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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 be going over papers from our upcoming issues. First up is our July/August 2010 cover story, "Chewing the Fat: Insulin Signaling in Type 2 Diabetes", followed by "Cytoprotection in Acute Kidney Injury" and finally, "Hedgehog Signaling in Human Meningiomas".

We'll start by taking a minute to review our goal here at *Molecular Medicine*. Since 1994 our mission has been 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 website for information: www.mol-med.org. Now, on to the podcast.

Our cover story from the July/August 2010 is:

Chewing The Fat: Insulin Signaling in Type 2 Diabetes

Type 2 diabetes is strongly associated with obesity and is characterized by early and marked insulin resistance in adipose tissue. Consequently, type 2 diabetes is associated with disrupted cellular metabolism. While insulin resistance in type 2 diabetes is due to defects in signaling, the details remain largely unknown. Target of rapamycin, also known as TOR, plays a key role in cellular metabolism control, cell growth and tolerance to starvation. In mammals, TOR forms a complex with the protein raptor also known as mTORC1. In this paper, Dr. Anita Öst and her colleagues in Sweden further investigated the function of mTORC1 in subjects with type 2 diabetes and a BMI of greater than 27. The title of their paper is: "Attenuated mTOR Signaling and Enhanced Autophagy in Adipocytes from Obese Patients with Type 2 Diabetes." Results in adipocytes from these obese patients show insulin-activated mTORC1 is attenuated, autophagic activity is increased, and mitochondrial function is impaired. These findings further our understanding of insulin resistance mechanisms in type 2 diabetes.

The second paper in this podcast deals with:

Cytoprotection In Acute Kidney Injury

Acute Kidney Injury may occur in cancer patients due to the potent chemotherapy drug Cisplatin, which accumulates in renal tubular cells resulting in cell injury and death. MicroRNAs are small, non-coding RNAs that are produced endogenously and have emerged as important regulators in pathophysiological conditions, such as development and tumorigenesis. Little is known regarding the role of microRNAs in renal diseases such as acute kidney injury. In this paper, Dr. Kirti Bhatt and colleagues in Georgia and Michigan examine the regulation of microRNA-34a, a target of the p53 gene, in experimental models of cisplatin-induced acute kidney injury or nephrotoxicity. The title of their paper is: "MicroRNA-34a is Induced via p53 During Cisplatin Nephrotoxicity and Contributes to Cell Survival." Their results demonstrate microRNA regulation in a model of acute kidney injury and indicate that Cisplatin-induced miRNA-34a may play a cytoprotective role in cell survival.

Last up for this episode:

Hedgehog Signaling In Human Meningiomas

Meningiomas represent thirty percent of primary cranial tumors and occur in later stages of life. Meningiomas can be divided into three categories: one, being benign; two, atypical and highly recurrent; and three, anaplastic and aggressive. The Hedgehog (Hh) signaling pathway plays a fundamental role in development processes such as cell proliferation, differentiation, angiogenesis, cellular matrix remodeling, and stem cell homeostasis. Now, while aberrations of this pathway are involved in tumor development, the role of Hedgehog in meningiomas has not yet been studied. Dr. Laurendeau and colleagues from France, Argentina and Belgium measured Hedgehog pathway and target gene expression in varying grades of meningioma clinical samples to determine if a link between gene expression and pathological parameters could be established. The title of the paper is: “Gene Expression Profiling of the Hedgehog Signaling Pathway in Human Meningiomas.” Results show Hedgehog target genes for cell proliferation and invasiveness are active in meningioma grades two and three, but not in benign grade one. These results further characterize the biological and clinical aspects of meningiomas and suggest the Hedgehog pathway may be a useful target for gene therapy.

And that’s it for this week’s episode of the *Mollie Medcast*. Join us next time when we take a look at: “Improving the Success of Pancreas Transplants”, the “Upregulation of SPRR3 in Colorectal Cancer”, and “HCV and Alcohol Interaction in Cirrhotic Tissues”. For questions or comments regarding this podcast, please send me an e-mail at: margot@molmed.org, that’s m-a-r-g-o-t-(at)-m-o-l-m-e-d-(dot)-o-r-g. You can also keep up with the journal by following us on Facebook and Twitter (@mol_med).

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

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