

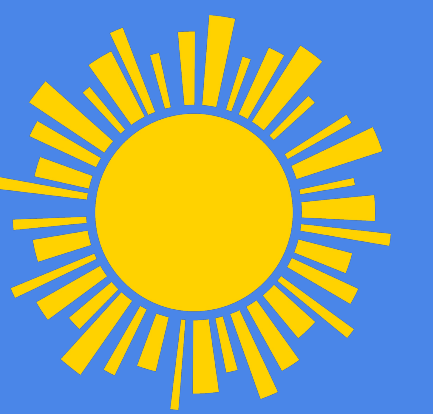


Verifying the ocellated velvet geckos' sex determination system

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Introduction

There are many sex determination systems. One system familiar to humans is the XX/XY sex determination system where males have two different sex chromosomes, but there are many others. Amongst the geckos from Australia only 2 currently have a verified sex determination system. This project helps expand the number of verified sex determination systems which makes it easier to study sex-linked traits.

Site Information



I was a part of an REU with the Integration Initiative: Sex, Aging, Genomics, & Evolution which investigated the relationship between sex and aging. At Marquette, I specifically worked in the Gamble lab which studied the genetic evolutionary history of geckos.

Marquette University, Biology Building
1428 W. Clybourn St. Milwaukee, WI 53233
<https://www.iisage.org/>

Materials:

