Researchers from University of Arizona, Arizona Cancer Center Report on Findings in Small Interference RNAs (siRNAs)
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Research findings, ‘P53 is transported into the nucleus via an Hsf1-dependent nuclear localization mechanism,’ are discussed in a new report. "Loss of p53 function can occur through disruption of its ability to localize to the nucleus. Previously we showed through characterization a set of mutant cell lines that lacked the ability to import p53 into the nucleus that nuclear translocation of p53 appeared to be mechanistically different from that of the SV40 T-antigen (SV40TAg),” investigators in the United States report (see also).

"Here we extend that work by examining nuclear importation of p53 and SV40TAg using both in vivo and in vitro assays for nuclear localization. We show that disruption of microtubule polymerization using colchicine suppresses nuclear localization of p53 but not of SV40TAg. We also show, for the first time, that the heat shock transcription factor (Hsf1), is required for establishment of the microtubule network in cells and for nuclear localization of p53. In contrast, SV40TAg does not
interact with polymerized microtubules suggesting that it is transported into the nucleus through an alternative mechanism. Interestingly, lacking of Hsf1 expression and suppressing Hsf1 by siRNA also made cells more resistant to the cytotoxic effects of paclitaxel," wrote Q. Li and colleagues, University of Arizona, Arizona Cancer Center.

The researchers concluded: "Hence, loss of Hsf1 activity not only suppressed p53 function, but also led to reduced sensitivity to killing by drugs that target microtubules."

Li and colleagues published their study in Molecular Carcinogenesis (P53 is transported into the nucleus via an Hsf1-dependent nuclear localization mechanism. Molecular Carcinogenesis, 2011;50(2):143-52).

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**Studies from University of Arizona in the Area of Asthma Described**

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New research, "Treatment options for the management of exercise-induced asthma and bronchoconstriction," is the subject of a report. According to recent research from the United States, "Treatment for exercise-induced bronchospasm and exercise-induced asthma includes both pharmacologic and nonpharmacologic options. Pharmacologic agents that have been proven to be effective for treating these conditions include short-and long-acting ß2-adrenoceptor agonists, mast cell-stabilizing agents, anticholinergics, leukotriene receptor antagonists, and inhaled corticosteroids (ICS)."

"When selecting the most appropriate medication, factors to consider include the effectiveness of each, the duration of action, frequency of administration, potential side effects, and tolerance level. Long-acting ß2-adrenoceptor agonists should not be used without ICS. Nonpharmacologic treatments include physical conditioning, incorporating a warm-up before and a cool-down period after exercise, performing nasal breathing, avoiding cold weather or environmental allergens, using a face mask or other aid to warm and humidify inhaled air, and modifying dietary intake. The data to support nonpharmacologic treatments are limited; however, they are routinely recommended because of the low risk associated with their use," wrote D.T. Millward and colleagues, University of Arizona (see also ).

The researchers concluded: "This article highlights the advantages and limitations of each treatment option."

Millward and colleagues published their study in The Physician and Sportsmedicine (Treatment options for the management of exercise-induced asthma and bronchoconstriction. The Physician and Sportsmedicine, 2010;38(4):74-80).

For additional information, contact D.T. Millward, University of Arizona, Sports Medicine, Tuscon, AZ USA.

Publisher contact information for the journal The Physician and Sportsmedicine is: Mcgraw Hill Healthcare Publications, 4530 West 77th St., Minneapolis, MN 55435-5000, USA.
A new study, 'Update on medication-overuse headache,' is now available. According to recent research from the United States, "Medication-overuse headache (MOH) is a syndrome that can develop in migraineurs after overuse of antimigraine drugs, including opiates and triptans especially. MOH manifests as increased frequency and intensity of migraine attacks and enhanced sensitivity to stimuli that elicit migraine episodes."

"Although the mechanisms underlying MOH remain unknown, it is hypothesized that repeated use of antimigraine drugs could elicit increased headache attacks as a consequence of neuronal plasticity that may increase responsiveness to migraine triggers. Preclinical studies show that exposure to either opiates or triptans can induce pronociceptive neuroadaptative changes in the orofacial division of the trigeminal ganglia that persist even after discontinuation of the drug treatment. Additionally, medications can elicit increased descending facilitatory influences that may amplify evoked inputs from trigeminal afferents leading to behavioral hypersensitivity reminiscent of cutaneous allodynia observed clinically. Importantly, enhanced descending facilitation may manifest as an inhibition of diffuse noxious inhibitory control," wrote Felice M. De and colleagues, University of Arizona, Department of Pharmacology (see also ).

The researchers concluded: "Persistent, pronociceptive adaptations in nociceptors as well as within descending modulatory pathways thus may jointly contribute to the development of MOH."


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"The protective effect of vegetables on the risk of breast cancer recurrence is uncertain. We sought to evaluate the association between breast cancer recurrence and vegetable intake including analyses stratified on tamoxifen use," scientists in the United States report (see also ).

"Experimental evidence of anti-carcinogenic activity of phytochemicals in cruciferous vegetables in combination with tamoxifen led to specific evaluation of this class of vegetables as well. To assess the association between vegetable intake and breast cancer recurrence, vegetable intake from repeat 24-h dietary recalls were examined as a secondary analysis of 3,080 breast cancer survivors enrolled in the Women's Healthy Eating and Living (WHEL) Study. At the time of enrollment women were, on average, 23.5 months post-diagnosis. The hazard of recurrence, controlling for relevant and significant clinical and demographic variables, with vegetable intake was assessed overall and separately for women taking tamoxifen. WHEL participants reported mean baseline intakes(x, SE) of 3.1 +/- A 0.05 and 0.5 +/- A 0.02 servings/day of total and cruciferous vegetables, respectively. Baseline vegetable intake in the highest as compared to lowest tertiles was associated with an overall lower adjusted hazard ratios (HR) for recurrence of 0.69, 95% CI 0.55-0.87. Among women taking tamoxifen, the HRs were 0.56, 95% CI 0.41-0.77 for total vegetables and 0.65, 95% CI 0.47-0.89 for cruciferous vegetable intake. The hazard in women using tamoxifen who reported
cruciferous vegetable intake above the median and who were within the highest tertile of total vegetable intake was HR 0.48; 95% CI 0.32-0.70. This secondary analysis in over 3,000 breast cancer survivors suggests that baseline vegetable intake may be associated with a reduction in the risk of breast cancer recurrent or new events particularly for those using tamoxifen," wrote C.A. Thomson and colleagues, University of Arizona.

The researchers concluded: "Such associations should be explored further as the possibility that vegetable intake is simply a surrogate for other health-promoting behaviors cannot be ruled out."


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Publisher contact information for the journal Breast Cancer Research and Treatment is: Springer, 233 Spring St., New York, NY 10013, USA.