

Comprehensive discovery of endogenous Argonaute binding sites at nucleotide-level resolution in animals

Comprehensive discovery of endogenous Argonaute binding sites at nucleotide-level resolution in animals. MicroRNAs (miRNAs) regulate gene expression post-transcriptionally by guiding Argonaute proteins to specific target messenger RNA (mRNA) sequences. Identification of bona fide miRNA target sites in animals is challenged by uncertainties regarding the base-pairing requirements between miRNA and target as well as the location of functional binding sites within an mRNA. Here we present the results of an unbiased, comprehensive strategy aimed at isolating endogenous mRNA target sequences bound by the ALG-1 Argonaute protein in *C. elegans*. Using cross-linking and ALG-1 immunoprecipitation coupled with high-throughput sequencing (CLIP-seq), we identified extensive ALG-1 interactions with specific 3'UTR and exon sequences and discovered features that distinguish miRNA complex binding sites in 3'UTR from other genic regions. Furthermore, our analyses revealed a striking enrichment of Argonaute binding sites in genes important for miRNA function, suggesting an auto-regulatory role that may confer robustness to the miRNA pathway.



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Host: Prof Paul Matsudaira



**Department of Biological Sciences
Seminar Announcement**