Alan Blank writes about the sciences for University Communications.

Research Roundup

SCIENTISTS FIND A KEY TO MAINTAINING DNA

Scientists have discovered how DNA maintenance—a critical yet complex part of the aging process—is regulated, opening the door to interventions that may enhance the body’s natural preservation of genetic information. Robert Bambara, chair of the Department of Biochemistry and Biophysics, led the research, which was published in the Journal of Biological Chemistry. The new finding—that a process called acetylation determines the degree of fidelity in DNA replication and repair—may ultimately help researchers delay the onset of aging and aging-related diseases by curbing the loss of or damage to DNA, which makes people more susceptible to cancers and neurodegenerative diseases.

IRON DEFICIENCY HARM THE DEVELOPING BRAIN

A mother’s iron deficiency early in pregnancy may have a profound and long-lasting effect on the development of her child’s brain, even if the lack of iron isn’t enough to cause severe anemia, according to researchers. Low iron is so common that an estimated 35 percent to 58 percent of all healthy women show some degree of deficiency—and one in five women of childbearing age has iron-deficient anemia, a more serious condition. Led by Margot Mayer-Proschel, an associate professor of biomedical genetics, the research underscores the need for monitoring a pregnant woman’s iron status beyond anemia. The journal PLoS One published the study.

LARGER CITIES DRIVE GROWING WAGE GAP

Soaring salaries of many urban dwellers are behind a growing income gap in the country’s megacities, say researchers. A new study by Ronni Pavan, an assistant professor of economics, and Nathaniel Baum-Snow of Brown University and the National Bureau of Economic Research, shows that up to one-third of the growth in the wage gap between rich and poor is driven by city size, independent of workers’ skills. Using U.S. Census data and American Community Surveys from 1980 to 2007 across the nation, the researchers found that the larger the city, the wider the wage gap among its workers. The country’s largest cities—New York, Los Angeles, and Chicago—are home to the greatest extremes in incomes, while midsized cities experience relatively less wage inequality and rural areas, the least.

RESEARCH CLARIFIES ‘OBESITY PARADOX’

A new study shows that obese patients with high blood pressure and diabetes are at much higher risk for major complications following noncardiac surgery compared to otherwise healthy obese patients and patients of normal weight. The finding—which provides a simple, clinically useful way of identifying patients who may be at high risk—diverges from previous research showing that obesity is associated with a lower risk of death and complications after noncardiac surgery. It also helps to clarify the so-called “obesity paradox”—the notion that a high body mass index (BMI) confers a protective effect in certain circumstances.

ANTIDEPRESSANTS BOOST BRAIN CELLS AFTER INJURY

Antidepressants may help spur the creation and survival of new brain cells after brain injury, according to a study by neurosurgeons. Jason Huang, an associate professor of neurosurgery, and colleagues undertook the study after noticing that patients with brain injuries who’d been prescribed antidepressants were doing better in unexpected ways than their counterparts who didn’t take such medications. Not only did their depression ease, but their memory also seemed to improve compared to the other patients. The team’s study of the antidepressant imipramine suggests that it boosts the number of neurons in the hippocampus, the part of the brain responsible for memory. The findings were published online in the Journal of Neurotrauma.