

Molecular Medicine

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Podcast Transcript

Episode 67: JIA, Alzheimer's and Cancer

Hello *Mollie Medcast* listeners and welcome back! *Mollie Medcast* is the podcast for the biomedical journal, *Molecular Medicine*. This is Margot Puerta, Managing Editor here at *Molecular Medicine* and your host for this podcast episode. In this week's podcast we're going to take a deeper look into our March-April 2010 issue. And we're going to start by: "Measuring MMPs & Antioxidants In Juvenile-Induced Arthritis—Noninvasively", which is great for kids; then take go over "MIF Plays A Role In Alzheimer's Disease"; and lastly, we'll look at a review "Carcinogenesis and Cancer Therapy".

As usual, we'll start by taking a minute to remind you about what our goal here is at *Molecular Medicine*. Our mission is to publish novel work that's concerned with understanding the pathogenesis of disease at the molecular level, which may lead to the design of specific molecular tools for disease diagnosis, treatment and prevention. If you're interested in submitting a manuscript to the journal, please visit our Web site for information, www.mol-med.org. Alright, so let's get started with the papers in this podcast.

The first paper we have to discuss this week is:

Measuring MMPs & Antioxidants In Juvenile-Induced Arthritis—Noninvasively

Juvenile Idiopathic Arthritis (or JIA), is the most common rheumatic disease in children. It occurs in about one in a thousand children, which is about 300,000 children in the U.S. If untreated, JIA interferes with normal growth and development. Disease severity varies between active and nonactive states, and treatment for JIA has drawbacks in terms of costs and side effects, as well as decrease in efficacy over time. The follow up requires multiple blood tests, which can be a major drawback in children. Effective, noninvasive measures of disease status such as salivary testing could help optimize drug dosing regimens. Dr. Riva Brik and colleagues from the Israel Institute of Technology analyzed salivary antioxidant and compositional profiles in JIA patients; in their paper, titled "Salivary Antioxidants and Metalloproteinases in Juvenile Idiopathic Arthritis", they demonstrated that antioxidant status was significantly higher in the saliva of JIA patients. Additionally, the level of matrix metalloproteinases (or MMPs), which are endopeptidases capable of contributing to tissue destruction, was significantly lower in JIA patients undergoing antiTNF treatment as compared with patients not receiving treatment. Thus, antiTNF treatment may modify the degradation process by inhibition of MMP activity. The noninvasive benefit of this test is that it can even be done at home and mailed into the physician's office, thereby avoiding painful repetitive blood testing.

Alright, so next up:

MIF Plays A Role In Alzheimer's Disease

Inflammatory processes have been implicated in the pathophysiology of Alzheimer's disease [AD], but the role of macrophage migration inhibitory factor (also known as MIF) had not been thoroughly investigated. MIF is associated with β -amyloid [$A\beta$] peptide, and β -amyloid is the main constituent of Alzheimer plaques, and MIF's association with β -amyloid demonstrates a proinflammatory etiology in Alzheimer's. Dr. Michael Bacher, and colleagues from both Germany and the United States, examined MIF expression and function in vivo and in vitro. The author's confirmed MIF's association with plaques and demonstrated that $A\beta$ -induced toxicity could be mitigated by small molecule inhibition of MIF. The title of the paper is, "The Role of Macrophage Migration Inhibitory Factor in Alzheimer's Disease." Additionally, the authors measured MIF levels in cerebrospinal fluid [CSF] of Alzheim-

er's patients, and found an increase of MIF levels as compared with healthy, age-matched controls. These results may implicate MIF in the pathogenesis of AD, and suggest that inhibition of MIF may be a therapeutic strategy in prevention of Alzheimer's disease onset and progression.

Last up for this week's podcast:

Carcinogenesis And Cancer Therapy

Cancer kills over six million people worldwide annually. Mortality rates have begun to decrease, due in part to prevention and early disease detection. Unfortunately, many cancers are not detected until tumor cells have metastasized, and the mortality rate in patients with metastatic disease is still quite high. A lot of the cancer research out there has been focused on identifying genetic alterations of the cancer genome in an effort to try to personalize cancer therapy and therefore make it more effective. In his paper titled, "A New View of Carcinogenesis and an Alternative Approach to Cancer Therapy," Dr. Miguel Lopez-Lazaro (of Spain's University of Seville) discusses an alternative approach, based on the alteration of oxygen metabolism in cancer cells, as a possible, more reliable method of therapy.

And that's it for this week's episode of *Mollie Medcast*. Next time we'll home in on the cellular mechanisms of proliferation in CLL, we'll also spot a protein linked with aggressive liver cancer, and review ghrelin as a potential therapy for radiation-combined therapy. For questions or comments regarding this podcast, please feel free to send me an e-mail at: margot@molmed.org, that's m-a-r-g-o-t(at)m-o-l-m-e-d.org. You can also keep up with the journal by following us on Twitter (@mol_med).

This podcast is available on molmed.org and is up in iTunes, just type "Mollie Medcast" in the search bar. *Molecular Medicine* is published bimonthly by The Feinstein Institute for Medical Research.

From New York, this is margot@molmed.org, thanks for listening!

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Music: Opuzz.com
Photos: iStock

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