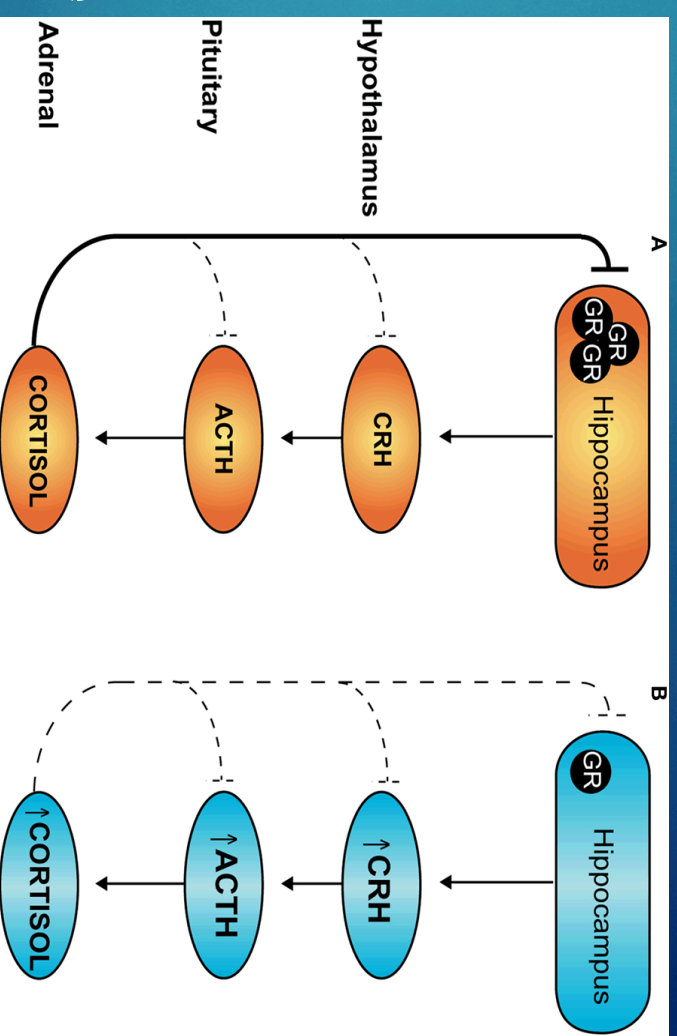


# Reduced Glucocorticoid Receptor Expression in Maternally Deprived Cichlids

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- Glucocorticoid receptors (GR) are important mediators of the stress response
- Maternal care has been shown to have robust effects on the expression of GR
- Maternal deprivation decreased GR expression in the hippocampus of rats while upregulating GR in the amygdala (Meaney et al., 2001)
- The cichlid analogue to the hippocampus is the teleost epistriatum and the analogue to the amygdala is the supracommissural nucleus

