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Burtchaell Award
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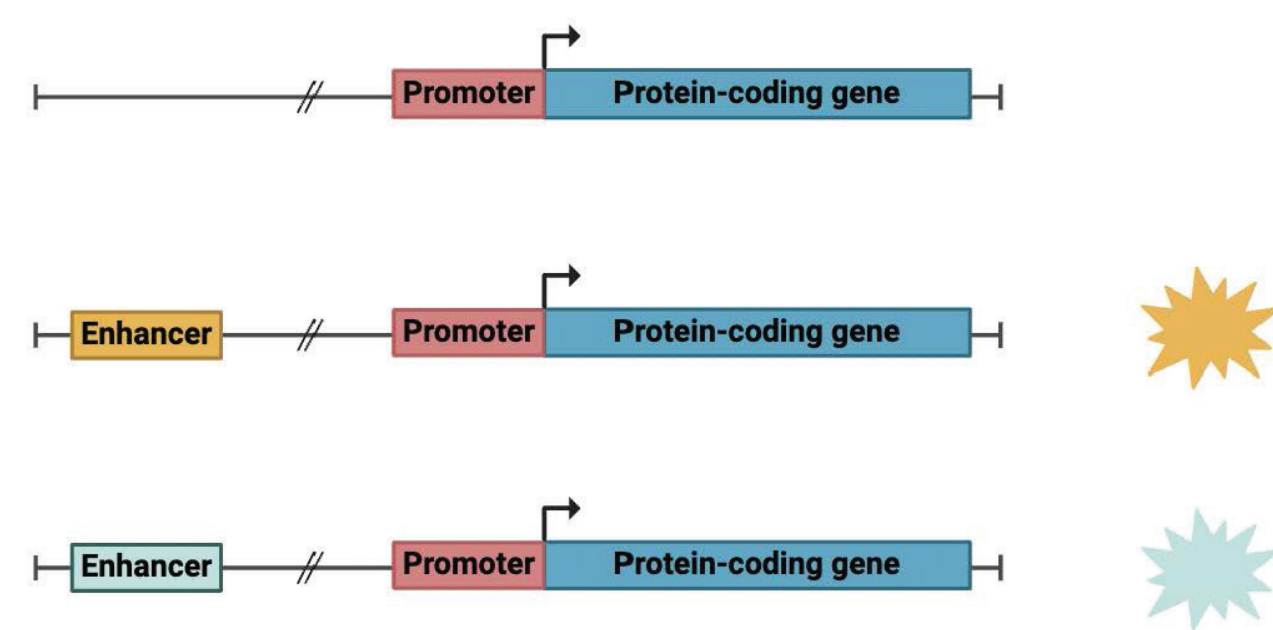


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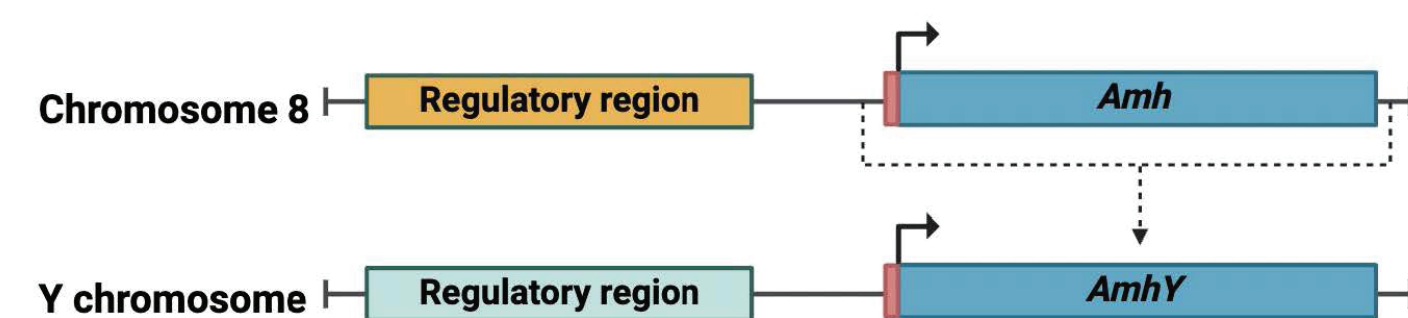
Investigating regulatory evolution's role in novel function of a sex determining gene

Changes to gene regulation often results in changes to gene function. When a gene in threespine stickleback fish (*Amh*) duplicated onto a new chromosome, it acquired the new function of determining sex. I am investigating how regulatory evolution may have contributed to this functional change.

