



The Vitamin & Herb Stores

Human Technology Research Synopsis

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Compiled By Ralph Turchiano

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Even natural perfumes may cause allergies

Hypersensitivity to perfumes is the most common contact allergy in adults. Research at the University of Gothenburg has demonstrated that even natural aromatic oils, which many deem harmless compared to synthetic perfumes, may cause allergic reactions.

Roughly one in five adults in northern Europe is believed to suffer from contact allergy to one or more chemicals. The most common is nickel allergy, but many people also suffer from contact allergy to perfumes – even perfume substances that at first glance appear to be harmless can cause allergic reactions. New eczema-provoking allergens are formed by reaction with acid in the ambient air (known as autoxidation) or with skin enzymes.

Modern society commonly regards anything that comes from nature as being healthier and less dangerous. Where it concerns natural aromas, known as essential oils, many manufacturers believe that natural antioxidants in these oils offer protection against autoxidation thus making them safer and longer lasting than artificial perfumes. Research at the University of Gothenburg shows this is not the case.

Lina Hagvall, a researcher at the University of Gothenburg's Department of Chemistry, has examined natural lavender oil in her thesis. Her results show that essential oils do not prevent the formation of allergenic substances through reactions with acid; something which had not previously been possible to confirm. Hagvall's thesis also examines geraniol, a common constituent of perfumes such as rose oil. The study shows geraniol by itself to be only slightly allergenic. However through autoxidation and reaction with skin enzymes, the substance is activated and becomes the closely related allergen geranial. This is the first time these activation pathways have been demonstrated for the substance.

It is important to investigate how perfumes react with air or on skin. Lina Hagvall's thesis concludes that such risks must be factored into health risk assessments of chemicals relating to contact allergy. The thesis also demonstrates that more perfumes than previously believed can be activated into allergens, and that more studies should be done to increase knowledge within the field and thus reduce the number of eczema cases

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Researchers Disprove 15-year-old Theory about the Nervous System

MU study sheds new light on the development of the nervous system

Story Contact: Kelsey Jackson, (573) 882-8353, JacksonKN@missouri.edu

COLUMBIA, Mo. – A delay in traffic may cause a headache, but a delay in the nervous system can cause much more. **University of Missouri researchers have uncovered clues identifying which proteins are involved in the development of the nervous system and found that the proteins previously thought to play a significant role, in fact, do not.** Understanding how the nervous system develops will give researchers a better understanding of neurological diseases, such as multiple sclerosis and Charcot-Marie-Tooth disorders.

“Speed is the key to the nervous system,” said Michael Garcia, investigator in the Christopher S. Bond Life Sciences Center and assistant professor of biological sciences in the MU College of Arts and Science. “The peripheral nervous system ‘talks’ to muscles through nerve impulses in response to external stimuli. When babies are born, they do not have fully developed nervous systems, and their systems run slower. Eventually, the nervous system matures. Our study tried to understand that maturation process.”

The process of nerve cells maturation is called myelination. During myelination, a layer of myelin (electrically insulating material) wraps or forms around the axons (part of the nerve cell that conducts electrical impulses). Nerve impulses travel faster in myelinated nerve cells.

“Myelination is important for signal transmission because it increases nerve conduction velocity,” Garcia said. “The relationship between axons and myelinating cells is a reciprocal one, with each cell type sending and receiving signals from the other cell. One signal originates from myelinating cells and results in a large increase in axonal diameter.”

When nerve cells are unmyelinated, the axon has a smaller diameter and contains neurofilaments that are less modified and are more compact. Neurofilaments are a group of proteins that are essential for diameter growth. The protein group includes neurofilament subunits that are classified as light, medium and heavy. Loss of all neurofilaments in the axon results in myelinated axons with slowed conduction velocities.

For the last 15 years, the proposed underlying mechanism for an axon’s diameter growth has focused on myelin-dependent modification of regions of neurofilaments that are located within the heavy and medium subunits. In a previous study, genetically removing the region of the medium subunit that is modified impaired growth and slowed nerve conduction. **However, this did not directly test if the proposed modification was required as a much larger region was genetically removed. In the current study, researchers genetically altered the neurofilament medium subunit such that it could no longer be modified in response to myelination. Surprisingly, Garcia found that prevention of what was thought to be an extremely important modification did not affect axonal diameter.**

“It is now clear that the basic mechanism for how neurofilaments affect axonal diameters remains unanswered,” Garcia said. “This discovery introduces a lot of new questions.”

The study, “Phosphorylation of Highly Conserved Neurofilament-M KSP Repeats Is Not Required for Myelin-Dependent Radial Axonal Growth,” was published in The Journal of Neuroscience. The research was funded by the National Institutes of Health.

Ralph’s Note - Woops, give it 15-20 years before they start teaching it.

Public release date: 4-Feb-2009

Plan offers guidance for evaluating menopause-like condition in girls and young women

A comprehensive plan to help health care professionals diagnose and treat primary ovarian insufficiency—a menopause-like condition affecting girls and young women that may occur years before normal menopause is expected—has been developed by a scientist at the National Institutes of Health.

