TEMPLATE FOR PROJECT OUTLINE – Due Oct 20

Student's name: Leah T'ien

Topic chosen: Functional role of the Airn transcript in the embryo.

SPECIFIC QUESTION:

Does the Airn transcript in the embryo play a role in the recruitment of methyltransferase machinery to genes?

HOW IS THIS QUESTION NOVEL AND ORIGINAL?
Significant research has been done studying the Airn/Igf2r locus. The *Airn* gene encodes a unique long non-coding RNA (lncRNA). Airn lncRNA represses gene expression of the *Ifg2r* gene simply by being constantly expressed. The *Airn* and *Ifg2r* genes are located at the same locus and *Airn* is on *Ifg2r*'s antisense strand therefore constant expression of the *Airn* gene represses expression of *Ifg2r*. The function of the Airn transcript in the embryo has not been well studied. LncRNA transcripts have been shown to play many key roles in gene expression regulation in the cell including the recruitment of proteins to genes. Airn transcript in the placenta has been shown to be involved in the recruitment of methyltransferase proteins to genes thus these lncRNA are associated with turning genes off. No work has been down to study whether the Airn lncRNA in the embryo plays a similar role as the Airn lnRNA in the placenta. My project seeks to determine functional similarities being Airn RNA produced in different developmental structures.
Does Airn have trans acting function?

POTENTIAL IMPACT OF THE PROPOSED QUESTION (WERE IT TO BE ANSWERED BY YOUR PROPOSED EXPERIMENT):

HYPOTHESIS:

I hypothesize that the Airn transcript is involved in trans acting pathways in embryonic cells. The aim of my research project is to show that the Airn lncRNA recruits histone methylation machinery to genes.

EVIDENCE ON WHICH THE HYPOTHESIS IS BASED (INCLUDE REFERENCES):

PREDICTION(S):

EXPERIMENTAL APPROACH TO TEST PREDICTION (INCLUDE ANY DETAILS THAT YOU HAVE WORKED OUT SO FAR):

LIST OF RELEVANT PRIMARY AND REVIEW ARTICLES READ, AND SUMMARY OF RELEVANT INFORMATION FROM EACH (this is the start of the annotated bibliography that you will need to include in your portfolio):

POTENTIAL WAYS TO MAKE YOUR QUESTION KNOWN TO THE PUBLIC AT LARGE (*e.g.* TO YOUR NON-BIOLOGIST FAMILY AND FRIENDS):

ANY OTHER PARTS OF THE PROJECT COMPLETED SO FAR:

ANYTHING YOU WOULD LIKE SPECIFIC FEEDBACK ON: