

# Drosophila Model for Potential Plasticizer Induced Hyperactivity

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## Introduction

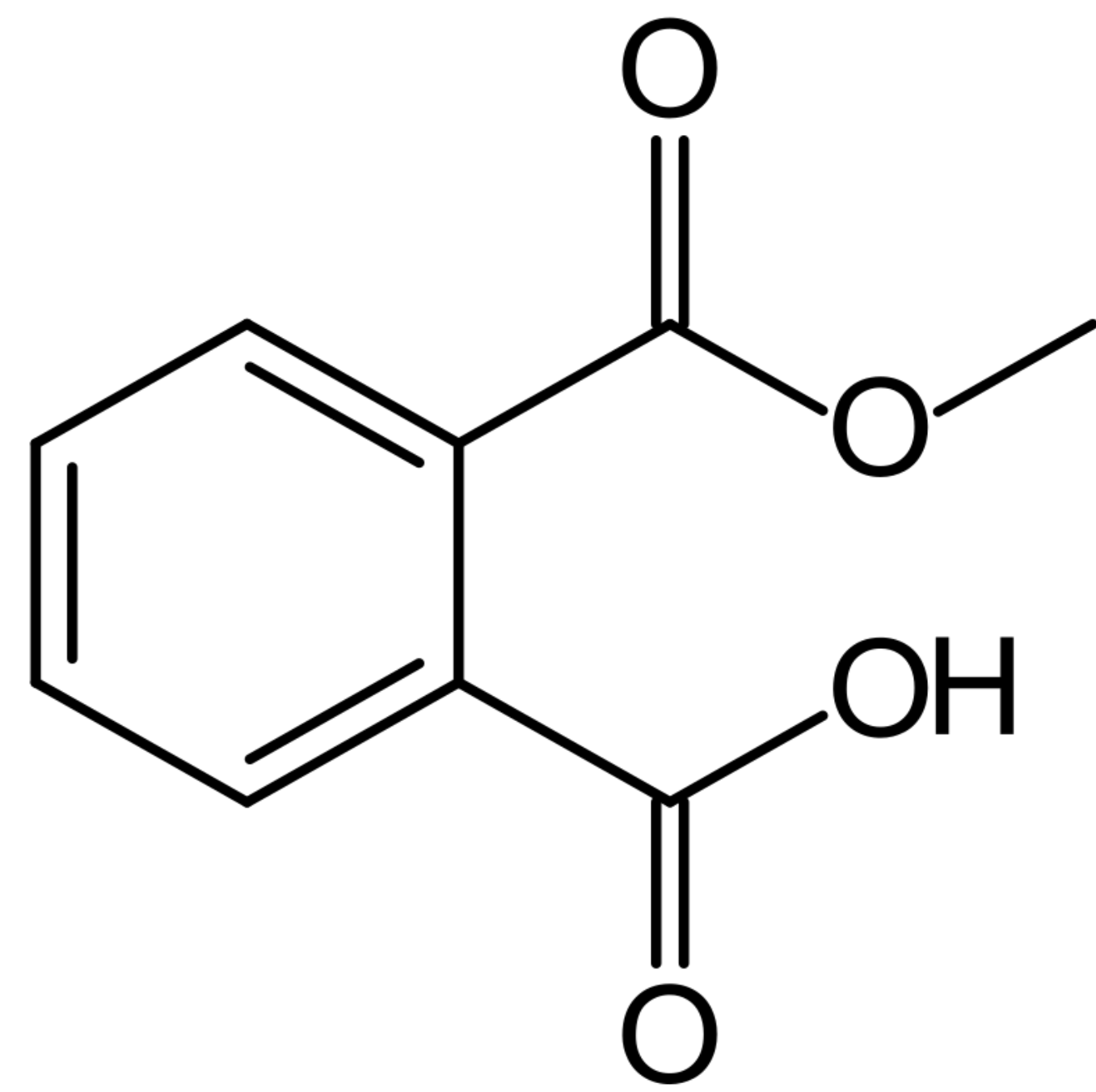


Figure 1: Monomethyl Phthalate

- Phthalates are additives which increase flexibility and reduce brittleness of plastics
- Phthalates can be found in products such as personal care products, medical tubing, and other plastic-containing materials people encounter everyday (CDC, 2021)
- Monomethyl phthalate (MMP) is a metabolite of dimethyl phthalate (DMP), one of the most common phthalates, which can interfere with biological processes (Dhanjai, 2018)
- Phthalates are linked to neurological disorders (Hlisníková et al., 2021)
- Phthalate exposure has been linked to attention-deficit/hyperactivity disorder (ADHD) in children (Kim et al., 2009)
- Flies are a model for exposure studies because of the availability, low cost, and rapid generation time (Tolwinski, 2017)
- The *Drosophila* Activity Monitoring (DAM) system is used to individually monitor flies for activity during to measure general activity, locomotion, and circadian rhythms