Lawrence Nelson, M.D., head of NIH's Integrative and Reproductive Medicine Unit, provided recommendations based on the research he has conducted at the NIH. His recommendations are published in the Clinical Practice feature of the February 5 New England Journal of Medicine.

In primary ovarian insufficiency, the ovaries stop releasing eggs and producing estrogen and other reproductive hormones. The sudden cessation of ovarian function results in a condition similar to that of normal menopause: loss of menstrual periods, infertility, hot flashes and night sweats, sleep loss, and increased risk for bone fracture and heart disease. The sudden and unexpected loss of fertility frequently results in feelings of grief, anxiety and depression.

Treatment consists of hormones to replace those no longer produced by the ovaries and counseling to help women cope with the grief, anxiety, and depression that may result from the diagnosis and the loss of fertility.

"The early indicators of primary ovarian insufficiency are subtle and the condition can be difficult to diagnose," said Duane Alexander, M.D., director of NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development, where Dr. Nelson conducts his research. "Dr. Nelson's report provides helpful information for health care professionals and patients on how to recognize the early symptoms of the condition so that women can benefit from prompt diagnosis and early treatment."

Because ovulation may sometimes occur in this group of women, primary ovarian insufficiency is more accurate than other terms that have been used to describe the condition, such as premature menopause or premature ovarian failure, Dr. Nelson wrote. Primary ovarian insufficiency occurs in women younger than age 40—the age at which menopause may begin.

A woman can be considered to have primary ovarian insufficiency if she has not experienced a menstrual cycle in 4 months or more, and if at least two tests taken more than 1 month apart show that she has abnormal levels of follicle stimulating hormone (FSH). FSH is produced by the pituitary and stimulates the ovaries to produce estrogen and prepare an egg for release.

Specifically, girls and young women with primary ovarian insufficiency have high FSH levels like those of women in menopause.

Dr. Nelson wrote that in rare instances, primary ovarian insufficiency may resolve spontaneously, and normal menstrual cycles and fertility will be restored. In 5 to 10 percent of cases, women become pregnant after having been diagnosed with primary ovarian insufficiency.

Dr. Nelson outlined a number of steps health care professionals can take to identify potential causes for the cessation of a woman's menstrual cycle. These include learning whether the woman has an underlying disease or condition, is exercising excessively and perhaps eating too little, or has had prior chemotherapy or radiation therapy. The diagnosis of primary ovarian insufficiency is made largely by the presence of FSH levels in the menopausal range. Once the diagnosis is made, additional tests for various chromosomal conditions and hormonal abnormalities should also be performed.

Dr. Nelson added that it is not appropriate to attribute missing or irregular menstrual periods to stress without further evaluation.

"A disordered menstrual cycle should be viewed as a vital sign that something could be wrong and a signal indicating the need for further evaluation," Dr. Nelson said.

Dr. Nelson wrote that 4 months or more of missing, irregular, too few, or too frequent, menstrual periods merit further evaluation.

In 90 percent of cases, the cause of primary ovarian insufficiency is unknown. In the remainder of cases it can be attributed to a genetic condition or to autoimmunity—a condition in which the immune system attacks the body's own tissues. Women in families affected by Fragile X syndrome—an intellectual disability resulting from an abnormality on the X chromosome—are at increased risk for primary ovarian insufficiency.

The unexpected loss of fertility that accompanies primary ovarian insufficiency can be emotionally devastating for many women, Dr. Nelson wrote. Patients should be monitored for signs of severe emotional distress and, when appropriate, referred for counseling or other sources of emotional support.

Earlier research has found that treatment with the hormones estrogen and progesterin to relieve the symptoms of menopause increases the risk of heart disease. Dr. Nelson noted that the results of that research do not apply to girls and women with primary ovarian insufficiency, who are too young to have undergone normal menopause. He added that most health care professionals agree that treatment with estrogen and progesterin is appropriate for women with primary ovarian insufficiency, to replace the hormones their bodies would otherwise produce.

Pregnancy is unlikely in primary ovarian insufficiency but does sometimes occur, so sexually active women with the condition should be aware of this possibility. Dr. Nelson added that some evidence indicates that oral contraceptives may not be effective for this group of women, and so they need to rely on other forms of contraception.

Because women with primary ovarian insufficiency are at risk for low bone mineral density, they should also be advised to consume adequate calcium and vitamin D, and to get sufficient exercise, methods which have been proven to safeguard bone health.

Public release date: 4-Feb-2009

Arginine discovery could help fight human obesity

COLLEGE STATION – A Texas AgriLife Research scientist and fellow researchers have discovered that arginine, an amino acid, reduces fat mass in diet-induced obese rats and could help fight human obesity.

"Given the current epidemic of obesity in the U.S. and worldwide, our finding is very important," said Dr. Guoyao Wu, an AgriLife Research animal nutritionist in College Station and Senior Faculty Fellow in the department of animal science at Texas A&M University.

The research found dietary arginine supplementation shifts nutrient partitioning to promote skeletal-muscle gain, according to the researchers. The findings were published recently in the Journal of Nutrition (<http://jn.nutrition.org>).

