NIH Report to PharmPAC
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Submitted by CDR David Diwa
NIH web site: http://www.nih.gov/
NIH New & Events: http://www.nih.gov/news/index.html

Posted October 7, 2010
Study details structure of potential target for HIV and cancer drugs
In a technical tour de force, structural biologists funded by the National Institutes of Health have determined the three-dimensional structure of a molecule involved in HIV infection and in many forms of cancer. The high-resolution structure sheds light on how the molecule functions and could point to ways to control its activity, potentially locking out HIV and stalling cancer's spread. The molecule, CXCR4, is part of a large family of proteins called G-protein coupled receptors (GPCRs). These molecules span the cell's membrane and transmit signals from the external environment to the cell's interior. GPCRs help control practically every bodily process, including cell growth, hormone secretion and light perception. Nearly half of all drugs on the market target these receptors.
http://www.nih.gov/news/health/oct2010/nigms-07.htm

NIH funds advanced development of three biodefense vaccines: Research to focus on improving delivery of dengue and anthrax vaccines
The National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, today announced three new contracts to fund research on vaccines to protect against emerging infectious diseases and biological threats that could be used in a terror attack. Each project focuses on simple and efficient vaccine delivery approaches that could be deployed quickly. The total funding for the three contracts could reach $68 million, depending on the successful completion of defined project milestones. "These new contracts build on NIAID's commitment to support the advanced development of products that are important to the public health but often unattractive to investors in private industry, by bridging the funding gap with contracts intended to address specific health needs," says NIAID Director Anthony S. Fauci, M.D. The three studies will focus on a dengue vaccine delivered by a needle-free device, an anthrax vaccine delivered orally and an anthrax vaccine delivered in conjunction with an adjuvant—a compound that stimulates the immune system.
http://www.nih.gov/news/health/oct2010/niaid-07.htm

Posted October 6, 2010
NIH Grantee Wins 2010 Nobel Prize in Chemistry
The 2010 Nobel Prize in chemistry has been awarded to National Institutes of Health (NIH) grantee Ei-ichi Negishi, Ph.D., of Purdue University, West Lafayette, Indiana. Dr. Negishi shares the award with Richard F. Heck, Ph.D., of the University of Delaware in Newark, Delaware and Akira Suzuki, Ph.D., of Hokkaido University, Sapporo, Japan. The three researchers are honored for developing complementary methods to find more efficient ways of linking carbon atoms together to build complex molecules. "The methodology developed by these stellar scientists has broad implications for the medical, electronic, and agricultural fields," said NIH Director Francis S. Collins, M.D., Ph.D. "It has already allowed chemists to synthesize compounds to fight the herpes virus, HIV, and colon cancer." Dr. Negishi has received more than $6.5 million in support from the NIH's National Institute of General Medical Sciences (NIGMS) since 1979. http://www.nih.gov/news/health/oct2010/od-06a.htm

Posted October 4, 2010
Immunotherapy Boosts Pediatric Cancer Survival
A new form of immunotherapy significantly improved the survival rates of children with neuroblastoma, a deadly nervous system cancer. The result highlights the potential of this treatment approach for patients with rare cancers.
http://www.nih.gov/researchmatters/october2010/10042010cancer.htm

Salmonella Are Armed, Agile and Primed for Invasion
Scientists have discovered a subset of *Salmonella* bacteria that are fast-replicating, quick-moving and apparently armed with a needle-like complex that can penetrate cells in the human gut. The findings may help explain how *Salmonella,* a common cause of food poisoning, can spread so efficiently.
http://www.nih.gov/researchmatters/october2010/10042010salmonella.htm

