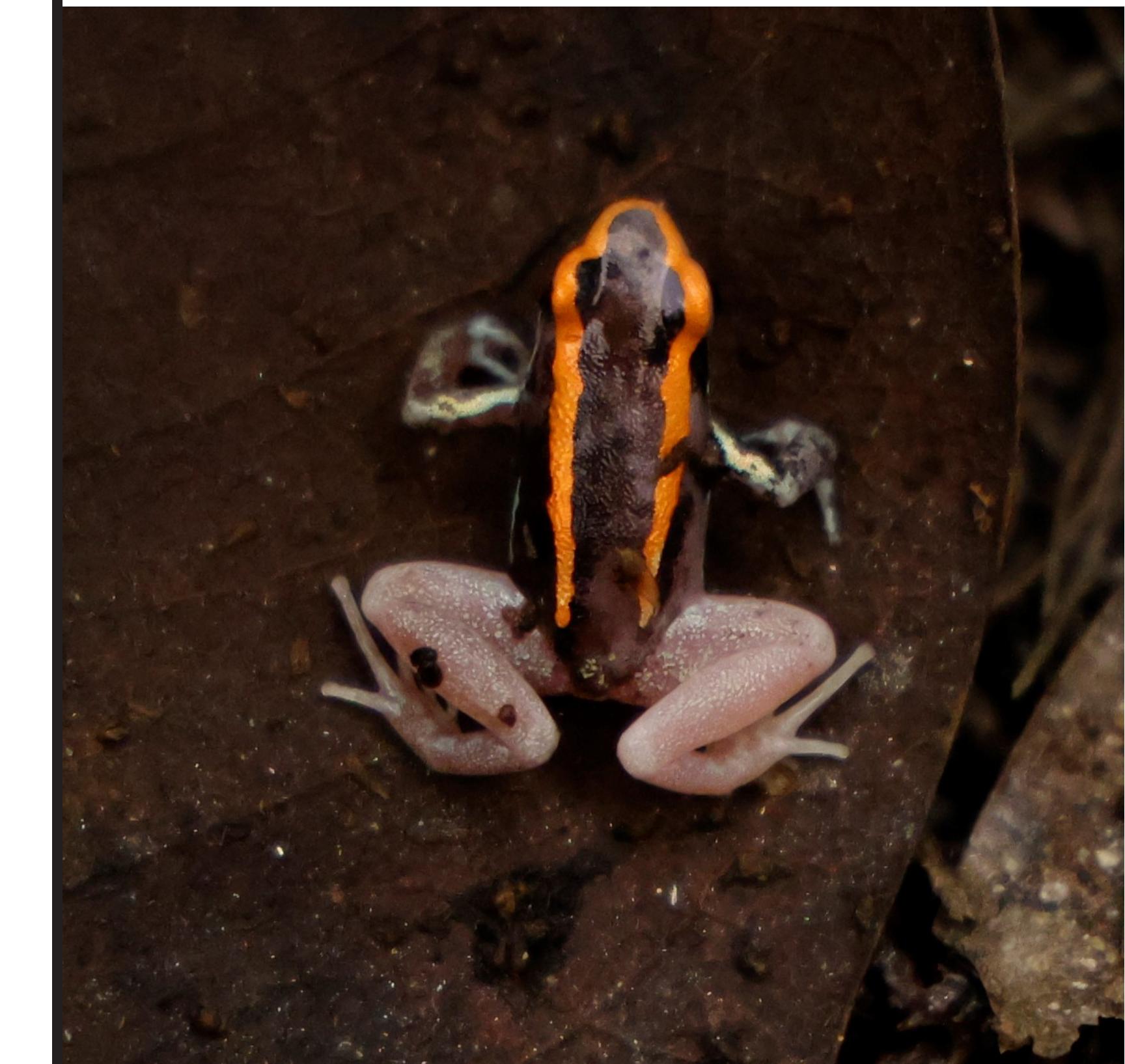


Optimizing CRISPR-Cas9 genetic modification in *Phyllobates* poison-dart frogs



Chris Talbot, Roberto Márquez

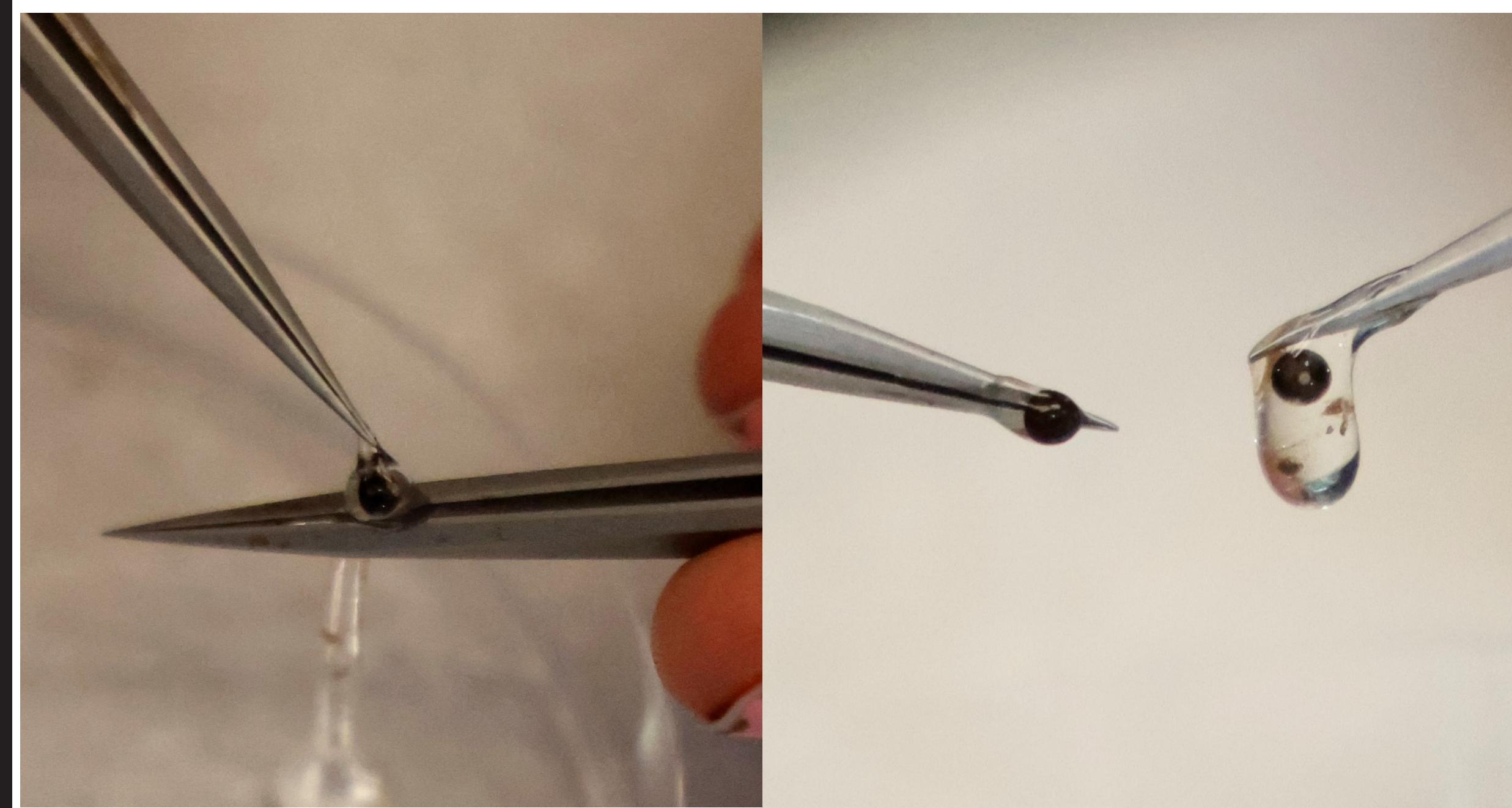