In laboratory experiments, rats were fed both low-and high-fat diets. **They found that arginine supplementation for a 12-week period decreased the body fat gains of low-fat and high-fat fed rats by 65 percent and 63 percent, respectively. The long-term arginine treatment did not have any adverse effects on either group.**

"This finding could be directly translated into fighting human obesity," Wu said. "At this time, arginine has not been incorporated into our food (but could in the future)."

Arginine-rich foods include seafood, watermelon juice, nuts, seeds, algae, meats, rice protein concentrate and soy protein isolate, he said.

The research suggests that arginine may increase lean tissue growth. In pigs, it was found that dietary arginine supplementation reduced fat accretion (growth) but increased muscle gain in growing/finishing pigs without affecting body weight.

Another important observation according to the research was that dietary arginine reduced serum concentrations of branched-chain amino acids.

"This metabolic change is likely beneficial because elevated concentrations of branched-chain amino acids may lead to insulin resistance in obesity. **Additionally, arginine can stimulate muscle protein synthesis, a biochemical process that requires large amounts of energy,**" Wu said. "Thus, dietary energy would be utilized for lean tissue rather than fat gain."

The research, funded by the American Heart Association, will be presented in August at the 11 th International Symposium on Amino Acids in Vienna, Austria.

Public release date: 5-Feb-2009

Pharmaceuticals sold in Sweden cause serious environmental harm in India

Many of the substances in our most common medicines are manufactured in India and China. Some of these factories release large quantities of antibiotics and other pharmaceutical substances to the environment. There is an obvious risk of these releases leading to resistant bacteria.

Research from the Sahlgrenska Academy at University of Gothenburg, Sweden, shows that Sweden is a major consumer of pharmaceutical substances from factories that fail to adequately treat their wastewater. As it is difficult to find out where the pharmaceutical substances are manufactured and how much is released, it is impossible at present for consumers to avoid contributing to this environmental harm.

These findings are presented in the medical journal Regulatory Toxicology and Pharmacology and are highlighted today in a news article in Nature. Last week the research of the Swedish group became headline news in New York Times, Washington Post and Times of India.

"We used to think that pharmaceuticals that ended up in the environment mostly came from the use of the medicines and that the substances were dispersed through wastewater. We now know that certain factories that manufacture substances release very large quantities of active substances," says associate professor Joakim Larsson of the Sahlgrenska Academy in Gothenburg, Sweden, one of the research scientists behind the studies.

The water from the pharmaceutical industries is highly toxic

Joakim Larsson has visited the industrial zone near Hyderabad, India, an important centre for the manufacturing of pharmaceutical substances. Here his research team has taken samples of the water discharged from a treatment plant that treats wastewater from around 90 pharmaceutical factories before it is released.

"We have previously shown that the "treated" water contained exceptionally high levels of various pharmaceutical substances, including several broad-spectrum antibiotics. We estimated that the treatment plant released 45 kilograms of the antibiotic ciprofloxacin in one day, which is equivalent to five times the daily consumption of Sweden," says Larsson.

Such high levels of antibiotics in the water are a cause for alarm as there is an increased risk of spawning resistant bacteria, an issue of global concern. This can lead to those antibiotics that are invaluable today becoming ineffective sooner and not killing the bacteria of tomorrow. In addition, the environment is affected locally by the pollution; In another study by Larsson's team, published this week in Environmental Toxicology and Chemistry, they show that effluent diluted as much as 500 times strongly inhibit the growth of frog tadpoles.

The substances manufactured in Hyderabad are sold in Sweden

Where the active substance in a pharmaceutical product is manufactured is not public information, but the

Swedish Medical Products Agency can grant exemptions for research purposes. The researchers analyzed data from the Medical Products Agency for all 242 products on the Swedish market that contained any of nine specific substances*. **They found that 123 products contained substances from India and for 74 of the products, 31 per cent, the active substance was manufactured by one of the factories that send their wastewater to the treatment plant outside Hyderabad that was studied.**

"The analysis shows quite clearly that a large number of medicinal products on the Swedish market is made by manufacturers that send their effluent to a treatment plant that does not treat their water satisfactorily," says Larsson.

We bear part of the responsibility

"Sweden, which is reputed to have some of the strictest environmental legislation in the world, like other western countries therefore bears a shared responsibility for the environmental problems the medicines we consume cause in India, for example," says Larsson.

But it is impossible for the individual consumer to know today whether a substance in a medicine he or she needs to take may have caused environmental problems in manufacturing.

"It is therefore important that the production chain is made transparent. If consumers are given an opportunity to choose pharmaceutical products they know to be produced in an environmentally friendly way, this could encourage manufacturers to become more environmentally friendly," says Larsson.

Public release date: 5-Feb-2009

Gut bacteria can manufacture defenses against cancer and inflammatory bowel disease

Bacteria naturally present in the human gut could produce substances that help to protect against colon cancer and provide therapy for inflammatory bowel disease. In a paper published in the journal *Microbiology*, researchers from the University of Aberdeen Rowett Institute of Nutrition and Health and from the MTT Agrifood Research Institute in Finland report initial studies showing that bacteria in the human gut convert linoleic acid, a naturally-occurring fat in the diet, into a form called conjugated linoleic acid (CLA) which is absorbed by the gut wall.

