

Molecular Medicine

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Mollie Medcast

Episode 8 Transcript: Ischemia Reperfusion Injury, Viral Hepatitis, DNA Microarrays, Alzheimer's Disease

Hello and thanks for downloading us! It is my pleasure to welcome you back to “Mollie Medcast,” the podcast for the biomedical journal, *Molecular Medicine*. I'm Margot Gallowitsch-Puerta the host for your podcast episode. I'm the Associate Editor for the journal and I'm coming to you from the north shore of Long Island, New York.

In this week's podcast: “Protect Your Small Intestine With EPO,” “NF- κ B in Hepatitis-Infected Pregnant Women,” “DNA Microarrays In Biomedical And Clinical Research,” and finally, “Another Aspect of Alzheimer's.”

Before we get started with the content for this weeks podcast episode, let me just take a minute to tell you about how we got started. We've seen great advances in the biomedical sciences over the last several decades and this has been due to the integration of fields like molecular and structural biology, biochemistry and immunology. Integrating these fields has done two things. It has given us new perspectives to think about and given us powerful new tools which we're now using in medical research.

Molecular medicine is the discipline concerned with understanding the pathogenesis of disease at the molecular level, and, based on that knowledge, designing specific molecular tools for diagnosis, treatment and prevention. We introduced our journal in 1994 so that scientists and researchers could communicate their recent discoveries to a multi-disciplinary, international audience who is interested in understanding and curing disease. *Molecular Medicine* is published bimonthly by the Feinstein Institute for Medical Research which is located in Manhasset, New York.

Alright, so let's get started with the papers for this podcast. We have four of them to get through this week. The first paper in this “Mollie Medcast” episode is:

Protect Your Small Intestine With EPO

Ischemia reperfusion (I/R) injury occurs in a variety of clinical conditions and is associated with high morbidity and mortality. Reperfusion injury occurs as a result of blood flow restoration to an ischemic, or blood-restricted, region. The resulting tissue injury may be more damaging than the original ischemic injury. While the exact mechanisms have not been elucidated, oxidative stress mediators are believed to play an important role. Erythropoietin abbreviated EPO, is produced by the kidneys to regulate red blood cells and also acts as a tissue-protecting factor, though the favorable effects of EPO are not fully understood. Dr. Guneli examined the effect of recombinant human EPO on ischemia reperfusion intestinal injury. The title of the manuscript is “Erythropoietin Protects the Intestine Against Ischemia/Reperfusion Injury in Rats.” Their results indicate that EPO protects against intestinal I/R injury in rats by reducing oxidative stress and apoptosis, which the authors attribute to the antioxidative properties of EPO. Knowledge regarding EPO signaling pathways in the intestine may lead to its use in clinical practice in the future.

NF- κ B in Hepatitis-Infected Pregnant Women

Viral hepatitis constitutes a major public health problem in developing countries. In addition to parentally transmitted hepatitis B and C viruses, enterically transmitted hepatitis E virus abbreviated HEV, is mainly responsible for epidemics related to poor hygiene and sanitation. In several countries, fulminant hepatic failure (FHF)

leads to high mortality rates in HEV-infected pregnant women. While decreased cell-mediated immunity is a major cause of death, the exact mechanisms remain unknown. Here, Dr. Prusty investigated the role of NF- κ B in hepatitis virus-infected pregnant women manifesting severe liver damage. Their results indicate that suppression of p65 expression may be associated with the breakdown of immunity and severe liver degeneration leading to patient death. These findings provide a molecular basis for developing therapeutic approaches to target HEV-infected pregnant women.

The next manuscript included in this podcast is actually a review paper which is included in the journal.

DNA Microarrays In Biomedical And Clinical Research

Among the many benefits of the Human Genome Project are new and powerful tools such as the genome-wide hybridization devices referred to as microarrays. Initially designed to measure gene transcriptional levels, microarray technologies are now used for comparing other genome features among individuals and their tissues and cells. Results provide valuable information on disease subcategories, disease prognosis and treatment outcome. This review entitled, "DNA Microarrays: A Powerful Genomic Tool for Biomedical and Clinical Research" by Dr. Trevino describes the technology and applications that reveal our genetic inheritance.

The last paper in this week's line-up is:

Another Aspect of Alzheimer's Disease

Alzheimer's disease accounts for over 50 percent of dementia disorders and extracellular matrix (ECM) molecules and growth factors, such as fibroblast growth factor (FGF), play a crucial role in this disease. While Alzheimer's disease is characterized by amyloid deposits, it has been suggested that amyloid accumulation is only partly responsible for the neurodegeneration observed in this disease. In this paper, Dr. Bellucci examined skin fibroblasts from familial and sporadic Alzheimer's disease patients to determine if phenotypic alterations in extracellular matrix production were present in non-neuronal Alzheimer's disease cells associated with the expression and response of fibroblast growth factor. The title of the paper is, "Differences in Extracellular Matrix Production and Basic Fibroblast Growth Factor Response in Skin Fibroblasts from Sporadic and Familial Alzheimer's Disease." Their results show different extracellular matrix synthesis and mRNA levels in the two populations of Alzheimer's disease patients. These data suggest that in addition to being characterized by the known pathologies affecting the nervous system, Alzheimer's disease may also be associated with abnormalities in somatic peripheral cells.

That's it for this week's episode of "Mollie Medcast." You can find these papers and many more of them on our website, www.molmed.org that's www.m-o-l-m-e-d.org. If you're taking a coffee break and have a second, why not visit the podcast page of our website, www.molmed.org/podcast. Once you open it you'll see that we have a frappr map up there. Clicking on it will allow you to see where other *Molecular Medicine* readers are coming from. If you have a moment, help us expand our readership frappr map, add your pin to the map. For questions or comments regarding this podcast, please send me an email at margot@molmed.org, m-a-r-g-o-t@molmed.org. From Long Island, New York, this is margot@molmed.org, thanks for listening!

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