Molecular Medicine

Podcast Transcript
Episode 35

Hello *Mollie Medcast* listeners and welcome back. *Mollie Medcast* is the podcast for the biomedical journal, *Molecular Medicine*. My name is Margot Puerta. I'm the Managing Editor here at *Molecular Medicine* and your host for this podcast episode. This week we will look at a research paper, "IV Treatment For Spinal Cord Injury"; we will also look at a review paper, called our Review & Assess paper, "No Longer An Innocent Bystander"; and we're going to check out the cover story from our November-December 08 issue, "Origins Of Pathogenic Antibodies In SLE".

Molecular Medicine's 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 our journal, check out our website for information, www.molmed.org.

So, first up for this week is our research paper:

IV Treatment For Spinal Cord Injury
Spinal cord injury occurs when there is damage to the spinal cord, which leads to a loss of mobility or feeling in the body. And, these injuries usually occur after trauma such as a car accident, or as a result of disease, for example with polio.[1] Now, there's no therapy for spinal cord injury, and unfortunately that leaves patients permanently disabled. Central nervous system neurons aren't replaced by new ones. And, it's been accepted for a while now that transplanting exogenous neuronal cells may be useful in trying to reconstruct the lost spinal cord tissue as well as trying to promote the recovery of neurological function. Adult neuronal stem cells may be used for treating degenerative brain conditions, and this observation prompted Dr. [Daniele] Bottai and colleagues in Italy to assess the effects of adult neuronal stem cell transplantation in a model of spinal cord injury. The title of this manuscript is, "Viability-Dependent Promoting Action of Adult Neural Precursors in Spinal Cord Injury." These researchers administered the neuronal stem cells either by direct transplantation into the spinal cord or by intravenous, or iv, injection, which is really interesting since its minimally invasive. These actions improved recovery of hind limb function and attenuated degeneration. And, in fact, the iv administration of neuronal stem cells yielded a more significant recovery when compared with the intraspinal administration. These results indicate that adult neuronal stem cell therapy through an intravenous route may represent a useful treatment for spinal cord injury.

Now let's take a look at our review and assess article:

No Longer An Innocent Bystander
Mucosal-lined surfaces are the barrier or the interface between a host and the host's environment. These surfaces represent the first line of defense against pathogens. Diseases of mucosal inflammation represent important causes of morbidity and mortality, and have led to intense research efforts to understand the factors that lead to their development. Disease occurs when the epithelial barrier in organs such as the intestine, lung, and the kidney, breaks down. However, the mechanisms leading to barrier breakdown and the subsequent inflammation

are controversial. And, many studies have indicated the epithelium is just an innocent bystander in a cascade of events leading to its demise. More recent evidence, however, suggests that the epithelium is not an innocent bystander as once thought, but an active participant in the process leading to mucosal inflammation. In this article, Dr. Steven Gribar and colleagues at the Children's Hospital of Pittsburgh and the University of Pittsburgh School of Medicine review recent work on this topic and identify essential areas for future study.

Origins Of Pathogenic Antibodies In SLE

Systemic Lupus Erythematosus or SLE is an autoimmune disorder, which affects predominantly women, and it's usually during their childbearing years. Antibodies to a wide variety of autoantigens are a hallmark of SLE. Anti-double-stranded DNA [anti-dsDNA] antibodies can develop from non-DNA-reactive B cells. And, these antibodies may play a crucial role for somatic mutation in double-stranded DNA binding. However, only a limited number of anti-double-stranded DNA antibodies have been analyzed and other mechanisms that might generate anti-double-stranded DNA antibodies can't be ruled out. Dr. Zhang and colleagues at The Feinstein Institute For Medical Research isolated three somatically mutated anti-double-stranded DNA antibodies from the peripheral blood B cells of a lupus patient and then reverted them to their germline configuration. Two of the three reverted antibodies displayed decreased DNA binding while the third recognized double-stranded DNA in both its mutated and germline configuration. This implies that B cell activation occurs in response to self and non-self antigens, while selection after activation may be mediated by self antigen. Future work with additional patients will be necessary to determine if multiple tolerance checkpoints must fail for a lupus-like phenotype to develop.

That's it for this week's episode of *Mollie Medcast*. Thanks for joining us. Join us next time when we look at how "Hyperglycemia Impedes Therapeutic Angiogenesis" and Adipokines And Insulin Resistance". You can find all of these papers and many more of them on our website, www.molmed.org that's www.m-o-l-m-e-d.org. And, if you have any questions or comments regarding this podcast, please feel free to send me an email at: margot@molmed.org.

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

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1. http://www.spinalcord.org/news.php?dep=17&page=94 The National Spinal Cord Injury Association Accessed October 16, 2008.