There are different types of CLA and not all of them have beneficial effects. The "good" form of CLA is present in dairy foods such as milk and cheese," said Dr John Wallace of the Rowett Research Institute, "but eating lots of dairy foods won't necessarily help our gut health as most of the fats are digested in the small intestine before they get to the large intestine, where most of our gut bacteria are found." The results of these latest studies showed that several different forms of CLA are produced by gut bacteria. Fortunately, most was of the "good" kind, but Dr Wallace stressed that more extensive studies are needed. One subject produced small amounts of a CLA whose beneficial or otherwise effects are much less clear.

The implications are that, if small quantities of dietary linoleic acid can be delivered to the large intestine, the effects on gut health will be generally beneficial in most people. He added, "The results are of special interest for individuals using anti-obesity treatments that prevent the small intestine from absorbing fats. This means that those fats – including linoleic acid - will pass into the large intestine and the gut bacteria will produce CLA. It has to be the correct CLA, so it is important to understand how individuals produce different CLA. This must depend on which types of bacteria are present."

Ralph's Note - Since CLA also plays a role in metabolism, another Hypothesis would be. That since Antibiotics kill gut bacteria. Then Antibiotics may result in unexplained weight gain.

Public release date: 5-Feb-2009

Mutant rats resist warfarin

A new series of mutations have been discovered that allow rats to resist **the effects of the popular poison warfarin**. Research published in the open access journal BMC Genetics describes eighteen new genetic changes found in rats from four continents.

Simone Rost from the University of Wuerzburg, Germany, and an international team of researchers studied more than 250 rats and mice from anticoagulant-exposed areas in Europe, East Asia, South Africa and the Americas. Rost explained that, "Resistance against warfarin-like compounds has been reported in rodent populations from many countries around the world and poses a considerable problem for efficacy of pest control."

Warfarin and related compounds are derivatives of the plant toxin coumarin. They prevent blood coagulation by repressing the enzyme vitamin-K reductase (VKOR). Rost and colleagues studied VKORC1, the gene responsible for a key component of the VKOR multiprotein complex. According to the authors, "Mutations in VKORC1 may cause a heritable resistance to warfarin, possibly by preventing coumarin derivatives from interfering with the activity of the reductase enzyme".

Ralph's Note - One mans Poison is another mans drug (Coumadin)

Public release date: 5-Feb-2009

Vigorous Exercise May Help Prevent Vision Loss

Vigorous exercise may help prevent both cataracts and age-related macular degeneration, according to a pair of studies that tracked approximately 31,000 runners for more than seven years.

Berkeley, CA — There's another reason to dust off those running shoes. Vigorous exercise may help prevent vision loss, according to a pair of studies from the U.S. Department of Energy's Lawrence Berkeley National Laboratory. The studies tracked approximately 31,000 runners for more than seven years, and found that running reduced the risk of both cataracts and age-related macular degeneration.

The research, which is among the first to suggest that vigorous exercise may help prevent vision loss, offers hope for people seeking to fend off the onset of eye disease.

"In addition to obtaining regular eye exams, people can take a more active role in preserving their vision," says Paul Williams, an epidemiologist in Berkeley Lab's Life Sciences Division who conducted the research. "The studies suggest that people can perhaps lessen their risk for these diseases by taking part in a fitness regimen that includes vigorous exercise."

A cataract, which is a cloudy opacity of the eye lens, is the leading cause of blindness. More than one-half of people in the U.S. over the age of 65 suffer from some form of cataracts. Age-related macular degeneration, which is damage to the retina, is the leading

cause of irreversible vision loss in older white Americans, affecting 28 percent of people aged 75 and older.

The diseases have several known risk factors, such as sunlight exposure and diabetes in the case of cataracts, but few interventions. Now, it appears that vigorous cardiovascular exercise may be one way to derail the diseases.

To conduct the research, Williams analyzed data collected in the National Runners' Health Study, which he established in 1991 to determine the health benefits of running.

In this case, he followed approximately 29,000 male runners and 12,000 female runners for more than seven years. Of these people, 733 men reported being diagnosed with cataracts on a questionnaire filled out at the end of the study. Too few women reported cataracts to track.

Men who ran more than 5.7 miles per day had a 35 percent lower risk of developing cataracts than men who ran less than 1.4 miles per day. The study also analyzed men's 10-kilometer race performances, which is a good indicator of overall fitness. The fittest men boasted one-half the risk of developing cataracts compared to the least-fit men.

A second study found that running appeared to reduce the risk of age-related macular degeneration. In the study, 152 men and women reported being diagnosed with the disease. Compared to people who ran less than 1.2 miles per day, people who averaged between 1.2 and 2.4 miles per day had a 19 percent lower risk for the disease, and people who ran more than 2.4 miles per day had between 42 percent and 54 percent lower risk of the disease.

"These findings are compelling because of the large size of the study, and the fact that we are looking at something that is fairly well defined: vigorous exercise, as opposed to more moderate exercise," says Williams.

Most of the runners in the study exceeded the current public health recommendations for physical activity, which is at least 30 minutes of moderate-intensity activities such as brisk walking five days a week, or smaller doses of more vigorous exercise such as running. It is unclear whether people might also lower their risk for cataracts and age-related macular degeneration by walking.

