



Investigation of DNA Damage Repair by **THERM_00439**

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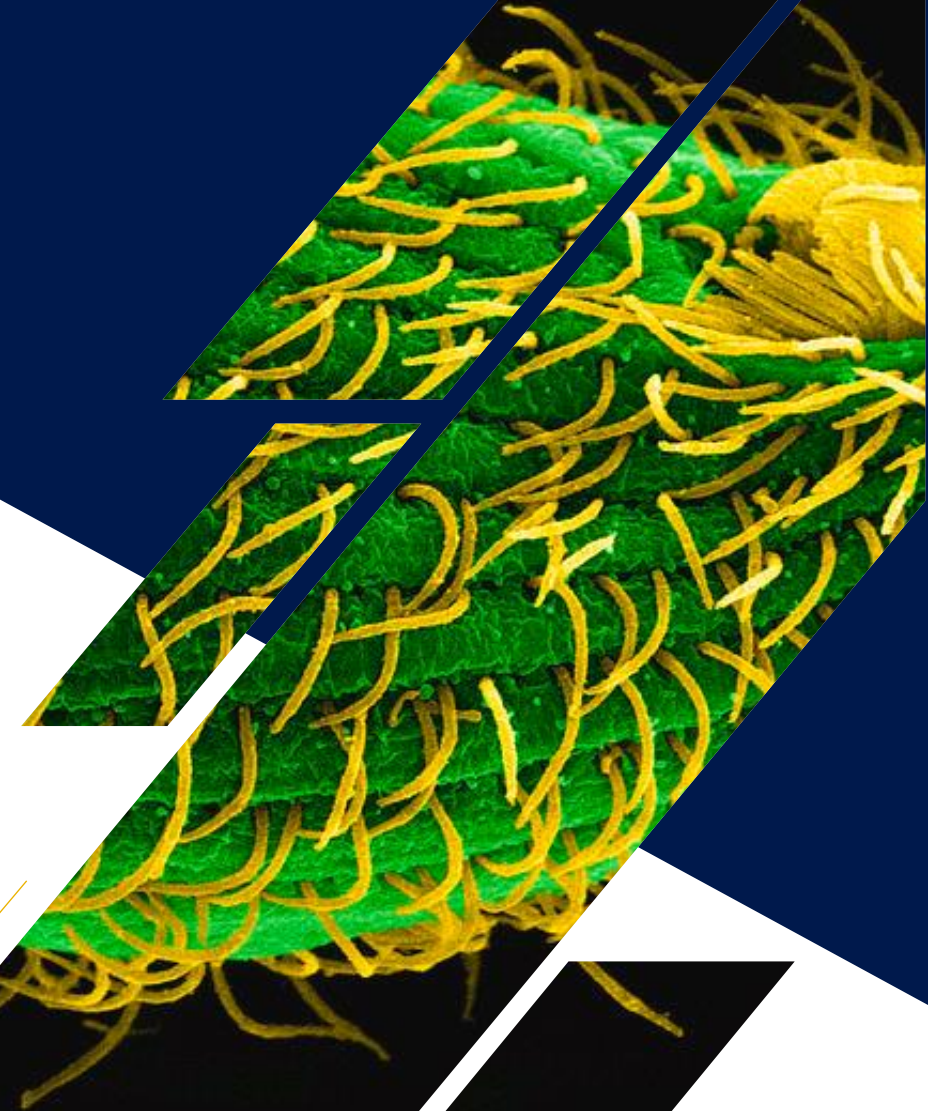
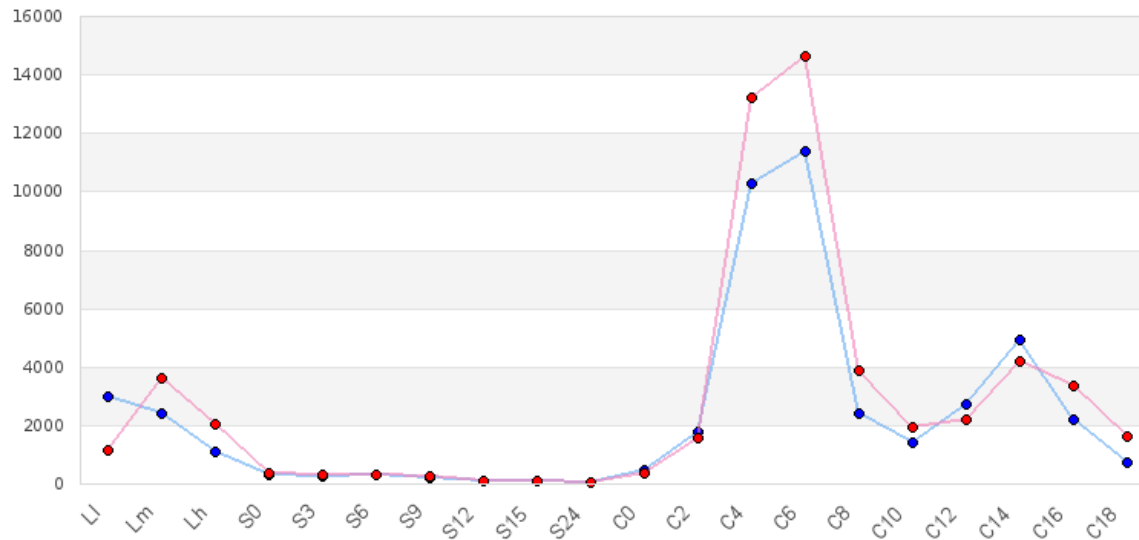
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Introduction

