Optimizing Media Conditions to Enhance *Toxoplasma gondii* Cyst Growth

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What is *Toxoplasma gondii*?

- Obligate intracellular protozoan
- More than 60 million people in the US are infected with Toxoplasmosis
Toxoplasmosis

- Flu-like symptoms:
  - Body aches
  - Swollen lymph nodes
  - Headache
  - Fever

- Severe symptoms:
  - Confusion
  - Seizures
  - Blurred vision
  - Brain lesions
Transmission

Vertical transmission
Blood transfusion
Human contamination

Contact with cat feces
Contaminated water and vegetables
Raw or undercooked meat

Tissue cysts
Cat contamination (hunting)
Fecal oocysts
Oocyst spread
Herbivores contamination
Chronic Infection

- Parasites can develop into bradyzoite cysts within cells to avoid an immune response.
- These cysts can persist in human tissue for years escaping both drug therapies and the immune system.
Research

- To investigate cell culture medias of varying richness on optimizing bradyzoite cyst growth
- Determine whether slow growth in minimal nutrients contributed to larger, stronger cysts
Cell Media of Varying Richness

- D10
  - 10% Serum
  - Dulbecco’s Modified Eagle Medium (DMEM)
    - M199
- D1
- DMEM1
- MEM1
  - Minimum Essential
Under a Fluorescence Microscope
Future Directives

• To compare the number, not only size, of viable cysts between the more nutrient-rich mediums

• To extend the study with D10 media to observe how large the majority of cysts can grow without bursting
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References

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