"We know there are important health benefits to walking, including lowering heart disease risk," says Williams. "It is quite likely that the studies' results might apply to a lesser extent to smaller doses of more moderate exercise."

Williams also adds that further research is needed to explore why there is a link between vigorous exercise and a decreased risk for eye disease.

"We know some of the physiological benefits of exercise, and we know about the

physiological background of these diseases, so we need to better understand where there's an overlap," says Williams.

The studies are published in the January 2009 issue of Investigative Ophthalmology and Visual Science. They were supported in part by grants from the National Heart Lung and Blood Institute.

Berkeley Lab is a U.S. Department of Energy national laboratory located in Berkeley, California. It conducts unclassified scientific research and is managed by the University of California. Visit our website at [3] <http://www.lbl.gov>.

Public release date: 10-Feb-2009

BGU researchers identify vitamin B12 as an effective canker sore therapy

BEER-SHEVA, ISRAEL, February 10, 2009 – A team of physicians at Ben-Gurion University of the Negev has discovered that a nightly dose of vitamin B12 is a simple, effective and low risk therapy to prevent Recurrent Aphthous Stomatitis (RAS), better known as "canker sores."

According to lead researcher Dr. Ilia Volkov, "the frequency of RAS is as much as 25 percent in the general population, however, until now, there has been no optimal therapeutic approach."

The findings were reported in the January/February issue of the The Journal of the American Board of Family Medicine 22 (1): 9-16 (2009). Dr. Volkov is a primary care physician in the Clalit Health Services and lecturer in Ben-Gurion University's Department of Family Medicine in its Faculty of Health Sciences.

The researchers tested the effect of vitamin B12 on 58 randomly selected RAS patients who received either a dose of **1,000 mcg of B12** by mouth at bedtime or a placebo, and were tested monthly for six months. **Approximately three quarters (74 percent) of the patients of the treated group and only a third (32 percent) of the control group achieved remission at the end of the study.**

According to the research, "The average outbreak duration and the average number of ulcers per month decreased in both groups during the first four months of the trial. However, the duration of outbreaks, the number of ulcers, and the level of pain were reduced significantly at five and six months of treatment with vitamin B12, regardless of initial vitamin B12 levels in the blood. During the last month of treatment a significant number of participants in the intervention group reached 'no aphthous ulcers status' (74.1% vs 32.0%; $P < .01$)."

The treated patients expressed greater comfort, reported less pain, fewer ulcers, and shorter outbreaks during the six months while among the control group the average pain

level decreased during the first half of the period but increased during the second half.

Public release date: 12-Feb-2009

New lab evidence suggests preventive effect of herbal supplement in prostate cancer

PHILADELPHIA – DHEA is a natural circulating hormone and the body's production of it decreases with age. Men take DHEA as an over-the-counter supplement because it has been suggested that DHEA can reverse aging or have anabolic effects since it can be metabolized in the body to androgens. Increased **consumption of dietary isoflavones is associated with a decreased risk of prostate cancer. Red clover (Trifolium pretense) is one source of isoflavones.** Both supplements may have hormonal effects in the prostate and little is known about the safety of these supplements.

In a recent report in *Cancer Prevention Research*, a journal of the American Association for Cancer Research, researchers report that DHEA levels can be manipulated in cells in the laboratory to understand its effects.

Julia Arnold, Ph.D., a staff scientist at the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health, said more research is necessary in an environment where men and women concerned about health problems tend to self-prescribe based on information they find on the Internet.

Towards this end, the NCCAM laboratory is studying signaling between human prostate cancer cells and their supporting stromal cells as they grow together in laboratory culture. "DHEA effects in the prostate tissues may depend on how these two cells types 'talk to each other' and further, it may be potentially harmful in tissues containing inflammation or with early cancer lesions because the cells can induce DHEA to become more androgenic," said Arnold.

Combining DHEA with transforming growth factor beta-1 increased testosterone production in the stromal cells and prostate specific antigen protein secretion two to four-fold and gene expression up to 50-fold in the cancer cells. When these cell cultures were treated with red clover isoflavones, the androgenic effects of DHEA were reversed.

"Something is happening in the prostate tissue microenvironment that is illustrating a potential cancer prevention effect from this supplement," said Arnold.

Red clover isoflavones may modify androgenic effects in the prostate but much more work in the laboratory and clinic is needed to validate these effects.

This sort of laboratory manipulation will allow scientists to understand the basic prostate biology as well as learn cellular and molecular mechanisms of over-the-counter supplements and other botanical or herbal agents. Arnold said NCCAM will continue to

study DHEA with other supplements to determine any cancer preventive effects.

Public release date: 12-Feb-2009

Herpesvirus: To Vaccinate or Not To Vaccinate Scientists Weigh Risks and Benefits

Saranac Lake, N.Y., -Dr. Marcia Blackman and her research team at the Trudeau Institute have followed up on an intriguing report(1)published in the journal Nature in May 2007 by Dr. Herbert Virgin, et al., showing that mice persistently infected with certain forms of herpesvirus, which can establish lifelong latent infections, are resistant to infection with bacterial pathogens.

Although herpesvirus infections are generally considered undesirable and can be associated with declining immune function in the elderly or the development of a variety of tumors later in life, the Virgin report raised the unexpected possibility that they may also be beneficial.