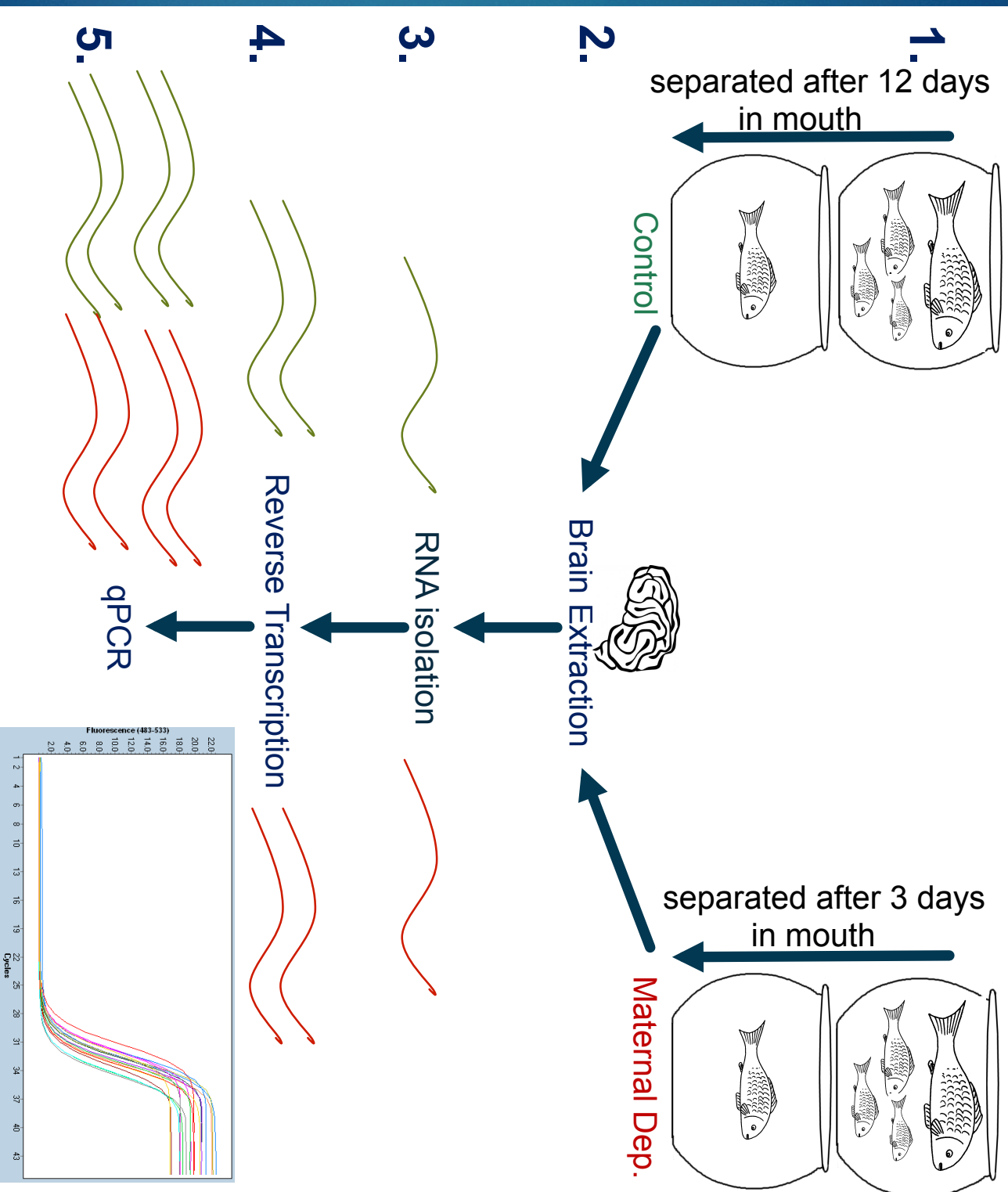


Cottrell & Seckl, 2009

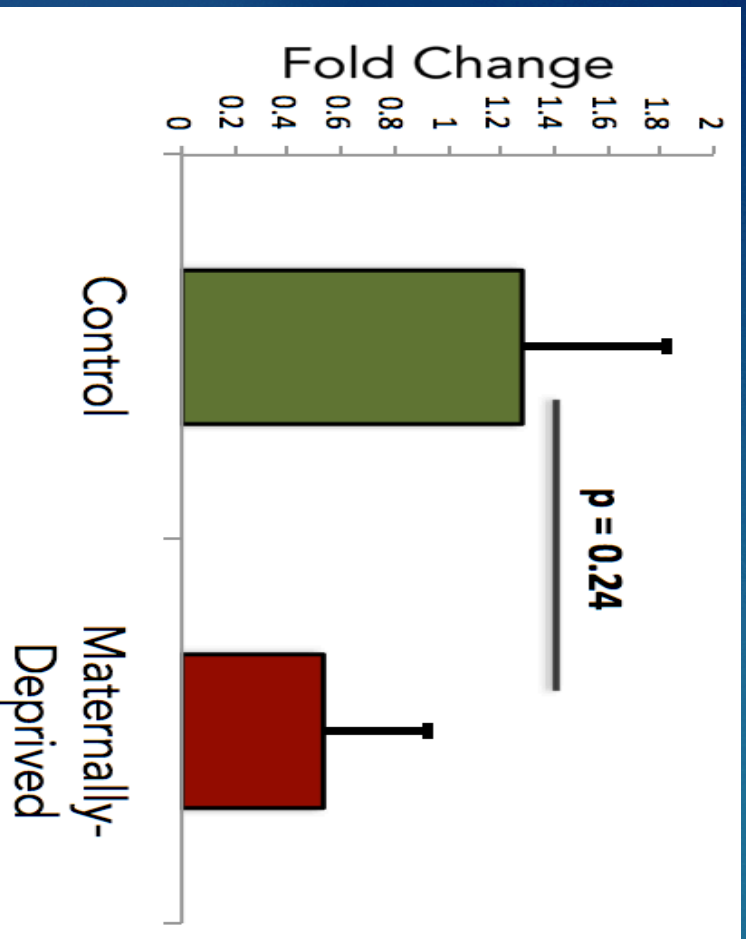
**Question:** Does maternal deprivation affect GR expression in the brain of male cichlids?

# Methods

1. Fish were either separated from their mothers at 3 days (mat. dep.) or 12 days (control)
2. Brains were extracted at week 4 for both groups
3. RNA was isolated from each condition
4. Isolated RNA was then reverse transcribed to cDNA
5. qPCR performed for GR, normalized to GAPDH



# Results



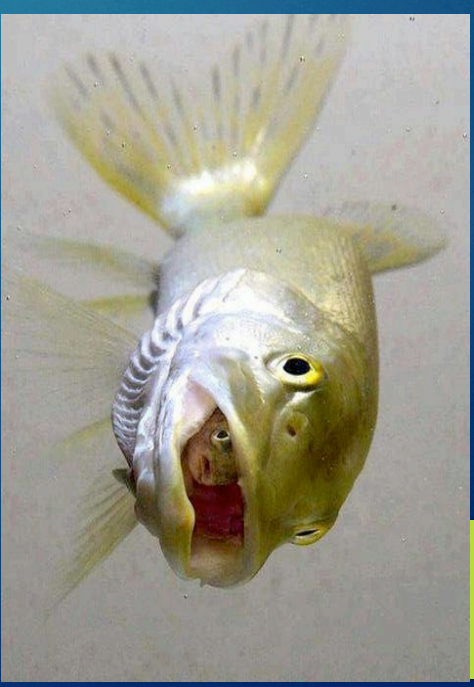
**Figure 1. Maternal deprivation causes a reduction in GR expression in male cichlids. Fold change values for mat. dep. fish and control fish (n=3 for both groups). Independent means t-test,  $t = 1.1172$ ,  $df = 4$ ,  $p = 0.24$ ).**

# Conclusion

- GR expression is reduced in maternally deprived male cichlids when compared to controls.
- This may be accounted for by region specific differences relating to the HPA stress axis.

## Future Directions

- Microdissect teleost epistriatum and supracommisural nucleus to determine region-specific effects.
- Perform an ELISA to assess changes in circulating cortisol levels between treatment groups
- Explore possible sex differences.
- Perform behavioral measure to determine presence of stress effect in mat. dep. fish.



## Acknowledgements

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