

# Deletion of *Nr3c1* causes an increased number of lactotropes

Dale Ann Sunny<sup>1</sup>, Pratyusa Das<sup>2</sup>, Buffy S. Ellsworth<sup>2</sup>

<sup>1</sup>SI Bridges to the Baccalaureate, School of Biological Sciences, Southern Illinois University Carbondale

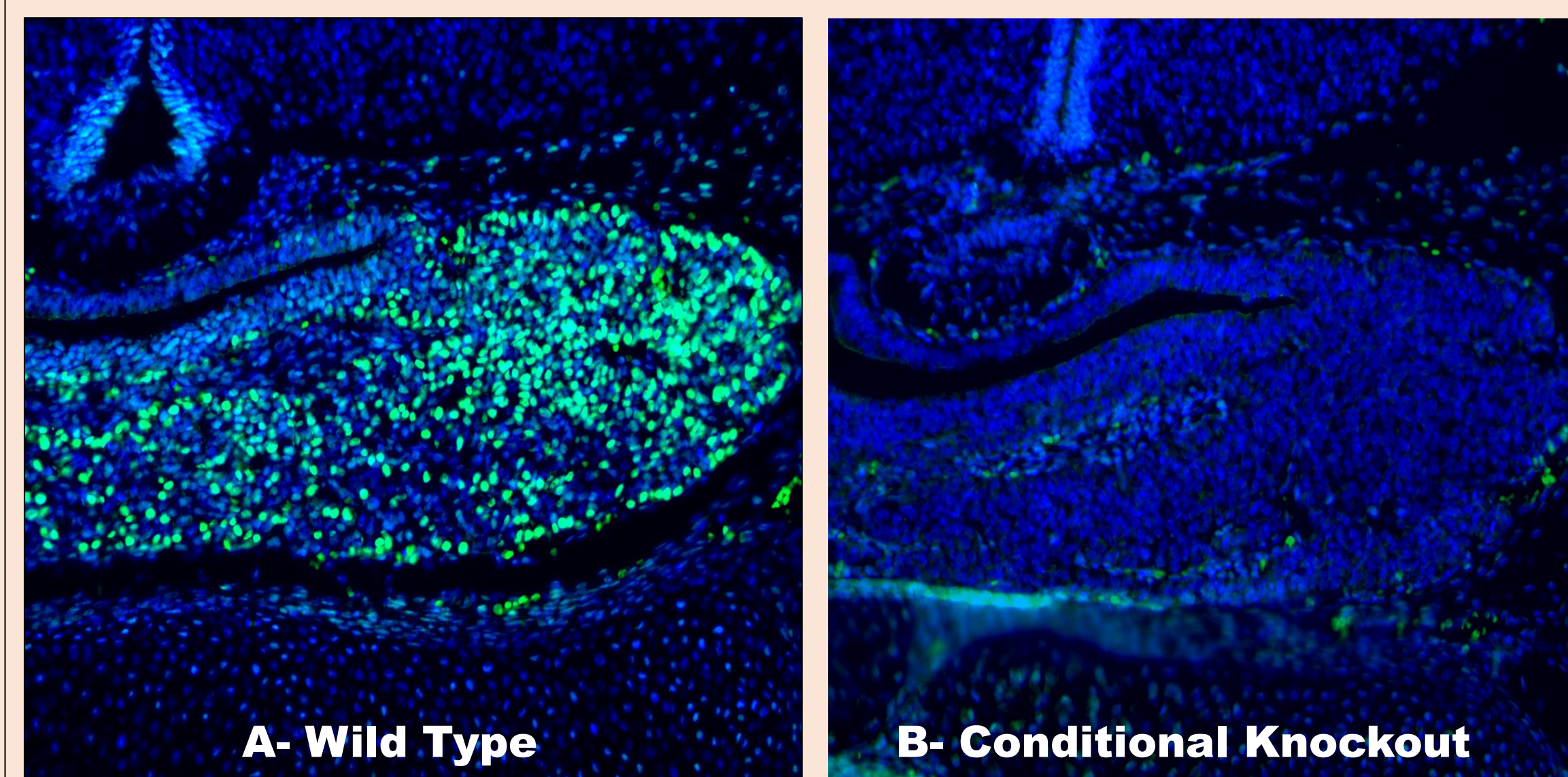
<sup>2</sup>Department of Physiology, SIU School of Medicine.



