

From the NIDA/NIH

Nicotine vaccine may stop addiction by removing 'kick'

A study partially funded by the National Institute on Drug Abuse (NIDA), National Institutes of Health, has found that a nicotine vaccine may help to prevent and control tobacco addiction.

The vaccine consists of a nicotine derivative attached to a large protein. In animal studies, it stimulates the immune system to produce antibodies that bind to the nicotine, making it too large to enter the brain and produce its effects. Animals given nicotine antibodies similar to those produced by the vaccines had greatly reduced rises in blood pressure and the increased movement produced by nicotine injections.

Brain cell damage similar to that caused by stroke and Alzheimer's disease from methamphetamine use

Researchers funded by the National Institute on Drug Abuse measured three areas of the brains of recent users of methamphetamine and compared them with the same three brain areas of non-methamphetamine users and found that use of the drug often referred to as "speed" produces harmful physical changes in the brain.

Using magnetic resonance spectroscopy, the scientists checked for abnormal brain chemistry, which indicates brain cell health, and found that the amount of damage incurred correlated with the amount of methamphetamine use and that the greatest damage occurred in people who had used the most methamphetamine.

One of the brain chemicals found to be reduced by at least 5%, N-acetyl-aspartate, is associated with brain cell loss similar to that found in conditions such as Alzheimer's disease, stroke, and epilepsy. There were decreases in two other chem-

icals as well, myo-inositol and choline-containing compounds, associated with glial cells that support neurons.

From the FTC

HIV home-use test can be inaccurate

The Federal Trade Commission recently tested home-use HIV kits advertised and sold on the Internet. In every case, researchers found that the kits, designed for self-diagnosis, showed a negative result when used on a known HIV-positive sample, which could give a person the false impression that he or she is not infected.

Although some Internet ads claim or imply that the World Health Organization (WHO) or another similarly well-known health organization has approved home-use kits, that is not the case. WHO does not approve or license HIV test kits.

From the NCI/NIH

Breast cancer risk greater with estrogen-progestin therapy than with estrogen alone

The risk of breast cancer increases by 8% per year for estrogen-progestin therapy compared with 1% for estrogen therapy alone, say researchers from the National Cancer Institute (NCI) in Bethesda, Md. In the Breast Cancer Detection Demonstration Project conducted between 1973 and 1980, scientists found greater risks in women using combined therapy over women using estrogen alone and no increased risk for those who had stopped either therapy for more than 4 years.

Within subgroups, researchers found increases in risk associated with hormone

replacement therapy (12% for each year of estrogen-progestin therapy compared with 3% for estrogen alone) among lean women but not heavy women, compared to non-users. They also found that lean women were more likely to have breast cancer develop the longer hormone therapy was used.

Results of the study appeared in the January 26 issue of *JAMA*.

Molecular tumor profile shows diffuse large B-cell lymphoma as two diseases

DNA microarray technology presented a way for scientists from the National Cancer Institute and the Stanford School of Medicine to see, for the first time, the cell design and behavioral script of tumor cells. This technology allowed them to obtain a detailed picture of diffuse large B-cell lymphoma, a common form of non-Hodgkin's lymphoma, that reveals the disease to be two distinct patterns of gene expression, two distinct diseases.

Further studies corroborated the existence of the two cancer subtypes. An examination of the 5-year survival rates of 42 patients treated with anthracycline-based chemotherapeutic regimens indicated that three fourths of patients with "GC B-like" subtype, the expression of germinal center genes largely congruent with normal B-cells, were alive at the 5-year mark. However, less than one fourth of patients with "activated B-like" were still living at the 5-year mark.

This may help to identify why 40% of patients with non-Hodgkin's lymphoma have responses to standard chemotherapy regimens while others relapse.

Current classification systems for distinguishing B-cell lymphoma types are based on differences in tumor appearance. DNA microarray technology allows a clearer distinction of subtypes of tumors and provides more information about their

behaviors. Future cancer treatment will be based on these genetic profiles, which will help physicians provide better treatment.

