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Podcast Transcript**Episode 65: Glioblastoma, Breast Cancer and mRNA Processing**

Hello Mollie Medcast listeners and welcome back. Mollie Medcast is the podcast for the biomedical journal, *Molecular Medicine*. I'm Margot Puerta, I'm the Managing Editor here at *Molecular Medicine* and your host for this podcast episode. In this week's podcast we're going to go over some of the papers from our January-February issue: "Fingerprinting The Players In Primary Glioblastoma", "Novel Treatment De Novo Approach For Endocrine Resistant Breast Cancer" and a review paper, "mRNA Processing And Diseases".

Our mission here at *Molecular Medicine* 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. To submit a manuscript to *Molecular Medicine* please visit our Web site for information, www.molmed.org.

Our first paper in this podcast episode is:

Fingerprinting The Players In Primary Glioblastoma

Glioblastoma multiforme is a life-threatening intracranial malignant tumor. Currently the treatment of glioblastoma is hindered by difficulties in early diagnosis, rapid progression and frequent recurrence. Since the methylation status of specific gene loci can be used as a prognostic tool for different tumor types, Dr. Christina Piperi and her colleagues examined four genes involved in glioma tumorigenesis. The title of their paper is, "High Incidence of MGMT and RAR β Promoter Methylation in Primary Glioblastomas: Association with Histopathological Characteristics, Inflammatory Mediators and Clinical Outcome". In this work the authors found that two of these genes they examined, MGMT and RAR β were significantly more methylated in the analyzed glioblastoma cases. The study also highlights a potential link between methylation patterns and interleukin-6, suggesting a specific role for inflammation mediators in the regulation of gene methylation. These results could generate new insight regarding patient survival and treatment options for this devastating disease.

The second paper in this podcast episode is:

Novel Treatment De Novo Approach For Endocrine Resistant Breast Cancer

Breast cancer affects over 1 million women worldwide annually.(1) Abnormalities in the growth and death programs of breast-ductal epithelial cells can lead to breast cancer. The initiation and progression of these growth and death mechanisms can be influenced by 17 β -estradiol, also known as E2. Current treatments include reducing the circulating E2 and inhibiting estrogen receptor functions. However, these approaches are ineffective in de novo endocrine-resistant breast cancers. Dr. Stephanie Nott and her colleagues from the University of Rochester Medical School tested whether the specific regulation of estrogen responsive element-driven genes by the constitutively active transcription factor monoregulator could be a viable treatment alternative for this cancer. The title of the paper is, "Designer Monoregulators Provide a Basis for a Transcriptional Therapy for De Novo Endocrine-Resistant Breast Cancer." The authors found that the monoregulator repressed cellular proliferation and motility, and induced apoptosis by regulating estrogen responsive element-driven gene expressions. Monoregulators also limited xenograft tumor growth in nude mice. This study demonstrates the potential use of targeted

regulation of endogenous genes for the treatment of cancers that are refractory to current approaches.

Last but certainly not least we have a review covering “mRNA Processing and Diseases”.

Understanding RNA processing and surveillance mechanisms is essential to advancing clinical diagnosis and therapeutic procedures. Numerous diseases are caused by errors and mutations of significant RNA sequences which then lead to the expression of pathological proteins. Recent studies have elucidated our understanding of molecular mechanisms of mRNA processing and the complex series of events that lead to loss or gain of both functional and deleterious proteins. In this review, “RNA Surveillance: Molecular Approaches in Transcript Quality Control and their Implications in Clinical Diseases,” Dr. Karen Moraes discusses mRNA quality control mechanisms and their clinical relevance to developing therapeutic strategies.

That’s it for this week’s episode of *The Mollie Medcast*. Join us next time when we look at papers researching HIV, Sepsis, and Polycystic Ovary Syndrome.

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

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