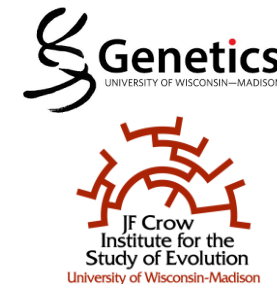




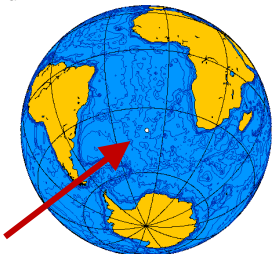
Evolution of Boldness and Exploratory Behavior in Giant Mice from Gough Island

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Introduction

- Increased body size¹ and reduced anxiety² are common traits of island populations
- The largest wild house mice (*Mus musculus domesticus*) reside on Gough Island³



- Gough Island (GI) mice predate on seabird chicks suggesting increased boldness
- Comparison of wild-derived, inbred strains of GI mice and mainland representatives raised in a common environment provide a picture of how mice evolved on the island

Hypothesis

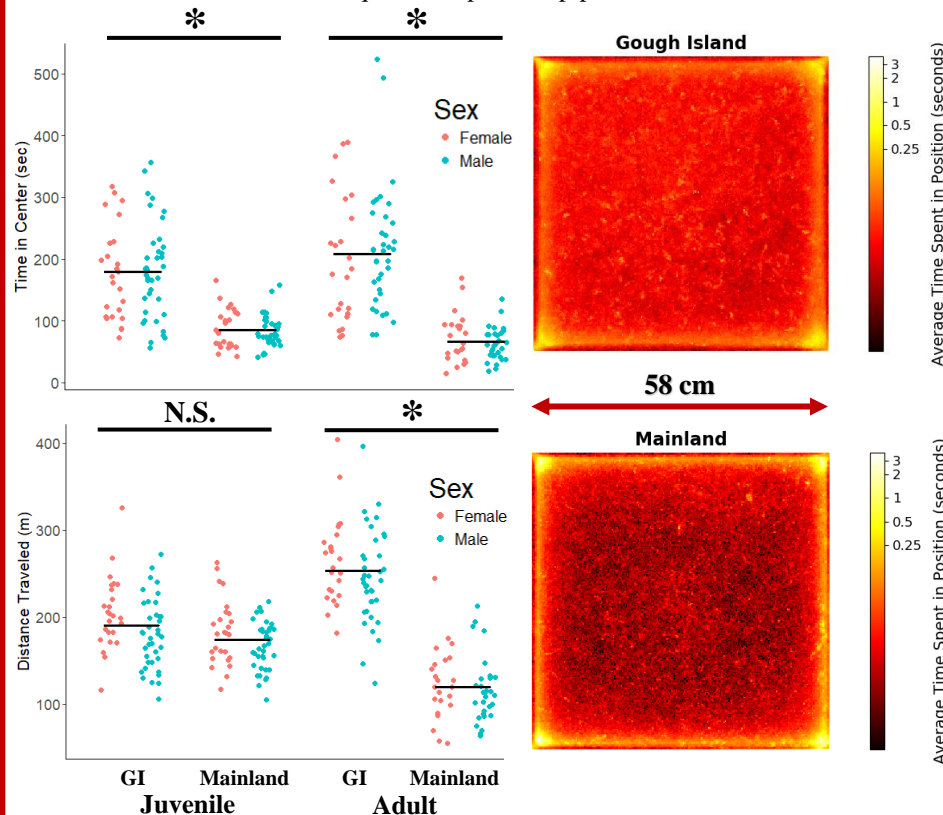
Gough Island Mice Evolved Increased Boldness and Exploratory Tendencies

Conclusions

- GI mice are more active and less anxious in novel, risky environments
- Age, but not sex, affects these behaviors: younger mice from both strains travel similar amounts
- Genetic dissection of these traits can provide novel insights into behavioral evolution on islands

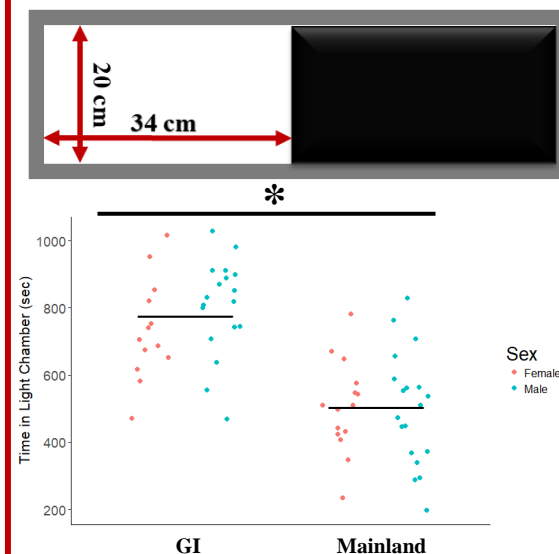
Open Field Test

- Anxious mice are expected to spend less time in the center of the open field
- All individuals were housed with one littermate of the same sex and tested at two ages
- Mice were allowed 30 minutes to acclimate to the testing room in their home cage before 30 minutes of uninterrupted exploration time
- Videos of each test were analyzed via a tracking script associated with MouseMove⁴ and a subsequent independent pipeline



Light Dark Test

- Anxious mice are expected to spend less time in the light chamber
- Subjects were the same that were tested in the open field
- Mice were allowed 30 minutes to acclimate to the testing room in their home cage before 30 minutes of uninterrupted exploration time
- Mice could openly transition between equally sized light and dark chambers



References: 1) Van Valen, L. Evolution (1973) 2) Blumstein, D. T., & Daniel, J. C. Proceedings: Biological Sciences (2005) 3) Gray, M.M., et al. Genetics (2015) 4) Samson, A.L., et al. Scientific Reports (2015)

Funding: NIH 2R01 GM100426