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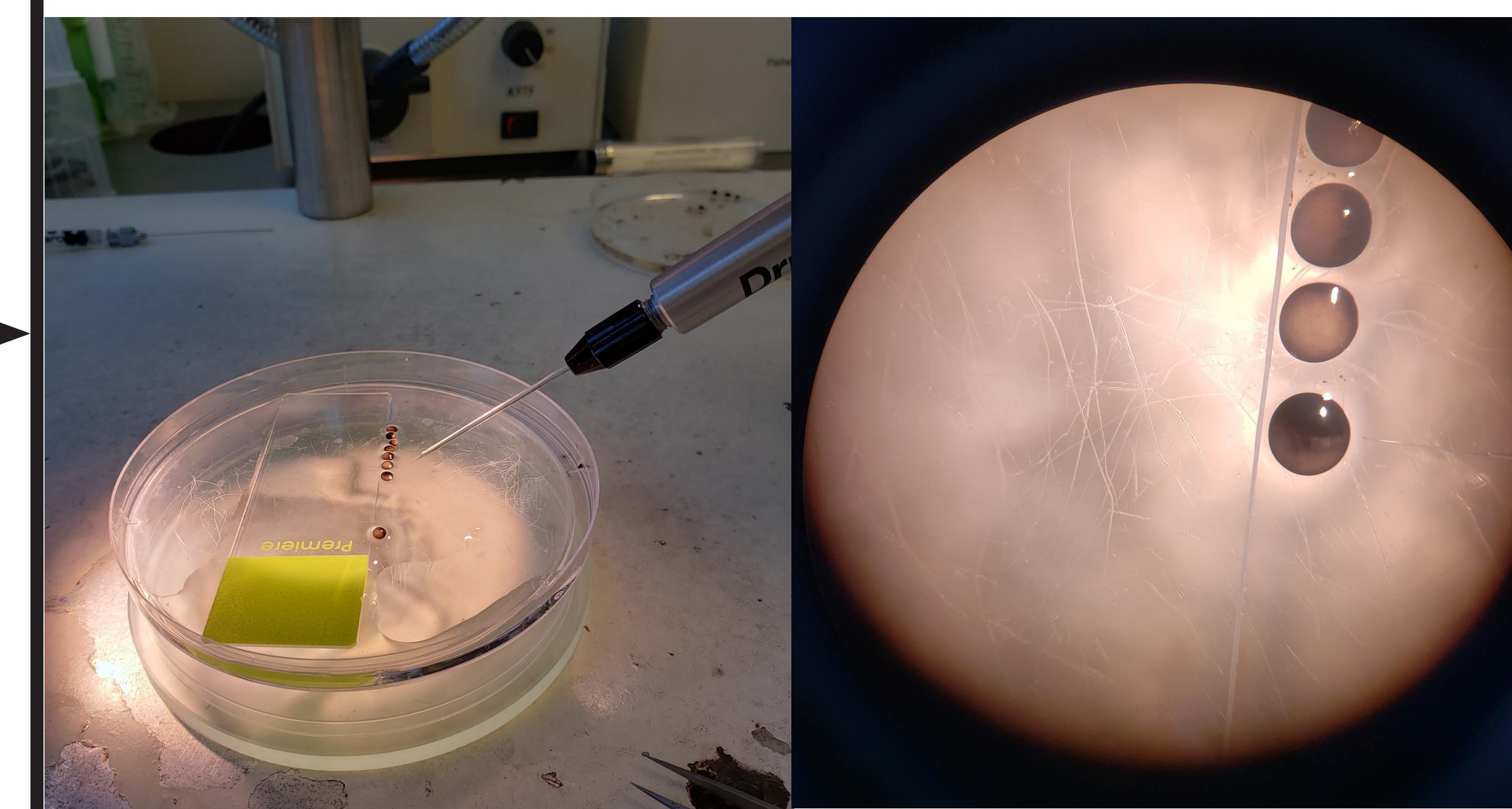
Introduction