Dr. Blackman's research has now confirmed Dr. Virgin's findings, but with some further refinements about herpes' roles in preventing other infections: "We discovered that the effect of herpesvirus infection is transient, lasting only a few months. Interestingly, although the effect was shown by the Virgin group to be dependent on establishing a latent infection, it wanes despite lifelong latency."

Recognizing that her data had implications for the interpretation of Dr. Virgin's data, Dr. Blackman shared her findings with the Virgin group prior to publication. This led to an interesting exchange between the two labs in the form of letters to the editor regarding the potential benefits of a transient protective effect. The letters will be published concurrently with Blackman's data in the February issue of *Viral Immunology* (Vol. 22, No.1). The scientists agree that even short-acting protection, especially during childhood, might have long-lasting implications in terms of survival rates.

A major point of discussion between the two groups concerned the implications of such research for the development of vaccines against herpesvirus infections. **Dr. Virgin suggested that "decreased infection may be associated with unintended negative consequences for vaccinated individuals."** In response, Dr. Blackman argues that possible transient protective effects did not outweigh the already recognized pathological consequences of herpesvirus infection. Both groups agreed that the protective effects of herpesvirus infections merit further study.

Importantly, both groups hope their observations will stimulate epidemiological and clinical studies to determine whether herpesvirus infections really protect humans against bacterial diseases.

(1)"Herpesvirus latency confers symbiotic protection from bacterial infection," NATURE, Vol. 447, pp. 326-29; May 17, 2007.

Public release date: 16-Feb-2009

Food counterfeiting, contamination outpace international regulatory systems

Michigan State University analysts find growing threat

CHICAGO — Intentionally contaminated Chinese milk killed several children and sickened 300,000 more, causing concern around an increasingly connected world economy. Demand for inexpensive products virtually guarantees future repeats of food adulteration and counterfeiting from overseas, Michigan State University researchers said, as trade volumes overwhelm regulatory oversight.

Nobody can guarantee safe food, said Ewen Todd, but governments need to improve controls by promoting increased corporate responsibility, identifying vulnerabilities and assessing risks. Todd, a professor of advertising, public relations and retailing, conducted a symposium on the safety of imported food today at the American Association for the Advancement of Science annual meeting held in Chicago.

Increasing risk-based inspections and sampling; improving the detection of food system signals that indicate contamination; improving immediate response to contamination events; and improving risk communication all should be part of a more stringent regimen, Todd said.

The U.S. Food and Drug Administration inspects less than 2 percent of the food coming into the country, while 13 percent of America's food is imported, Todd said.

"It's a worldwide trend. First of all, transportation is easier, trade is easier," he said, while consumers are increasingly well traveled and have higher expectations. "We want stuff in the winter when we can't grow it."

Between the extremes of accidentally contaminated food and terrorism via intentional contamination lies the counterfeiter, seeking not to harm but to hide the act for profit. The melamine incidents are such examples. As an industrial chemical that mimics protein content in tests was added to milk and subsequently created kidney problems for children.

Product counterfeiting is the focus of a presentation by John Spink, an instructor at the National Food Safety and Toxicology Center and director of the Packaging for Food and Product Protection (P-FAPP) initiative, both at MSU. He is developing a criminal justice program focused on food counterfeiting.

"We take a risk-based approach to analyze where the gaps are and look closer at where there is a higher reward for fraud," he said.

"Counterfeiting goes back to Roman times, when French wine had a seal of Roman origin," he said. "Products are moving around the world so fast now that there's more opportunity for fraud. When food was distributed more regionally, there was less potential for large-scale fraud, or outbreaks of any kind."

Recent instances of counterfeiting or contamination include conventionally grown vegetables sold as organic; fish sold as a more premium species; milk and pet food adulterated with melamine; catfish containing banned antibiotics; toothpaste contaminated with diethylene glycol (a base chemical in antifreeze); and canned energy

drinks of unknown origin labeled with brand names.

Pharmaceutical counterfeiting has attracted most of regulators' attention until recently, he said, but those companies are required to report adverse affects or similar problems, while food companies and other manufacturers are not.

"At MSU, our approach to anti-counterfeiting strategy is extremely interdisciplinary to address the many aspects of the risk," Spink said, including public health communication, supply chain and packaging security. "Overall, we take a holistic, strategic perspective on the human element that led an individual to perceive an opportunity and then act — this perspective is led by criminal justice, social anthropology and basic business economics. Of course other important disciplines are intellectual property rights law, food law, medicine, nursing, public health, international trade, psychology, consumer behavior, retailing, management, economics and business."

MSU's international experience also gives it a valuable perspective by understanding source country economies and cultures, Spink said.

Also participating in the forum were presenters from the FDA and Cargill Inc., representing regulatory and corporate perspectives.

Ralph's Note - Unfortunately I fear it will take something catastrophic to occur. Before anyone allocates the resources to fight this epidemic. We have had tons of warning signs already.

Public release date: 16-Feb-2009

Arab-American women need supplement to boost dangerously low vitamin D levels

Arab-American women living in southeast Detroit whose conservative dress limits their exposure to sun should be taking a vitamin D supplement to boost their dangerously low serum levels, according to a study published by Henry Ford Hospital researchers.