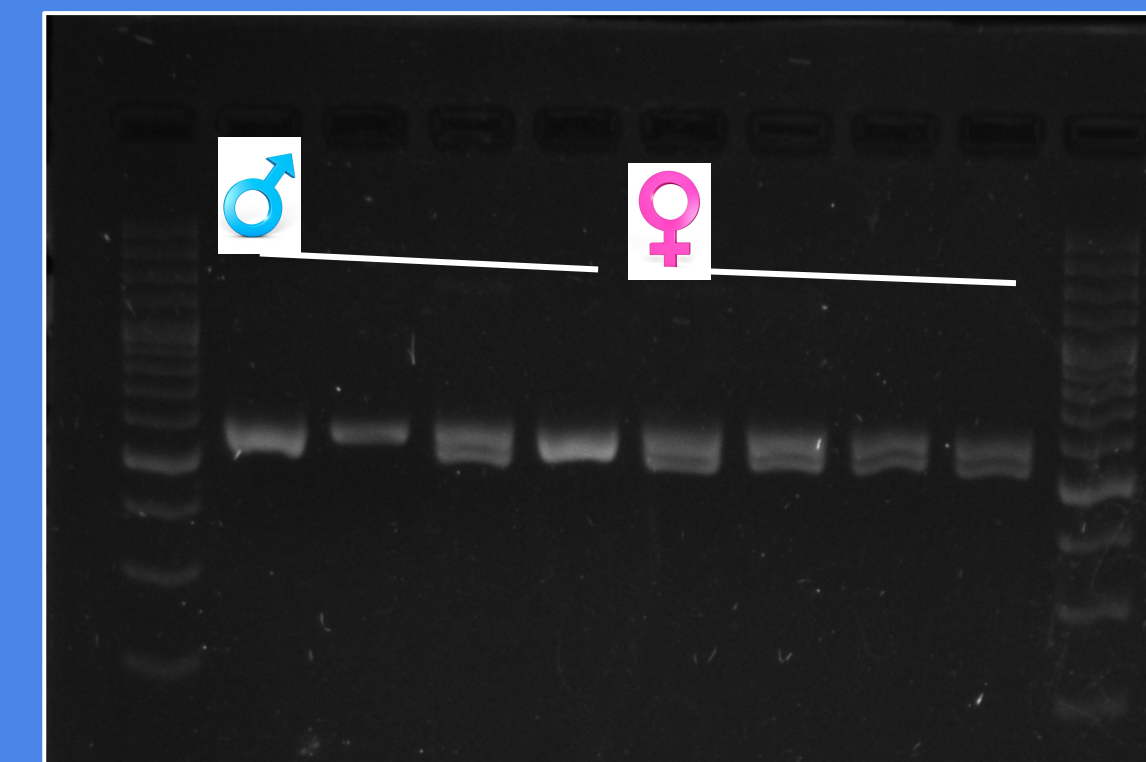
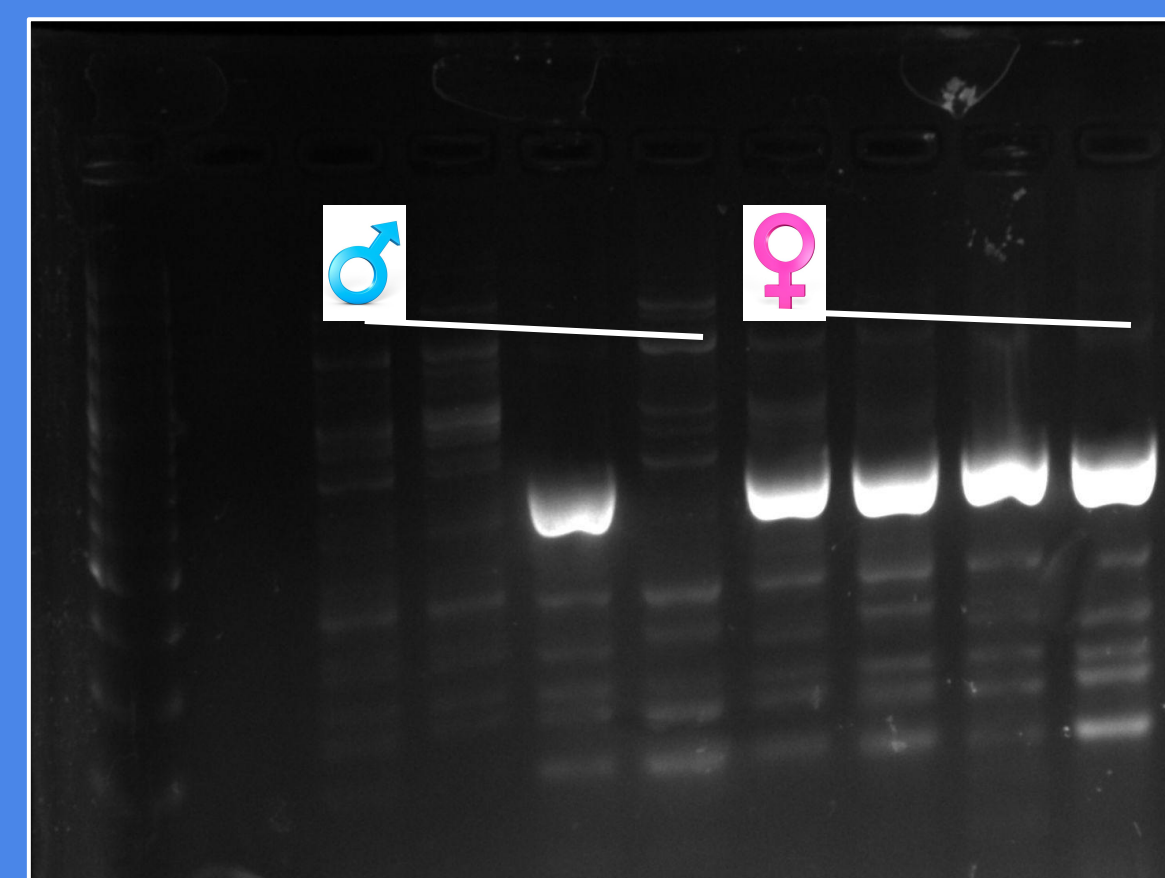
- Extracted DNA from 4-6 males and 4-6 females
- DNA primers over the differentiated sex specific regions of the *Oedura monilis* genome
- Materials for a PCR
 - Disposable tubes
 - DNA Polymerase
 - Thermocycler
 - Nuclease Free Water
- Materials for gel electrophoresis
 - Agarose gel
 - Ethidium Bromide
 - Buffer
 - DNA ladder
 - Gel electrophoresis machine

Methods:

1. Design primers over differentiated sex specific regions of *Oedura monilis* chromosomes
2. Combine 6.5 uL DNA polymerase, 3.5 uL nuclease free water, 0.75 uL forward and reverse primer, and 1uL of the extracted DNA
3. Place in thermocycler at recommended settings and wait
4. Once you have obtained the PCR mix set up gel electrophoresis for the product and wait
5. Visualize gel electrophoresis
6. Repeat until you've tested all the primers you created

Results:

The two primer pairs with the most promising results



Discussion:

- Given the results, these primers don't verify that these geckos have a ZZ/ZW sex determination system
- Further research includes creating more primers and troubleshooting the process for obtaining these results

Personal Experience

I learned that I want to work outdoors with wildlife because of the fieldwork I did at the Gamble Lab

Acknowledgments:

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