- Genetic modification allows us to explore the connection between genotype and phenotype.
- CRISPR-Cas9, a bacterial system for defense against bacteriophages, can be used to perform gene knockouts in embryos.
- CRISPR is relatively quick and cheap, allowing for genomic experimentation in non-model organisms.
- Knocking out *slc45a2* gene is known to create amelanistic frogs, allowing us to easily identify successfully modified frogs.
- Creating a procedure for CRISPR-Cas9 knockouts in *Phyllobates* may be generalizable to other non-model amphibians.

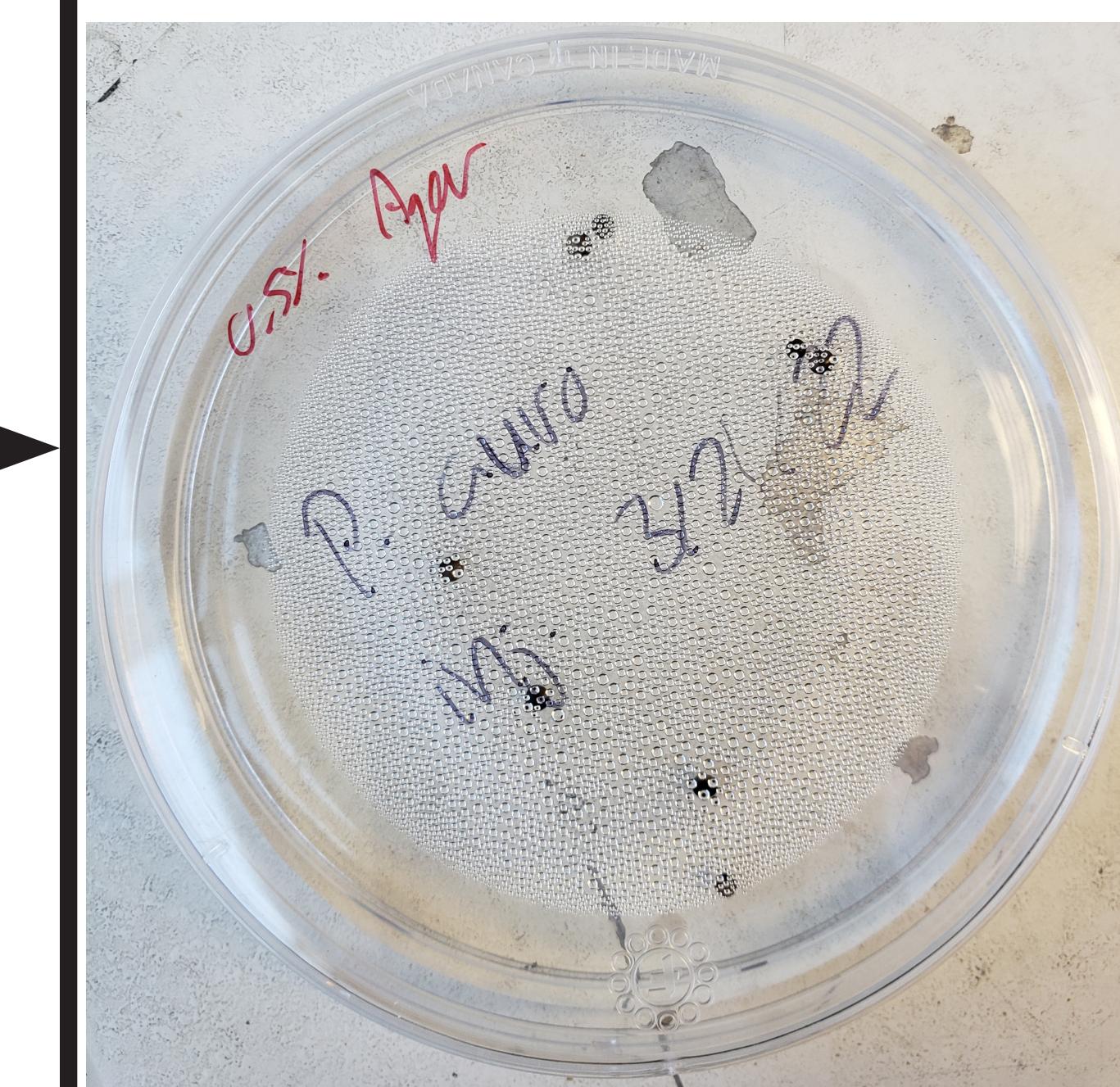
Dejellying



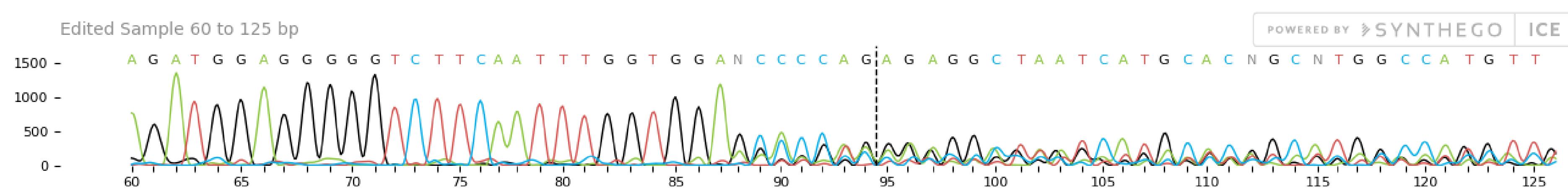
Microinjection



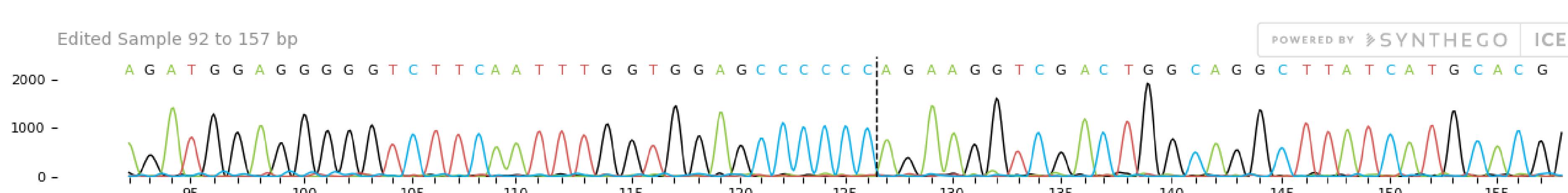
Rearing



Results



Sometimes our methods work, cutting the genome in the expected location...



But we are still seeing inconsistencies and need further experimentation to determine the cause.

Future directions

Evaluate trade-offs between genome cutting efficiency and long-term survivorship for varying concentrations of CRISPR-Cas9 solution.

Acknowledgements

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