

Lynne Harrington

Major: Biology
University: University of Massachusetts--Amherst
Faculty Mentor: Dr. William Folk
Mentor Department: Biochemistry
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Isolation of TFIIIC102 in *Arabidopsis thaliana* to better understand transcription

In eukaryotes, transcription is carried out by three RNA polymerases. RNA polymerase I (Pol I) transcribes genes encoding the large rRNAs, RNA Pol II transcribes genes encoding proteins involved in mRNA processing, and RNA Pol III transcribes genes encoding tRNA and 5S rRNA. Each polymerase consists of a number of subunits that work together to regulate transcription through various stages of cell growth and development. While polymerase subunit interactions have been widely studied in human and yeast models, experiments concerning the polymerase subunit interactions in plant models have barely begun to scratch the surface. Defining the proteins and DNA sequences responsible for plant tRNA gene expression and determining how tRNA gene expression is regulated during plant growth and development would be highly beneficial to the scientific community. Breaking down the components of Pol III has provided the foundation for a better understanding of plant transcription factors. This polymerase consists of the Pol III molecule and transcription factors TFIIIA, TFIIIB, and TFIIIC. Pol III, and all its components, participate in many stages of transmission of cellular genetic information, including transcription, translation, and RNA processing. Here, a look at TFIIIC protein interactions shall provide some insight to the methods and regulation of transcription over the course of much long-term research. TFIIIC consists of six subunits that all work together to carry out the proper transcription of genetic material. Of the six individual subunits, TFIIIC102 consumed the majority of the research performed in the lab over the last eight weeks.