Researchers found that all 87 women involved in a small study showed vitamin D levels averaging 8.5 ng/mL (nanograms per milliliter) for those who wore western dress to 4 ng/mL for those who wore the hijab, modest dress with a headscarf. A healthy vitamin D level is 30 ng/mL or higher.

Also, the women consumed little dietary sources of vitamin D. Forty-seven women reported drinking any milk on a weekly basis, but the amount they consume isn't significant enough to boost their vitamin D levels, researchers say.

The study is published in the January/February issue of Endocrine Practice. It is believed to be the largest study on the prevalence of vitamin D deficiency in one of the largest

concentrations of Arab Americans in southeast Michigan.

Raymond Hobbs, M.D., a Henry Ford Internal Medicine physician and lead author of the study, described the vitamin D deficiency in the women as "much greater than we would have thought."

"When people live where the weather is colder and they are more covered with clothing, they depend on their diet for their vitamin D," Dr. Hobbs says. "Unfortunately, most food with the exception of oily fish and vitamin D fortified milk has very little vitamin D. The women in our study drank very little milk, fortified orange juice and had decreased sun exposure because of their dress."

Low levels of vitamin D are linked to increased risk of cancer, diabetes and Crohn's disease, Dr. Hobbs says. Vitamin D is needed to maintain normal blood levels of calcium and phosphorus. It also helps in the absorption of calcium, helping to form and maintain strong bones.

"Our findings are consistent with those of similar studies in other parts of the world and underscore the point that there are pockets of individuals who are at risk for culturally mediated health problems," Dr. Hobbs says. "We need to raise their awareness of this deficiency and to offer them options for increasing their vitamin D levels. A vitamin D supplement is a start."

More than 490,000 Arab Americans reside in southeast Michigan, the largest population anywhere outside the Middle East. For the study, researchers looked at Arab-American women in the city of Dearborn, a southeast Detroit suburb in which Arab Americans comprise one third of the 100,000 population.

Sunlight exposure is the single most important factor in producing vitamin D in the body. For example, sun bathing for a period of time will produce 10,000- 20,000 international units, a measure of vitamin potency, or the equivalent of 100 glasses of fortified milk.

For the study, researchers recruited women who attended an ethnic supermarket in Dearborn during the course of two Saturdays in April 2007 to search for correlations with dress, diet, use of vitamin D-fortified foods and vitamin supplements. They were interviewed to assess dress, medical history, medication use, clinical symptoms associated with vitamin D deficiency, consumption of fortified milk or fortified orange juice and vitamin supplements. Blood samples also were taken onsite and analyzed for levels of vitamin D and parathyroid hormone and other minerals.

Dr. Hobbs says Henry Ford is launching an awareness campaign to educate the Arab American community in Dearborn about the prevalence of vitamin D deficiency and offer options for addressing the problem.

Researchers theorize that Arab American women avoid milk because of reported higher incidence of lactose intolerance in their population.

"Our goal is to help them understand that by taking these preventive measures now, they can avoid serious health problems in the future," Dr. Hobbs says.

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Supplement of probiotics provides a new therapy for ulcerative colitis

The animal and clinical studies indicated that gastrointestinal bacteria play an important role in the development of UC, and the supplement of probiotics was beneficial for UC. While Because of the specific damage site of UC and the different colonization of each bacterium, it is suggested that different probiotics displayed different effects on UC. The obvious effective strain should be more beneficial for UC.

A research article to be published on January 21, 2009 in the World Journal of Gastroenterology addresses this question. The research team led by Professor Lu from the Department of Gastroenterology, The Second Xiangya Hospital of Central South University compared the effects of four strains of probiotics which were isolated from healthy human feces by his facility, in order to find one or two obvious effective strains. This investigation showed that all four strains of probiotics (*E.feacalis*, *L.acidophilus*, *C.butyricum* and *B.adolescentis*) could relieve symptom of experimental colitis close to SASP on an evaluation of weight loss, colon length, DAI scores, histological scores, proteins and mRNA levels of IL-1 and IL-4, and MPO. The effectiveness of *E.faecalis* was better than the other three strains.

Compare with the study that the Germ-free IL-10^{-/-} mice developed IBD after they were colonized with a pure culture of *E. faecalis*, this study showed that *E. faecalis* had different effects on experimental colitis in wild-type mice. The experimental results also indicate that there should be some other inflammatory cytokines involved in the difference of adaptive immunological mechanisms in experimental colitis between wide-type mice and the immunodeficient mice except IL-1 and IL-4.

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Indoor plants can reduce formaldehyde levels

Air quality improves when live plants introduced

SEOUL, KOREA—The toxic gas formaldehyde is contained in building materials including carpeting, curtains, plywood, and adhesives. As it is emitted from these sources, it deteriorates the air quality, which can lead to "multiple chemical sensitivity" and "sick building syndrome", medical conditions with symptoms such as allergies, asthma, and headaches. The prevalence of formaldehyde and other volatile organic compounds (VOC) is greater in new construction.