Gene function is dependent on gene regulation.



In the threespine stickleback fish, *AmhY* arose from a duplication of *Amh8* onto a new chromosome, which became the Y chromosome.

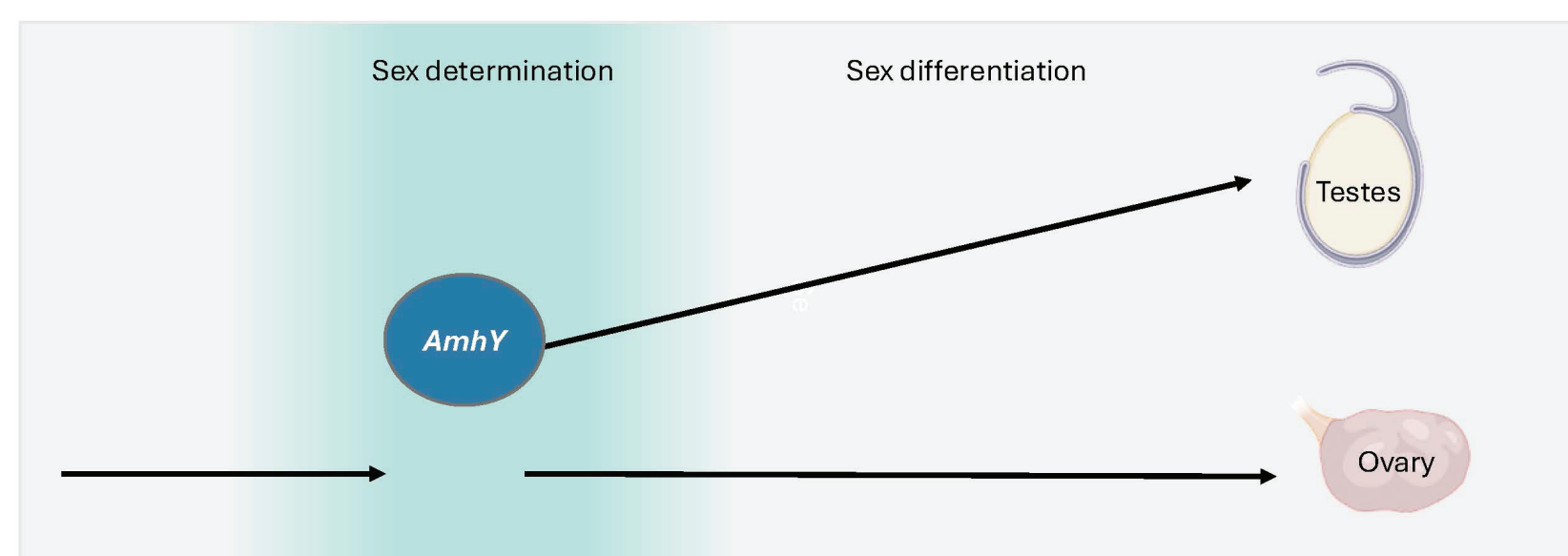


Amh08 and *AmhY* have completely different functions!

Amh08 has a role in testes development.

