of Medicine, and the largest percentage increase seen in the School of Law.

FY13–FY17 Awards by School or College



FY 2017's top ten largest research awards ranged from \$2.4 to \$10.9 million and included a grant from the John Templeton Foundation to explore belief systems in order to understand why people engage in them and the consequences for their lives. The results of the study are anticipated to enhance our understanding of different belief systems across different cultural contexts.

SAVE THE DATE!

Research ShowCASE + Intersections: April 20, 2018

Mark your calendars and save the date to join us at Case Western Reserve University's annual Research ShowCASE + Intersections. Plan to discover hundreds of new research projects, learn about the studies being conducted through CWRU, and talk to the faculty, staff and students doing this exciting work. The day will be filled with opportunities to explore the interactive booths and exhibits, to participate in one of the many competitions available for students showcasing their work, and to celebrate research! Abstracts will be accepted at showCASE.case.edu beginning in December. This event is free and open to the public.



CWRU Researchers Combine Innovations to Address Two Global Health Issues

CWRU

Comprehensive IRB

CWRU Institutional Review Board Expansion

In July, the Case Western Reserve University Institutional Review Board (IRB) expanded its scope to include the acceptance of human research protocol applications that are biomedical in nature in addition to social, behavioral and educational research studies. This change will primarily affect CWRU researchers whose studies are not performed in hospital settings but involve minimally invasive biomedical procedures such as collection of blood, teeth, saliva and other biospecimens, as well as the use of noninvasive techniques like electrocardiography, ultrasound and Doppler blood flow. Studies that take place at CWRU affiliate hospitals and/or involve patients, equipment or data at those sites will continue to be reviewed by the respective hospitals' IRBs.

Social and behavioral researchers will not experience any changes when submitting protocol applications to the CWRU IRB.



Hemex Health, an Oregon start-up focused on creating life-changing global health products, has licensed a pair of breakthrough technologies from Case Western Reserve University that promise to revolutionize the diagnosis of two of the world's most-deadly diseases: malaria and sickle cell disease. Hemex Health is building on two inventions from CWRU labs and is developing them into one commercial product.

Hemex will offer both diagnostics inside a common platform optimized for under-resourced areas where these diseases are commonly found. The final product will be portable, rugged, and easy-to-use, incorporating design inputs gathered from multiple research studies. The product is currently in the prototype stage, and will be field tested at sites in South America, Africa and India.

"Both technologies had made considerable progress from business competition awards and grants that funded early product development and clinical proof from organizations, such as the Consortia for Improving Medicine with Innovation and Technology (CIMIT), Wallace H. Coulter Foundation, NCAI-Cleveland Clinic Foundation, and Ohio Third Frontier Technology Validation and Start-Up Fund", said Wayne Hawthorne from the Case Western Reserve Technology Transfer Office. "Hemex chose these diagnostic technologies out of the hundreds we evaluated because they will help solve large global health problems and have been developed to the point where they can be brought to market in a couple of years," added Patti White, CEO of Hemex Health.



Over 3.4 billion people (half the world's population) are currently at risk for malaria. Although 35 countries have set elimination goals, their efforts are severely hampered because current diagnostics lack the speed and sensitivity to effectively screen large populations and catch asymptomatic carriers. The Hemex malaria solution works by measuring hemozoin, a byproduct produced by all strains and species of the malaria parasite. The test can rapidly detect even very low levels of the parasite—in under one minute. The affordable, portable diagnostic can be operated by an entry-level healthcare worker in the most remote and challenging locations.

About 500 million people carry the gene for sickle cell and related disorders, primarily in low-resource countries that cannot afford to implement costly centralized screening systems. "The result," said Hemex co-founder, Peter Galen, "is that very few newborns in these regions are tested at the time when cost-effective, life-saving treatments should be initiated." The Hemex sickle cell diagnostic offers the quality of an expensive laboratory test in a point-of-care product using technology called "microchip-electrophoresis", a miniaturization of an expensive, laboratory test. Galen explained that, "Like our malaria diagnostic, the sickle cell diagnostic is an affordable and easy-to-use test. It accurately identifies sickle cell disease or trait in just eight minutes. Although people who carry sickle cell trait do not experience symptoms," he said, "they need to know that they may produce a child with the disease if the other parent also carries the trait."

The Internet of Things Collaborative: **Engaging an Entire Community**

What started out within the Department of Electrical Engineering & Computer Science as an effort called ISSaCS (the Institute for Smart, Secure, and Connected Systems, engineering.case.edu/ISSaCS-announcement) has blossomed into an initiative that extends beyond the Case School of Engineering to the entire CWRU campus as well as the greater Cleveland region.

Through the support of a \$200,000 planning grant from the Cleveland Foundation, ISSaCS leadership has worked with neighboring Cleveland State University to build out a plan to capitalize on the Internet of Things (IoT). Could Cleveland lead this technology revolution? Over the last 12 months, teams of faculty and administrators have been engaging industry, community agencies, local governments, academic experts, entrepreneurs, philanthropists and others to explore this opportunity. The Cleveland advantage centers on viewing the IoT from a multi-disciplinary, multi-application, whole-system perspective that builds on application areas of historic strength to evolve into a highly integrated smart city. We approach these strengths—manufacturing, energy, healthcare, and infrastructure—not only from a technology viewpoint, but also taking into account interpersonal, legal and societal considerations. As an example, through a recently awarded NSF Smart and Connected Cities grant, CSE and WSOM researchers are working with a Cleveland neighborhood and its small manufacturers to talk about the role of the IoT



to manage factory floors as well as supply chains. These conversations also include the role of the workers in the new framework as well as the neighborhood's quality of life as manufacturing opportunities increase (e.g. can the IoT help manage environmental concerns, road quality from heavy transportation, etc.?).

In the academic year ahead, the Internet of Things team will be engaging more deeply with constituents throughout campus, bringing together the great minds of CWRU and CSU to find synergies in existing research programs and to identify new research topics that can truly transform Cleveland into a flourishing high-tech region.

SPARTA IRB

Coming Soon! New Electronic IRB System

The CWRU Institutional Review Board (IRB) will launch a new electronic system early next year. It is expected that SpartaIRB will be available by March 2018, and will join the university's other Sparta products, SpartaPre and SpartaCOI. SpartaIRB will replace the iRIS system currently used to submit, review and approve IRB applications.

All Sparta systems will work together and have the capacity to exchange information about grants and contracts, conflict of interest disclosures and management and IRB applications. The goal is to provide streamlined processing and enhanced reporting across all these research administration areas.

Stay tuned to hear more about training sessions and roll out of the new system.

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The Office of Research Administration provides two weekly e-newsletters; one details funding opportunities and the other provides news and updates regarding research. Join the lists at research.case.edu/spiderweb/oraSubscriptions.cfm.

To speak with someone to obtain information, offer input, or discuss problems, questions, or concerns about participation in a research study, please contact the local Institutional Review Board (IRB) or Research Compliance Officer listed above.

Visit us on the web at: case.edu/research.

