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### BIOL 352 Cell Biology: Journey from the Center of the Cell

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# Journey from the Center of the Cell

BIOL 352 Cell Biology

*This project is intended to be a long-term, scaffolded project across an entire semester course. Due dates are spread throughout the semester, and points are distributed as the professor deems appropriate across the sections of the project.*

- **Research:**

- Select an **organelle** (mitochondria, chloroplast, peroxisome, lysosome, ribosome, smooth ER, rough ER, golgi) and a **protein** that functions within this organelle
- Identify and annotate at least five sources (at least three secondary sources and two primary sources) that investigate the function of the organelle and/or the protein
  - Annotation should include the full APA citation and a summary highlighting the relevant information from this source
  - Source suggestions:
    - Scientific review articles; reviews from the NIH, NSF, or NLM
    - Primary research articles - <https://gardner-webb.edu/library/> ; [www.pubmed.com](http://www.pubmed.com)

- **Write:**

- Write a 3-4 page (excluding title page and reference list) research paper addressing the following questions:
  - What is the specific function of this protein
  - How does this protein contribute to the overall function of the organelle?
  - How do mutations in the gene affect the function of the protein and therefore the function of the organelle?
- Paper should be formatted in APA style, including in-text citations and a reference list on the last page
  - Check here for reminders on APA style: <https://gardner-webb.libguides.com/c.php?g=914236&p=7087681>

- **Create:**

- Create an infographic (or some other visual representation) that illustrates the expression of your selected gene and transportation of the resulting protein to the appropriate organelle
  - Trace the expression of that gene: chromosome where it is encoded, gene structure (number of introns, exons), regulatory sequences and transcription factors controlling its expression, mRNA processing and transport (especially splicing), expression of mRNA, regulation of protein folding (specific chaperones), protein transport to its organelle
  - Program suggestions: Canva, Prezi (you are not limited to either of these, but they would work well)

- **Reflect:**

- Write a 2-3 page paper addressing the following questions:
  - How did this research project contribute to your overall understanding of the function of a cell?
  - What did you find to be the most difficult aspect of this project?
  - What did you find to be the most enjoyable aspect?