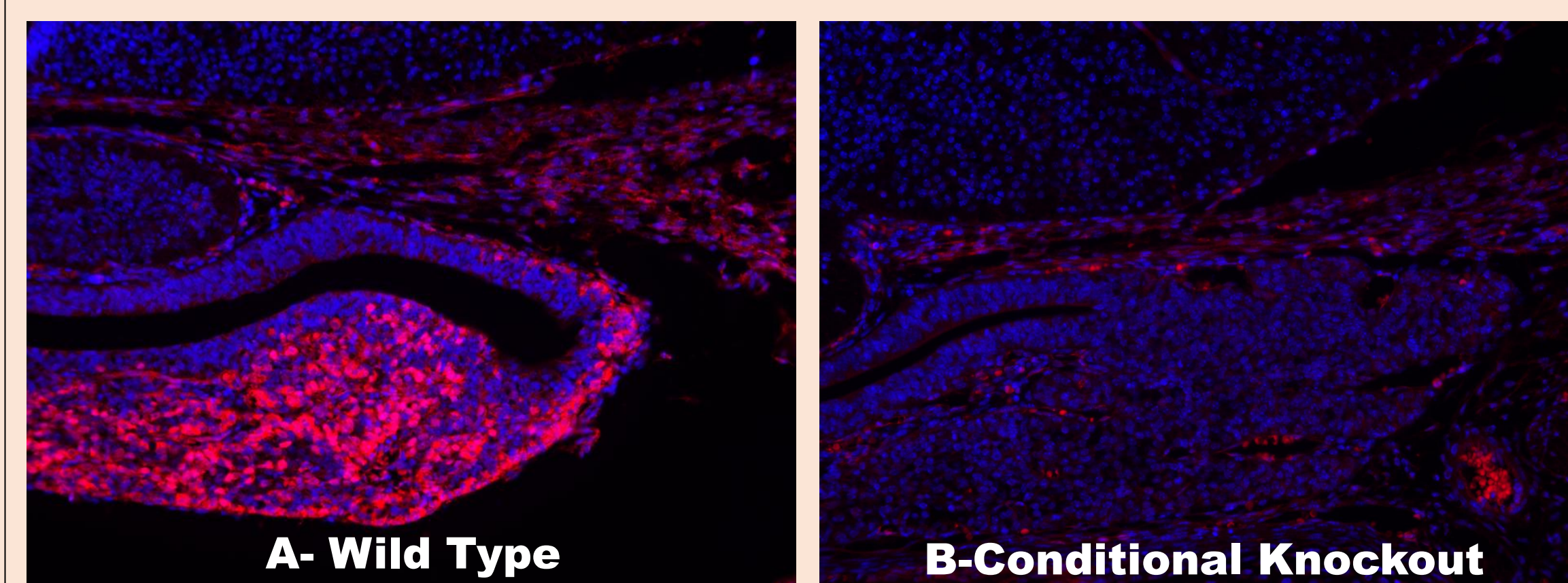
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## ABSTRACT

*Nr3c1* is the gene for the glucocorticoid receptor, which acts as a transcription factor that binds to glucocorticoid response elements in the promoters of glucocorticoid-responsive genes to activate their transcription. Prolactin is a hormone synthesized in and secreted from specialized cells of the anterior pituitary gland, the lactotropes. Prolactin is responsible for lactation, and certain breast tissue development and contributes to hundreds of other bodily processes. In this experiment, we performed immunohistochemistry for prolactin on *Nr3c1* conditional knockouts and their Wild Type littermates to determine if glucocorticoid signaling affects the number of lactotropes that differentiate during pituitary gland development. Results show that there are more prolactin-positive cells in *Nr3c1* conditional knockout mice than in wild-type littermates. These findings suggest that glucocorticoid signaling inhibits lactotrope differentiation.



**FIGURE 1:** The deletion of *Nr3c1* at embryonic age e16.5 at 200x magnification is confirmed by Immunohistochemistry. Figure A shows the expression of NR3C1 (green) in the wild type while Figure B shows the complete deletion of *Nr3c1* in the conditional knockout. The nucleus was stained with Dapi (blue). The cre used was PROP1-2A-Cre.

