

Molecular Medicine

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Podcast Transcript Episode 78

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. In this week's podcast we'll take a look at three primary research papers from our upcoming September-October 2010 issue. They are: "Knocking Down PRAS40," "Feline CEP Due To UROS Missense Mutations," and "Rapamycin: A Therapeutic Agent For Rheumatoid Arthritis."

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. Alright, so let's get moving with this podcast.

First up in this podcast is:

Knocking Down PRAS40

Muscle serves as the largest protein reservoir in the body and may be used as an energy source when necessary. Muscle wasting is associated with catabolic insults such as sepsis, alcohol abuse and aging. Proline Rich Akt Substrate 40kD, or PRAS40 for short, is a binding protein which has complex effects on cell metabolism. Despite reports implicating PRAS40 as a regulator of protein translation initiation in a variety of cells, there is a paucity of information related to its role in skeletal muscle. To address this, Drs. Abid Kazi and Charles Lang from Pennsylvania State University College of Medicine, examined changes in myocyte protein synthesis, cell proliferation and cell cycle in response to PRAS40 knockdown. The title of their manuscript is, "PRAS40 Regulates Protein Synthesis and Cell Cycle in C2C12 Myoblasts." Results indicate PRAS40 plays an important role in cell size regulation and affects cell proliferation and differentiation. Understanding the role of PRAS40 may prove important in designing new strategies to manage muscle wasting associated with catabolic insults.

Feline CEP Due to UROS Missense Mutations

Congenital Erythropoietic Porphyria, or CEP for short, is an enzyme deficiency which occurs in red blood cells at birth. As a result, exposure to sunlight may lead to skin blistering, vesicle formation and scarring, while secondary infections in these lesions may lead to disfigurement of the face and hands. Medical management is focused on protecting affected individuals from sunlight or ultraviolet light exposure. In this work, Dr. Sonia Clavero and her colleagues from Pennsylvania and New York identified the first feline model (in a cat, feline model!) of CEP based on the clinical phenotype confirmed by biochemical and molecular genetic studies. The title of the paper is, "Feline Congenital Erythropoietic Porphyria: Two Homozygous UROS Missense Mutations Cause the Enzyme Deficiency and Porphyrin Accumulation." Results indicate a synergistic interaction of two mutations in the URO-synthase polypeptide caused this feline model of human CEP. Future identification of cats with a CEP-like phenotype may permit the establishment of a colony and the opportunity to evaluate stem cell and gene transfer therapies prior to human trials.

And lastly for this podcast episode:

Rapamycin: A Therapeutic Agent For Rheumatoid Arthritis

Rheumatoid arthritis (or RA) is a common chronic autoimmune disease affecting about one percent of the population and is commonly associated with disability and deformities. RA joint pathology is characterized by inflammation of the synovium, which produces several proinflammatory cytokines and proteases. Like a malignant tumor, synovial inflammation invades and destroys cartilage and bone. Fibroblast-like synoviocytes [FLS] have a central role in cartilage and bone invasion and destruction. Drs. Teresina Laragione and Percio Gulko used rapamycin, an inhibitor of mammalian target of rapamycin (mTOR), to assess the role of the mTOR pathway in invasive fibroblast-like synoviocytes. The title of their paper is, “mTOR Regulates the Invasive Properties of Synovial Fibroblasts in Rheumatoid Arthritis.” Rapamycin significantly reduced RA and fibroblast-like synoviocyte invasion suppressing the mTOR signaling pathway. This suggests rapamycin may play a role in RA therapy by reducing damage and erosive changes mediated by fibroblast-like synoviocytes.

And that’s it for this week’s episode of the *Mollie Medcast*. Join us next time when we take a look at: genetic risk factors for CHD, hypermethylation in colorectal cancer, and a review paper regarding inflammation in atherosclerosis. 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.org. 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!

Produced and Written by Margot Puerta, Managing Editor, *Molecular Medicine*

Edited by Veronica J Davis, Communications Editor, *Molecular Medicine*

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