Molecular Medicine

Podcast Transcript
Episode 47

Hello *Mollie Medcast* listeners and welcome back. *Mollie Medcast* is the podcast for the biomedical journal, *Molecular Medicine*. My name is Veronica Davis, communications editor here at *Molecular Medicine* and your host for this podcast episode.

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.molmed.org. Alright, so let's get started with this podcast.

In this week's podcast we're going to discuss three diseases recognized during the month of May and past manuscripts published in *Molecular Medicine* related to them. There are a host of illnesses that are acknowledged this month, which range from Stroke and Mental Health to Asthma and Lyme Disease. The three we've chosen are Lupus, Cystic Fibrosis, and Hepatitis.

In the United States, it is National Lupus Awareness month.

According to the Lupus Foundation of America, most people are referring to Systemic Lupus Erythematosus, or SLE, when discussing lupus – although there are three other types: Cutaneous (skin) Lupus Erythematosus, Drug-induced Erythematosus, and Neonatal Lupus. SLE—an autoimmune disease which mainly affects women during childbearing years—can be mild or severe, and can have serious effects, such as pulmonary hypertension, seizures, and coronary artery disease.[1] SLE is characterized by anti-nuclear autoantibodies and inflammatory lesions which target several tissues of the body.

In the July-August 2008 issue, we published a manuscript specific to the disease, titled "Genomic-Based High Throughput Screening Identifies Small Molecules That Differentially Inhibit the Antiviral and Immunomodulatory Effects of IFN-α." Dr. Bo Chen and colleagues at both MedImmune and Avalon Pharmaceuticals screened a small compound library to identify modulators of interferon-alpha's biological effects. A high throughput genomic-based screen was applied to prioritize small molecule inhibitors targeting various intracellular signaling pathways. This work describes a novel strategy to identify small molecule inhibitors for the treatment of autoimmune disorders like SLE.

Next, May is known as Cystic Fibrosis month in the U.K.

While it's not acknowledged here in the United States this month, cystic fibrosis or CF affects almost 30 thousand children and adults in the U.S. alone—and 70 thousand worldwide. This chronic disease is inherited, with the altered gene causing production of thick mucus that can clog the lungs and obstruct the pancreas leading to dangerous respiratory infections and digestive issues, respectively.[2] CF can severely affect quality of life with symptoms ranging from persistent coughing and frequent lung infections to wheezing or shortness of breath.[3]

In *Molecular Medicine's* January-February 2008 issue, we published a manuscript titled "Neutrophils in Cystic Fibrosis Display a Distinct Gene Expression Pattern." The authors compared gene expression profiles

from cystic fibrosis patients with those from healthy subjects in order to investigate the genetic differences between normal and cystic fibrosis neutrophils. Analysis showed an upregulation of 62 genes and downregulation of 27 genes in CF patient neutrophils. These results demonstrate that neutrophils from cystic fibrosis patients display a modified gene expression profile associated with the disease. Growth factor gene, G-CSF, spontaneously released by neutrophils, could activate these cells within an autocrine loop.

Lastly, May is globally recognized as Hepatitis Awareness month.

Hepatitis, or liver inflammation, can be caused by infection with one of five sub-types of virus. Of these, Hepatitis A, B, and C are the most common forms in the United States; whereas D and E are less widespread.4 Hepatitis can present as either acute, with symptoms subsiding after 4-6 weeks; or as the less common chronic form, which can affect the patient over a time period in excess of 6 months.[5,6]

In our March-April 2008 issue, we published a manuscript titled "Critical Role of Hypoxia and A2A Adenosine Receptors in Liver Tissue-Protecting Physiological Anti-Inflammatory Pathway." In the paper, the authors focused on the relationship between tissue hypoxia and extracellular adenosine-mediated immunosuppression. They tested whether inflammatory tissue damage-associated hypoxia and extracellular adenosine receptor (A2AR) signaling play a role in the physiological anti-inflammatory mechanism that limits liver damage during fulminant, or severe, life-threatening hepatitis. Their data demonstrate that the total body, hypoxia-triggered pathway provides protection in acute hepatitis and that hypoxia and A2AR both function in the same immunosuppressive and liver tissue-protecting pathway.

That's it for this week's episode of *Mollie Medcast*. For questions or comments regarding this podcast, please feel free to send me an e-mail at: veronica@molmed.org, that's m-o-l-m-e-d.org. You can also e-mail me if you have any scientific meetings that you'd like us to display on our Web site.

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