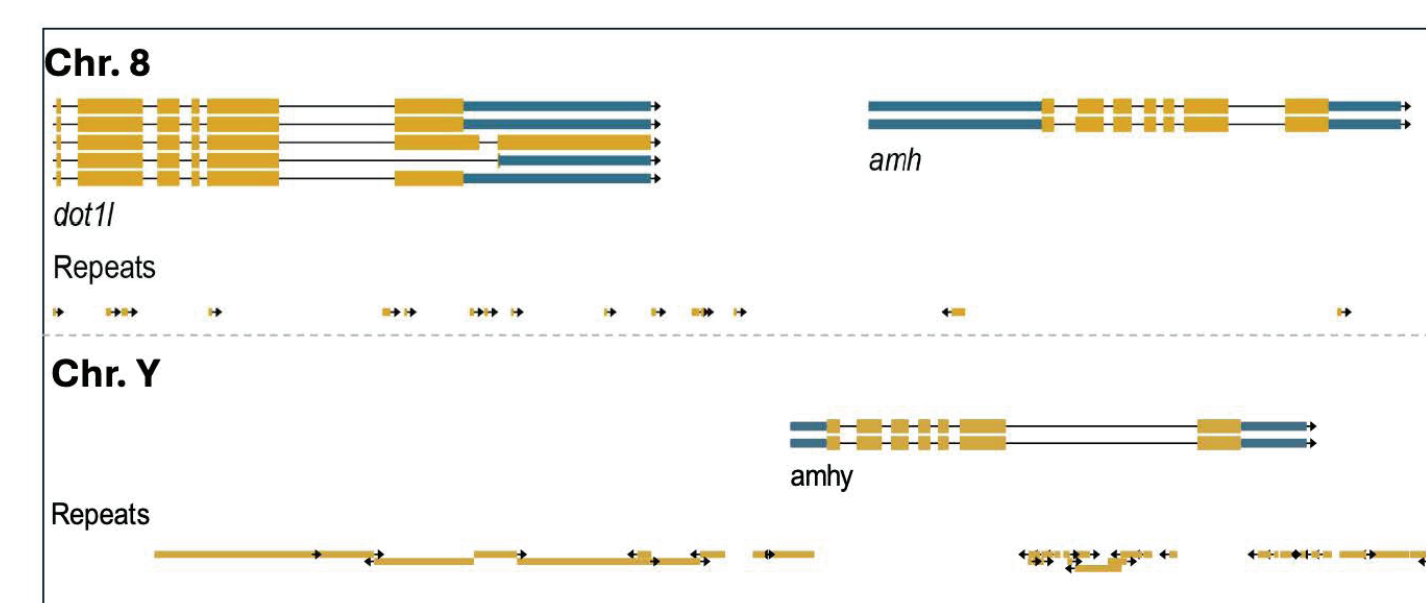
AmhY is a sex determining gene.

Sex determination is a crucial process for all sexually reproducing organisms. There are many different known sex determining genes, including *AmhY*.

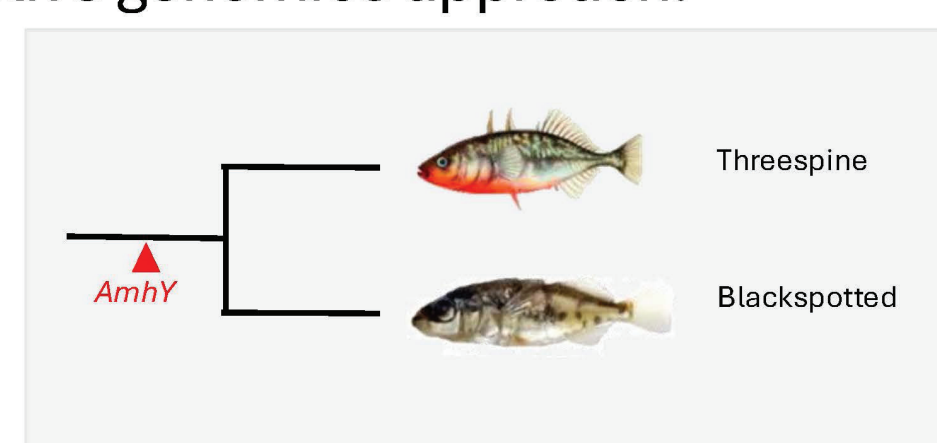


How did *AmhY* gain the function of sex determination?

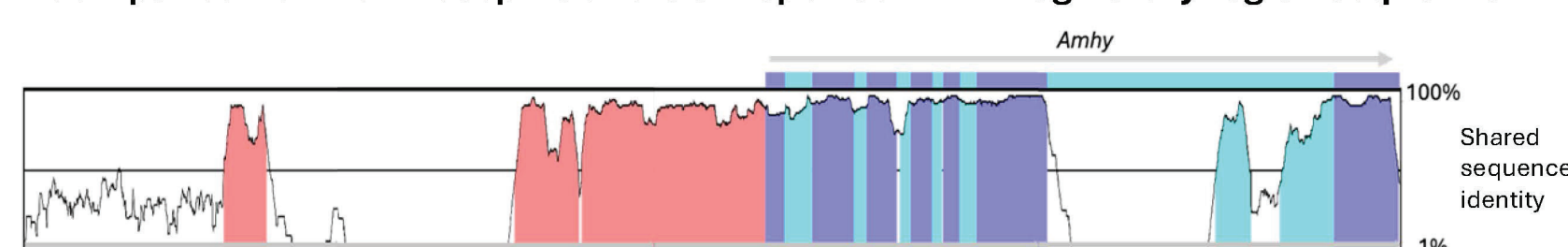
The answer may lie in its newly evolved regulatory region.



Comparative genomics approach:



Comparison of the threespine and blackspotted *AmhY* regulatory region sequence:



Functional genetic approach:

