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MacWire

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RESEARCH HIGHLIGHTS AT MCMASTER

Compiled by Khizer Amin and Bhavik Mistry

Image adapted from: sxc.hu

Recently, **Dr. Mark Larché,** the Canada Research Chair in Allergy & Immune Tolerance and a professor in the McMaster Department of Medicine, developed a vaccine that can be used to assist people with cat allergies. The researchers targeted a particular amino acid sequence from the protein released on the cat's fur that stimulates an allergic response. Larché produced a vaccine by coding the key components of the amino acid sequence that would provide relief for a large portion of the population. In this immunotherapy, the vaccine targets the allergen-specific T cells with the synthetic peptides. This study has prompted the possibility for other possible vaccines related to common allergies.

Larché, H. Lee, J. Kleine-Tebbe, R.P. et al. Development and Preliminary Clinical Evaluation of a Peptide Immunotherapy Vaccine for Cat Allergy. Journal of Allergy and Clinical Immunology, 2011; 127 (2).

Image adapted from: sxc.hu

Doctors have repeatedly warned of the dangers of a high sodium diet, and it is generally accepted that too much salt is not good for you. However, researchers at McMaster, including **Dr. Martin O'Donnell** and **Dr. Salim Yusuf,** have found that both low and high levels can have negative effects on the heart. The analysis included almost 30,000 people who were at an increased risk of heart disease. It was found that urinary sodium excretions greater or less than 4 to 5.99 grams per day were associated with an increased risk of cardiovascular death and hospitalization due to coronary heart failure.

Donnell MJO, Yusuf S, Gao P, Mann JF, Mcqueen M, Sleight P, et al. Urinary Sodium and Potassium Excretion and Risk of Cardiovascular Events. Journal of the American Medical Association, 2011;306(20):2229–38.

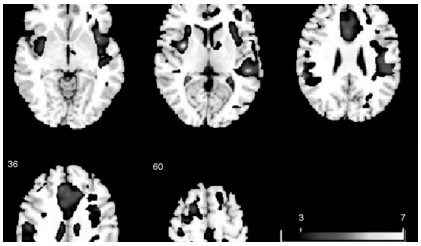

Image adapted from: http://jnnp.bmj.com

Huntington's disease (HD) is an age-related neurodegenerative disorder resulting in gradual motor loss and cognitive decline. Currently, there exists no cure for HD and no known method to halt disease progress. In collaboration with researchers at the University of Alberta, **Dr. Ray Traunt**'s cell biology lab has discovered a successful intervention in rodent studies. Infusion of GM1, a lipid, into the brains of rodents with HD inhibited a toxic protein known as huntingtin. Moreover, GM1 addition was able to restore normal brain function through unknown repair mechanisms. Hence, the logical next step is to look for drugs that can potentially mimic the effects of GM1.

Di Pardo A., Maglione V., Alpaugh M., Horkey M., Atwal R.S., Sassone J., et al. Ganglioside GM1 induces phosphorylation of mutant huntingtin and restores normal motor behavior in Huntington disease mice. Proceedings of the National Academy of Sciences, 2012.

Image adapted from: sxc.hu

A recent study suggests that routine population-based screening programs for autism may not be necessary. Autism is a neurodevelopmental disorder that can have several implications, including difficulty in areas such as communication, fine and gross motor skills, and intellectual skills. **Dr. Jan Willem Gorter**, a researcher in McMaster's CanChild Centre for Childhood Disability Research and associate professor of paediatrics, and his team conducted a literature review assessing the effectiveness of autism screening programs. They discovered that none of the tests contained all facets of a useful screening program, including accuracy, sensitivity, specificity and predictive value. Gorter argues for the need of a randomized control trial analyzing the usefulness and implications of the autism screening program.

Al-Qabandi, M., Gorter, J.W., Rosenbaum, P. Early Autism Detection: Are We Ready for Routine Screening? Pediatrics, 2011; 128 (1).

Image adapted from: sxc.hu

Researchers at McMaster's Department of Biology led by **Dr. David Rollo** have found that a key to promoting longevity may involve consuming just the right mix of dietary supplements. Mice were supplemented with a complex mix of ingredients – such as vitamins, garlic, ginseng, and green tea extract – that previous research had shown to be useful in counteracting various aging mechanisms. Supplemented mice showed no loss of total daily locomotion and cognitive decline was offset. Consumption of the supplement resulted in modest increases in life span but the delay in the onset of functional decline suggests the possibility that "growing up" may not always equal "growing old".

Aksenov V., Long J., Liu J., Szechtman H., Khanna P., Matravadia S., et al. A complex dietary supplement augments spatial learning, brain mass, and mitochondrial electron transport chain activity in aging mice. Age, 2011; DOI 10.1007/s11357-011-9325-2.

Image adapteed from: success.org

An investigation conducted by **Dr. Matthew Kwan**, a post doctoral fellow of the Department of Family Medicine has found that an adolescent's physical activity drops 24% by early adulthood. The longitudinal cohort study, published in the American Journal of Preventive Medicine, followed 683 Canadians chosen from Statistics Canada's National Population Health Survey. Participants were followed up twice a year for a span of 12 years starting at the age of 12 -15. The results show that there was a greater decrease in physical activity amongst men than women. However, the gender differences in physical activity may be due to the impact of major life transitions such as getting married or having a child. Understanding the gender differences highlights the need for gender-specific interventions to prevent the decline of physical activity in men and to increase the physical activity in women.

Ejim L, Farha MA, Falconer SB, Wildenhain J, Coombes BK, Tyers M, et al. Combinations of antibiotics and nonantibiotic drugs enhance antimicrobial efficacy. Nat Chem Biol. 2011 Jun;7(6):348-350.