Why *Tetrahymena thermophila*?

- Peak in expression during conjugation
- Cheap and easy to maintain



Hypothesis/Central Question

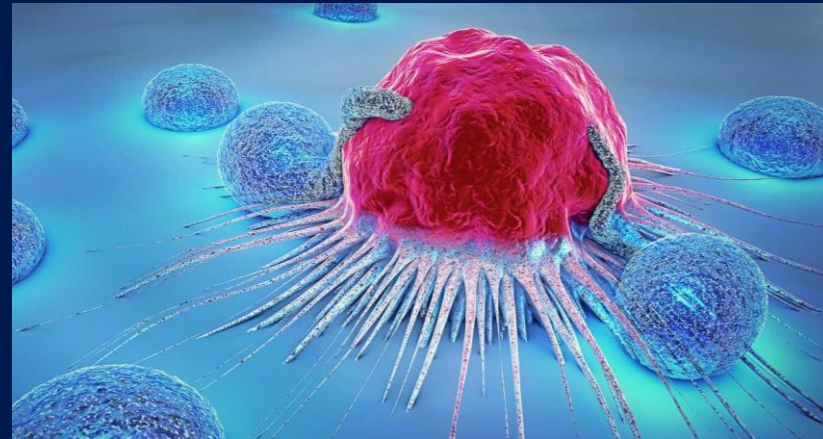
What are we hoping to find?

**TTERM_00439 is a gene that works in DNA
Damage repair in Tetrahymena thermophila**



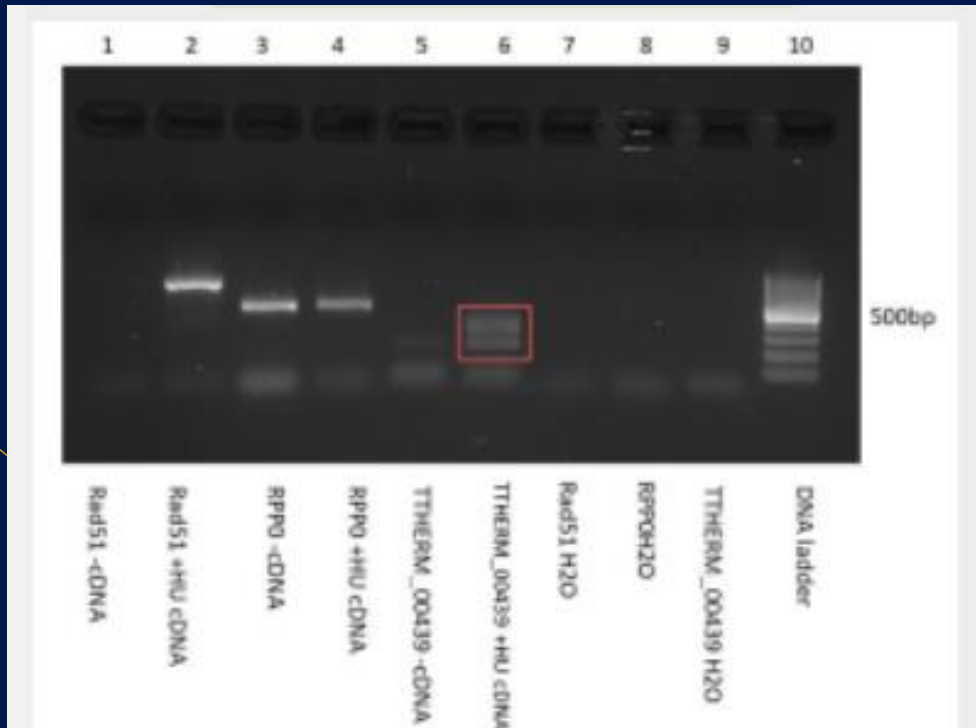
Why do we care?

