



RNA-Binding Proteins: Maestros of Eukaryotic Gene Expression

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Dimitrios Anastasakis is a Research Fellow at the National Institutes of Health, in the Laboratory of Molecular RNA Biology led by Dr. Markus Hafner. He has recently been appointed Assistant Professor at the University of Crete, School of Medicine, and anticipates starting his new position as a group leader by the end of the year.

Abstract

My research interests revolve around elucidating the impact of RNA-binding proteins on gene expression regulation in health and disease. I have developed novel experimental protocols and optimized existing ones such as Photoactivatable Ribonucleoside-Enhanced Crosslinking and Immunoprecipitation (PAR-CLIP), enabling me to map the binding sites of RNA-binding proteins at nucleotide resolution. By combining these maps with various high-throughput assays, we can unravel the functions of these intriguing proteins.

Through these approaches, we have uncovered a moonlighting role for PKM2, a glycolytic enzyme, and elucidated the roles of nuclear RNA-binding proteins such as KHSRP, HNRNPF, and the splicing factor U2AF in health and disease. Moreover, we can capture dynamic events of early RNA processing, including sequencing intron lariats, revealing fascinating novel transcriptional events.