

Molecular Medicine

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Podcast Transcript
Episode 22

Welcome back to “Mollie Medcast,” the podcast for the biomedical journal, *Molecular Medicine*. My name is Margot Puerta. I’m the Associate Editor here at and your host for this podcast episode. In this week’s podcast: “Allograft Gene Expression,” “Insulin Activates Endothelial Progenitor Cells,” and “Zinc in Human Health.”

Molecular Medicine’s mission is to publish novel work concerned with understanding the pathogenesis of disease at the molecular level, which may lead to the design of specific molecular tools used for diagnosis, treatment and prevention. If you’d like to submit a manuscript to the journal, please visit our website for information, www.molmed.org. Let’s get to the first paper in this “Mollie Medcast” episode:

Allograft Gene Expression

Almost 5,000 kidney transplants fail per year in the US. This results in the unfortunate return of patients to dialysis. Kidney transplant failure is the leading cause of end-stage renal disease. And chronic allograft nephropathy causes most kidney allograft losses. It includes the loss of kidney graft function with tubular atrophy as well as interstitial fibrosis. Dr. Daniel Maluf and his colleagues identified several molecular pathways involved in tubular atrophy and interstitial fibrosis progression. The manuscript title is, “Molecular Pathways Involved in Loss of Kidney Graft Function with Tubular Atrophy and Interstitial Fibrosis.” A distinctive gene expression pattern was observed in tubular atrophy interstitial fibrosis subjects when compared with normal allografts and kidneys. Altered gene expression was seen in networks related to immune response, inflammation and cell-to-cell interaction. These results highlight the importance of chronic inflammation in progressive graft deterioration. They may lead to the identification of biomarkers or predictors of tubular atrophy, interstitial fibrosis and long-term graft function.

Insulin Activates EPCs

Endothelial progenitor cells (EPC) are involved in vascular regeneration and angiogenesis in experimental diabetes. Insulin therapy mobilizes circulating progenitor cells. In this work Dr. Humpert and colleagues examined the effects of insulin on endothelial progenitor cell outgrowth in blood from patients with type 2 diabetes. The manuscript title is, “Insulin stimulates the clonogenic potential of angiogenic endothelial progenitor cells by IGF-1 receptor dependent signaling.” The results show that the insulin-like growth factor 1 (IGF-1) receptor mediated the effect of insulin on endothelial progenitor cell growth. And this was in part dependent on MAP kinases. Insulin-mediated activation of the insulin-like growth factor 1 receptor led to increased clonogenic and angiogenic potential of EPCs in vitro. Specific therapeutic modulation of this signaling pathway may offer potential targets for the treatment of vascular diabetic complications.

Last up for this episode we have a review paper. But before I tell you what that one is about I want to let you know that in our hard-copy journal we have a new feature called RNA – stands for Review aNd Assess and this is where all our review papers that we publish bimonthly can be found. We actually have a couple interesting papers that we just accepted, one on obesity by Dr. Carl Nathan and another one discussing sex steroids and stem cell function by Dr. Daniel Meldrum. And these will both be up in the Papers In Press section of the website shortly. But now let’s get back to the last paper for this episode which is a review called:

Zinc in Human Health

Although zinc requirements for plants and animals have been long known, the role for zinc in human physiology has only recently been recognized. Zinc deficiency is prevalent in the developing world and is responsible for growth retardation in as many as two billion people. In this review, Dr. Prasad reviews the evidence that zinc deficiency can lead to immune dysfunction, cognitive impairment, bullous pustular dermatitis, alopecia, diarrhea, weight loss, and a host of other complications. The lesson here I think is make sure you get your zinc.

That's it for this week's episode of "Mollie Medcast." You can find all these papers on our website, www.molmed.org that's www.m-o-l-m-e-d.org. If you have any questions or comments regarding this podcast, please feel free to send me an email at: margot@molmed.org.

If you're taking a coffee break and have a moment, check out our podcast webpage www.molmed.org/podcast. You can play around with our frappr map and see where other *Molecular Medicine* readers are coming from. It's actually pretty cool. It's a world map with little pins stuck in where people have put their addresses. Some people have even put up pictures so if you're not shy feel free to add your picture to the map. And in addition to being available on molmed.org this podcast is also up in iTunes. Just put "Mollie Medcast" in the search bar.

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