HPV test provides guidance as to which ASCUS results pose risk

Researchers at the National Cancer Institute, National Institutes of Health have discovered that they can use the human papillomavirus (HPV) test to determine which patients presenting an ASCUS Papanicolaou's test result may progress to a precancerous condition or cancer and which patients will not progress. This has been a problem because there had been no way of knowing which patients were at risk.

The National Cancer Institute's ASCUS/LSIL Triage Study found that the HPV test identified 96% of the ASCUS cases that were found in colposcopy to be at risk for progressing to cancer. About 5% of women with ASCUS Pap test results were found to have underlying precancer or cancer.

HPV testing is an option for women and their doctors to consider when deciding what to do about atypical squamous cell of undetermined significance.

From the NIA

Database provides references from several health agencies

A computerized database of bibliographic references on a variety of health topics, with information generated by federal health agencies, is available free of charge.

The Combined Health Information Database (CHID) is available at two Web sites: <http://chid.nih.gov> and <http://www.alzheimers.org>. It lists books, journal articles, and audio/video tapes. Each of 18 subfiles is focused on a different health topic, for example, the Alzheimer's disease subfile, which contains over 6,300 references.

National Institute on Aging's ADEAR staff will search the CHID file for health professionals without Internet access. Simply call 800/438-4380 and name the topic of interest.

From the AHCPR

Asthma severity in Latino children measured by new symptom scale

Asthma is the most common chronic illness affecting Latino children, particularly, those who are poorly educated and non-English speaking; yet, no form of measurement to report the frequency and severity of symptoms existed until now.

Marielena Lara, MD, of the UCLA/RAND Program on Latino children with asthma, has developed a Spanish-English scale that measures the frequency of wheezing, coughing, shortness of breath, chest pain, and asthma attacks. It also asks parents how often their child is awakened by asthma symptoms and asks for a rating of the severity of the asthma.

The rate of asthma in children between the ages of 5 and 14 years in the United States rose by 74% between 1980 and 1994.

The study was co-authored by Peter Gergen, MD, of the Agency for Healthcare Research and Quality's Center for Primary Care Research.

The report can be found in the March issue of *Medical Care*.

From the NIAID/NIH

Compounds slow mad cow-like disease in mice

The aggregating of toxic proteins in the brain, a mad cow-like, prion-disease state, is blocked by a new class of compounds, say researchers from the National Institute of Allergy and Infectious Diseases.

This raises hopes that studies involving humans will show similar results with Creutzfeldt-Jakob disease (mad cow disease in humans) but also with non-prion, protein-aggregating diseases such as Alzheimer's and type 2 diabetes. These compounds may also be of use in inactivating infectious agents in blood products.

Prions are special proteins thought to be the agents responsible for a group of fatal disorders called transmissible spongiform encephalopathies, that destroy the brain

and nervous system. These disorders include bovine spongiform encephalopathy (mad cow disease in cattle).

The study indicates that animals receiving the compounds with or at the time of the injection had greatly extended survival time, as opposed to those receiving the compounds later in the disease process.

NIAID researchers uncover correlation between immune feature and symptom-free, HIV-positive patients

The study of a small subset of symptom-free, HIV-infected patients, termed *long-term nonprogressors* (LTNPs), revealed a common immune system feature.

Immune system genes, called human leukocyte antigen genes (HLA), which are found in every cell but differ in their capacity to attach to microbes, encode proteins that attach to virus fragments within infected cells. They then signal T-cells to note and destroy them.

Within the symptom-free subgroup of 13 LTNPs, 11 of the 13 (85%) had a gene encoding an HLA variant, while only 19 of 200 progressors, HIV-positive patients who progressed to AIDS (9.5%), carried this gene. Second, the T-cells of the LTNPs recognized HLA B* 5701 when it was attached to HIV protein fragments.

Each member chosen for the study had met the criteria of normal CD4 +T-cell counts, low levels of HIV, and HIV-positive for 15 years, without having had antiretroviral therapy. ♦