- Powerful application in research concerning cancer and other genetic diseases



Results

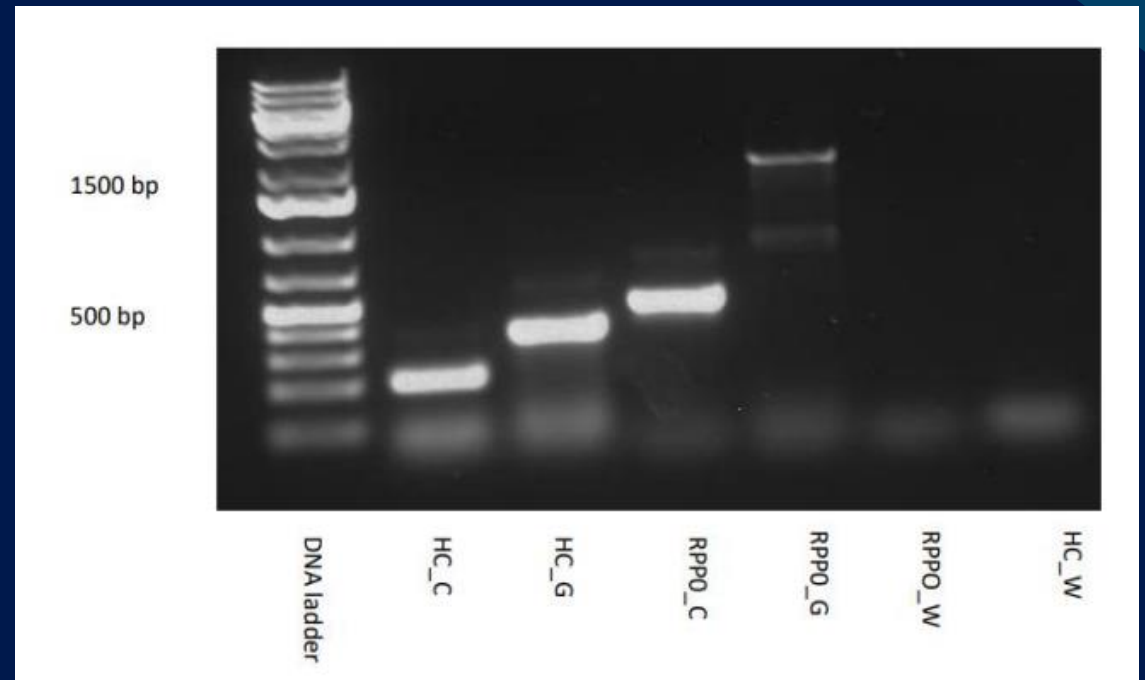
TTERM_00439 is a part of DNA Damage Repair!



**Upregulated Expression
with Multiple Bands??**

Expected Band size – 222bp

**Primer Validation –gene specific
primers annealed to T.Thermophila**



Positive control – RPP0; negative control – no DNA (water)

Expected band size – 222bp (cDNA) 405 bp (gDNA)

Conclusions

- ✓ Primer annealed properly
- ✓ Positive control (RPPO and Rad51) and negative control(water-no DNA) worked
- ✓ Gene specific primer in cDNA upregulated with multiple bands
- ✓ TTHERM_00439 is involved in DNA damage repair



Future Directions

- Re-run the experiment to confirm multiple bands
- Investigate the pathway of the gene
- Reporter gene to locate the gene



1. From Molecules to Morphology: Cellular Organization of *Tetrahymena thermophila*. (2012, January 1). ScienceDirect.
<https://www.sciencedirect.com/science/article/pii/B9780123859679000050?via%3Dihub>).
2. (Ou, H. (2018, February 1). DNA damage responses and p53 in the aging process. PubMed. <https://pubmed.ncbi.nlm.nih.gov/29141944/>)
3. Shimizu, I. (2014, December 2). DNA damage response and metabolic disease. PubMed. <https://pubmed.ncbi.nlm.nih.gov/25456739/>)
4. (Ciccia, A. (2010, October 22). The DNA damage response: making it safe to play with knives. PubMed. <https://pubmed.ncbi.nlm.nih.gov/20965415/>)
5. TetraFGD HOME, tfgd.ihb.ac.cn/search/detail/gene/TTHERM_00439330.