Two Ohio State researchers elected to National Academy of Sciences

Two Ohio State professors have been elected to the National Academy of Sciences (NAS), one of the most prestigious honors an American scholar can receive in recognition of distinguished and continuing achievements in original research. Tina Henkin, professor and chair of microbiology and the Robert W. and Estelle S. Bingham Professor of Biological Sciences, and Yasuko Rikihisa, professor of veterinary biosciences, are Ohio State’s newest NAS members. Henkin analyzes the mechanisms behind the ability of cells to sense changes in their environment and transmit that information to influence gene expression. She is targeting these processes for development of a new class of antibiotics to treat bacterial infections. Rikihisa specializes in the study of tick-borne diseases that infect food and fiber-producing animals, companion animals, and humans. Her research focuses on how unique pathogens infect and thrive within primary host defensive white blood cells and cause potentially fatal emerging infectious diseases. Ohio State now has 12 NAS members.

Companies using Ohio State technologies receive Third Frontier Funds

The Ohio Third Frontier Commission recommended nearly $1 million for 13 projects across the state to promote greater economic growth in Ohio-based start-up companies that commercialize technologies developed by Ohio’s institutions of higher education. The Ohio Third Frontier Technology Validation and Start-up Fund supports protected technologies requiring validation and/or proof to enhance their commercial viability. Two of the 13 projects involve technology that will be licensed from Ohio State. Obgenex, Inc., located in Columbus, will receive $100,000 to advance a proof-of-concept study for a potential obesity therapy. This study will provide the data necessary to approach development partners to commit funds for larger scale trials. Columbus-based pH Matter, Inc., will receive $100,000 to scale-up production of carbon nanotube fibers. The fibers could provide a cost-effective replacement for precious metal cathodes in batteries and fuels.

Award celebrates research that improves health, alleviates suffering

Ten clinical research projects from institutions across the U.S. were selected to receive the inaugural Clinical Research Forum Top 10 Clinical Research Achievement Awards. The projects, which involved extensive collaboration and bold approaches to innovation, are compelling examples of the scientific innovation that results from the nation’s investment in clinical research that can benefit human health. The studies, all published within the last two years, are the latest in a long tradition of notable health advances – such as eliminating polio and improving cancer survival rates – that were propelled by combined investment in basic science and clinical research. Work by Steven Lower, associate professor in the School of Earth Sciences, was selected for one of the prestigious awards. He collaborated with investigators at Duke University Medical Center to examine why some patients develop infections from cardiac implants. The findings, which were published in Proceedings of the National Academy of Sciences, showed that some patients developed potentially deadly blood infections from implanted cardiac devices because bacteria in their bodies had gene mutations that allowed bacteria to stick to the devices. The Clinical Research Forum is an organization comprising the nation’s most prestigious academic medical centers, professional organizations, and industry. Their goal is to sustain and expand a cadre of talented, well-trained clinical investigators at all stages of career development and provide leadership to the national clinical and translational researcher.

Denman Undergraduate Research Forum winners recognized

The importance of research in the educational programs of Ohio State’s undergraduate students is overwhelmingly evident in the annual Denman Undergraduate Research Forum. Since 1996, the Denman has provided students with an opportunity to showcase their research and scholarly work before a group of faculty and corporate judges. More than 600 students
participated in this year’s forum. Projects ranged from the pathogenesis of insulin resistance, to dancing in the vertical plane, to fighting global hunger, to asynchronous stimulation for cochlear implants. The forum is co-sponsored by the Honors & Scholars Programs, the Undergraduate Research Office, and the Office of Research.

$8.3 million Gates Foundation grant bolsters fight against malnutrition

An international team of scientists received an $8.3 million grant from the Bill and Melinda Gates Foundation to find new ways to diagnose, treat, and prevent a critical global health problem – malnutrition in infants and children. Severe malnutrition has long been thought to stem simply from a lack of adequate food. But now researchers believe the condition is far more complex and may involve a breakdown in the way gut microbial communities process various components of the diet. Researchers hope to discover novel dietary and microbial therapeutics that can be targeted towards infants and children living in countries with rampant malnutrition. Washington University School of Medicine in St. Louis is leading this project. Linda Saif, Distinguished University Professor at the Ohio Agricultural Research and Development Center, is leading the Ohio State team. She is an internationally-recognized virologist and immunologist studying infectious diseases that affect both animals and humans. Saif will evaluate new ways to improve the effectiveness of vaccines against rotavirus – the leading cause of childhood diarrhea. Current rotavirus vaccines fail in children in impoverished countries where malnutrition and diarrhea mortality are highest. Additional collaborators include the University of California, Davis; the University of Colorado, Boulder; the University of Tampere School of Medicine in Finland; the University of Malawi College of Medicine; and the Imperial College, London.

Astronomers receive $5M to build cameras for telescope network

Ohio State astronomers received a $5 million contract from the Korea Astronomy and Space Sciences Institute (KASI) to build three 340 megapixel cameras for the Korea Microlensing Telescope Network (KMTNet). The cameras will be mounted atop 1.6 meter telescopes built at three KMTNet observatory locations: La Serena, Chile; Sutherland, South Africa; and Coonabarabran, Australia. The telescopes will allow observers to discover and monitor thousands of gravitational microlensing events per year. Detailed simulations indicate that this network will increase the planet detection rate by an order of magnitude and measure the frequency of cool Earth-mass planets orbiting stars throughout the galaxy. The Ohio State team includes Andrew Gould, Thomas Jefferson Professor for Discovery and Space Exploration; Scott Gaudi, associate professor of astronomy; Bruce Atwood, research scientist in astronomy; and Thomas O’Brien, project engineer and research specialist in astronomy. The first telescope will be installed in Chile in April 2013 and the Ohio State built camera will be mounted in October 2013. The remaining two telescopes will become operational in 2014.

Ohio State receives fellowship for informatics training program

Ohio State’s Department of Biomedical Informatics is the recipient of a prestigious, highly-competitive five-year training program award issued by the U.S. National Library of Medicine (NLM) of the National Institutes of Health. The award will enable Ohio State to recruit and teach the next generation of biomedical informatics professionals and enhance the novel, cutting-edge research being conducted in today’s “living laboratories.” Ohio State’s Clinical and Translational Research Informatics Training Program (CTRP) is one of only 14 elite academic training programs across the country applying innovative biomedical informatics (BMI) theories and methods to improve overall health outcomes of patients. Ohio State was selected by the NLM to host the training program because it is one of the nation’s largest and most comprehensive health sciences campuses with an interdisciplinary environment that includes expertise in biology, medicine, computer and information sciences, engineering, quantitative sciences, and human behavior. Philip Payne, associate professor and chair, Department of Biomedical Informatics, and Peter Embi, associate professor and vice chair, Department of Biomedical Informatics, are co-directors of CTRP.

2009 Solar Decathlon house to serve as K-12 STEM Education Center

The 2009 Ohio State Solar Decathlon house has a new home. The house was moved from its location at the Columbus Zoo to the New Albany-Plain Local School District where it will serve as a K-12 Nature and Renewable Energy STEM Education Center. Ohio State donated the net-zero energy building to the school system as part of a STEM education initiative. More than 60 Ohio State students from 20 different majors built the house as part of the Solar Decathlon competition, an event held every other year in Washington D.C. Sponsored by the U.S. Department of Energy, the event challenged 20 collegiate teams to design, build, and operate solar-powered houses that were cost-effective and energy-efficient.