Researchers are studying the ability of plants to reduce formaldehyde levels in the air. A study led by Kwang Jin Kim of Korea's National Horticultural Research Institute compared the absorption rate of two

types of houseplants. The results of the experiment on Weeping Fig (*Ficus benjamina*) and *Fatsia japonica*, an evergreen shrub, were published in the Journal of American Society for Horticultural Science.

During the study, equal amounts of formaldehyde were pumped into containers holding each type of plant in three configurations: whole, roots-only with the leafy portion cut off, and aerial-only, with the below-ground portion sealed off, leaving the stem and leaves exposed.

The results showed the combined total of aerial-only and roots-only portions was similar to the amount removed by whole plants. **Complete plants removed approximately 80% of the formaldehyde within 4 hours.** Control chambers pumped with the same amount of formaldehyde, but not containing any plant parts, decreased by 7.3% during the day and 6.9% overnight within 5 hours. As the length of exposure increased, the amount of absorption decreased, which appeared to be due to the reduced concentration of the gas.

Aerial parts of reduced more formaldehyde during the day than at night. This suggests the role played by stomata, tiny slits on the surface of the leaves that are only open during the day. The portion of formaldehyde that was reduced during the night was most likely absorbed through a thin film on the plant's surface known as the cuticle. Root zones of ficus removed similar amounts between night and day. However, *japonica* root zones removed more formaldehyde at night.

Researchers consider microorganisms living among the soil and root system to be a major contributor to the reduction. *Japonica* were planted in larger pots than the ficus, which may account for the lower night reduction rate of the latter. More knowledge of the contributions of microorganisms is cited by the study to be important in further understanding the air purifying potential of plants.

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US researchers find traces of toxic mercury in high-fructose corn syrup

- Mercury linked to learning disabilities and heart disease
- Study published in peer-reviewed journal Environmental Health

swig of soda or bite of a candy bar might be sweet, but a new study suggests that food made with corn syrup also could be delivering tiny doses of toxic mercury.

For the first time, researchers say they have detected traces of the silvery metal in samples of high-fructose corn syrup, a widely used sweetener that has replaced sugar in many processed foods. The study was published yesterday in the peer-reviewed journal Environmental Health.

Eating high-mercury fish is the chief source of exposure for most people. The new study raises concerns about a previously unknown dietary source of mercury, which has been linked to learning disabilities in children and heart disease in adults.

The source of the metal appears to be caustic soda and hydrochloric acid, which manufacturers of corn

syrup use to help convert corn kernels into the food additive.

A handful of plants across the US still make the soda and acid by mixing a briny solution in electrified vats of mercury. Some of the toxic metal ends up in the final product, according to industry documents cited in the study.

Corn syrup manufacturers insisted their products are mercury-free. But the study noted that at least one maker of caustic soda that has used the mercury-based technology listed the corn syrup industry as a client.

"This seems like an avoidable source of mercury that we didn't know was out there," said David Wallinga, one of the study's co-authors and a researcher at the Institute for Agriculture and Trade Policy, a Minnesota-based advocacy group.

The researchers cautioned that their study was limited. **Only 20 samples were analyzed; mercury was detected in nine.**

Still, the impact of the findings could be significant. High-fructose corn syrup has become such a staple in processed foods that the average **American consumes about 12 teaspoons of it daily**, according to federal estimates. Teenagers and young children tend to eat more of it than adults.

There is no established safe dose for elemental mercury, the type discovered in corn syrup. But the US Environmental Protection Agency says an average-sized woman should limit her exposure to 5.5 micrograms a day of methylmercury, the kind found in fish.

If that same woman regularly ate corn syrup contaminated at the highest level detected in the study - 0.57 micrograms per gram - the researchers estimated that she could end up consuming an amount of mercury that is five times higher than the EPA's safe dose.

One former EPA scientist who reviewed the paper said more study is needed to establish the risk, if any, posed by contaminated corn syrup. She urged the Food and Drug Administration to conduct a review of food made with the sweetener.

"For the most part, previous studies haven't found mercury in foods other than fish," said Kathryn Mahaffey, a former EPA scientist who co-wrote a landmark report to Congress on the perils of mercury contamination. "Is this an outlier or something we didn't know about before?"

In response to a 2005 Chicago Tribune series about mercury hazards, then-senator Barack Obama introduced legislation that would force chlorine plants to phase out its use or shut down. One plant in Wisconsin later vowed to switch to a mercury-free process by this year, leaving four others - in Georgia, Ohio, Tennessee and West Virginia - that still use the older technology.

The new study's lead author, Renee Dufault, began her research while investigating the Wisconsin plant for the FDA in the mid-2000s. But her results weren't published until now, a year after she retired from the agency.

An FDA spokesman said he still was waiting for a response to the study. Industry representatives, meanwhile, said the study was outdated.

"It is important that Americans are provided accurate, science-based information," Audrae Erickson, president of the Corn Refiners Association, said in a statement. "They should know that high-fructose corn syrup is safe."

In another statement, the Chlorine Institute said: "It is conceivable that measurable mercury content can be found in high-fructose corn syrup regardless of how it is processed."

These reports are done with the appreciation of all the Doctors, Scientist, and other Medical Researchers who sacrificed their time and effort. In order to give people the ability to empower themselves. Without the base aspirations for fame, or fortune. Just honorable people, doing honorable things.