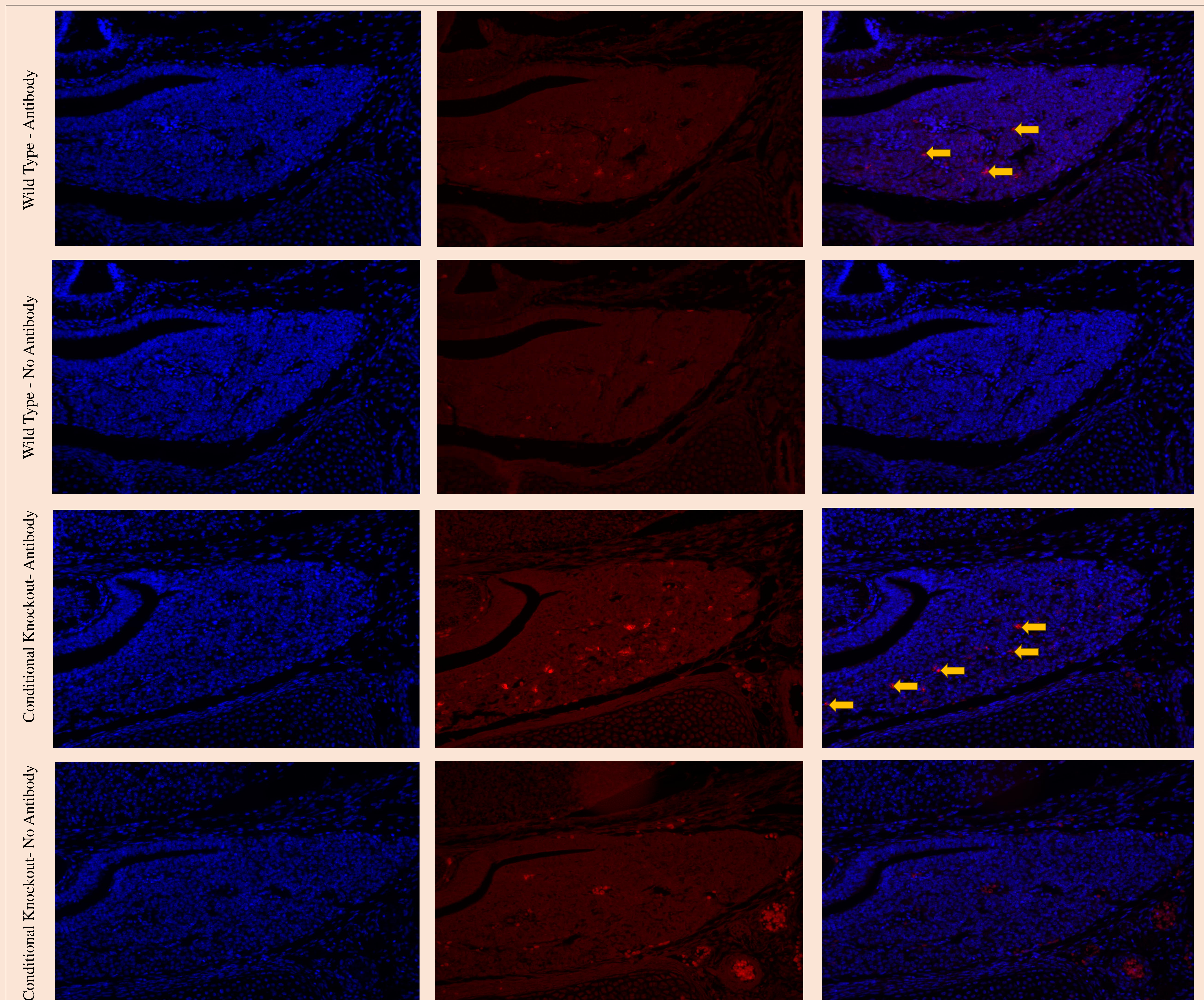


**FIGURE 2:** Immunohistochemistry for FOXO1, stained with TRITC (red) on a section of a mouse pituitary gland at embryonic day e16.5 at 200x magnification. The nucleus was stained with Dapi (blue). The cre used was PROP1-2A-Cre. *Nr3c1* was deleted.

## REFERENCES

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## RESULTS



**FIGURE 3:** Immunohistochemistry for PRL, stained with TRITC (red) on a section of a mouse pituitary gland at embryonic day e16.5 at 200x magnification. The nucleus was stained with Dapi (blue). The cre used was PROP1-2A-Cre. *Nr3c1* was deleted.

## CONCLUSIONS

Results showed that more prolactin-positive cells were found in conditional knockouts than wild-type littermates. Future studies include investigating how glucocorticoid receptors regulate prolactin synthesis.

## ACKNOWLEDGEMENTS

I want to thank Dr. Laxmi Sagwan-Barkdoll and the Southern Illinois Bridges to the Baccalaureate Program at Southern Illinois University, Carbondale for allowing me to do the research and the National Institute of Health for funding the research. I would also like to thank Dr. Buffy Ellsworth and Pratyusa Das for their constant support and guidance throughout the research.