Children, males and blacks are at increased risk for food allergies
A new study estimates that 2.5 percent of the United States population, or about 7.6 million Americans, have food allergies. Food allergy rates were found to be higher for children, non-Hispanic blacks, and males, according to the researchers. The odds of male black children having food allergies were 4.4 times higher than others in the general population. The research, which was funded by the National Institutes of Health and appears in the Journal of Allergy and Clinical Immunology, is the first to use a nationally representative sample, as well as specific immunoglobulin E (IgE) or antibody levels to quantify allergic sensitization to common foods, including peanuts, milk, eggs, and shrimp. The hallmark of food allergy is production of IgE antibodies to a specific food protein. Once IgE antibody is made, further exposure to the food triggers an allergic response. IgE levels are often high in people with allergies
http://www.nih.gov/news/health/oct2010/niehs-04.htm

Posted October 1, 2010
Gene variations that alter key enzyme linked to prostate cancer
Researchers at the National Institutes of Health have found that variations in a gene for an enzyme involved in cell energy metabolism appear to increase the risk for prostate cancer.
The genetic variations all impair the enzyme phosphodiesterase 11A (PDE11A), which helps regulate a cell's responses to hormones and other signals. Previous studies by NIH researchers have linked genetic variations that inactivate PDE11A with increased susceptibility to testicular cancer and adrenal tumors. The researchers found that a group of men with prostate cancer were nearly four times more likely to have variations affecting the activity of PDE11A than did men who did not have prostate cancer. In 2010, it is estimated that there will be 217,730 new cases of prostate cancer, and 32,050 deaths.
http://www.nih.gov/news/health/oct2010/nichd-01.htm

Posted September 27, 2010
Alternate Therapy for Poorly Controlled Asthma
A drug commonly used to treat chronic obstructive pulmonary disease can help adults whose asthma isn't well-controlled by low doses of inhaled corticosteroids. The new finding may expand the options for controlling asthma. Doctors usually recommend that adults whose asthma is poorly controlled by low doses of inhaled corticosteroids either increase their inhaled corticosteroids or supplement them with long-acting beta agonists. Neither solution is ideal. Higher doses of corticosteroids don't improve symptoms for all patients and can have significant side effects. The safety of long-acting beta agonists has come under serious scrutiny recently.
http://www.nih.gov/researchmatters/september2010/09272010asthma.htm

Telomere Length Linked to Outcomes in Aplastic Anemia
Aplastic anemia patients with shorter telomeres have a lower survival rate and are more likely to relapse than those with longer telomeres. The results add to evidence linking telomere length to disease and clinical outcomes. Aplastic anemia arises when the body's bone marrow doesn't make enough new blood cells. A number of diseases, conditions and factors can damage the blood-making stem cells in bone marrow and bring about aplastic anemia. However, the cause of the disorder is unknown in more than half of the people who have it. Mild or moderate cases may not need treatment, but people who have severe aplastic anemia need medical treatment right away. Treatments include blood transfusions, blood and marrow stem cell transplants, and medicines such as immunosuppressive therapy, which can relieve symptoms and reduce complications.
http://www.nih.gov/researchmatters/september2010/09272010anemia.htm

Posted September 20, 2010

New Gene Tied to Deadly Ovarian Cancer

Ovarian cancer is the fifth deadliest cancer among women nationwide. The subtype known as ovarian clear cell carcinoma is poorly understood and can be especially resistant to standard therapy. To learn more about the genetic origins of ovarian clear cell carcinoma, 2 independent teams of scientists used different techniques to examine the exons, or protein-coding regions of the genome, in ovarian tumor cells. http://www.nih.gov/researchmatters/september2010/09202010cancer.htm

Blood Pressure and Kidney Disease in African-Americans

New results about blood pressure and chronic kidney disease among African-Americans suggest that a lower blood pressure goal can benefit people who have protein in the urine, which is a sign of kidney damage. A lower blood pressure goal was no better than the standard goal at slowing the progression of kidney disease among African-Americans with chronic kidney disease resulting from high blood pressure. However, the findings suggest that the blood pressure goal did benefit people who also had protein in the urine, which is a sign of kidney damage. In the United States, high blood pressure causes about one-third of new cases of kidney failure, also known as end-stage renal disease. The cost to the government and private payers for end-stage renal disease now exceeds $35 billion annually
http://www.nih.gov/researchmatters/september2010/09202010kidney.htm