## References

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## Methods

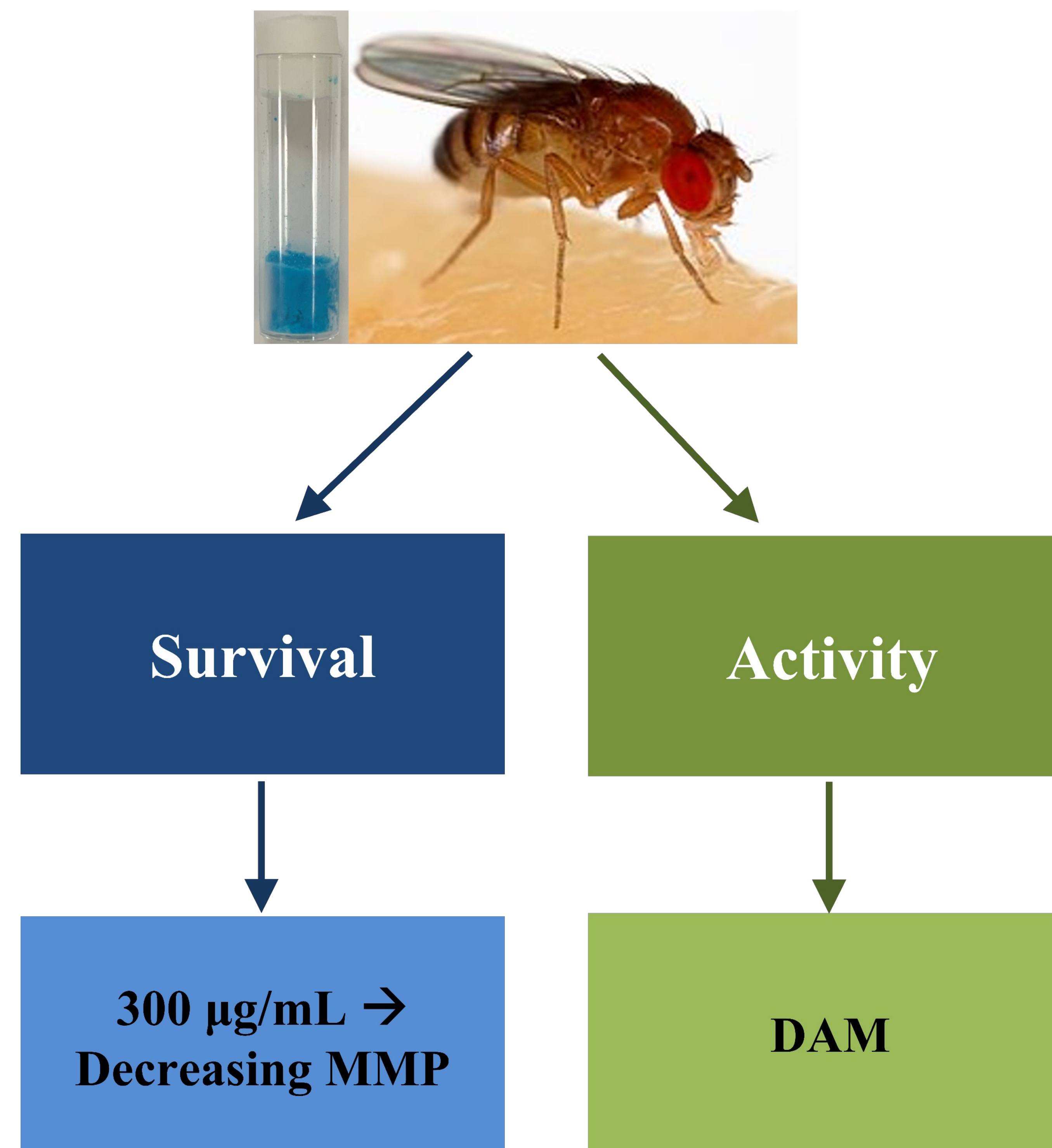


Figure 2: Methodology for studying the flies eating survivability by using a death curve (left) and future activity assessment using the *Drosophila* Activity Monitoring (DAM) system (right) to observe their behavior

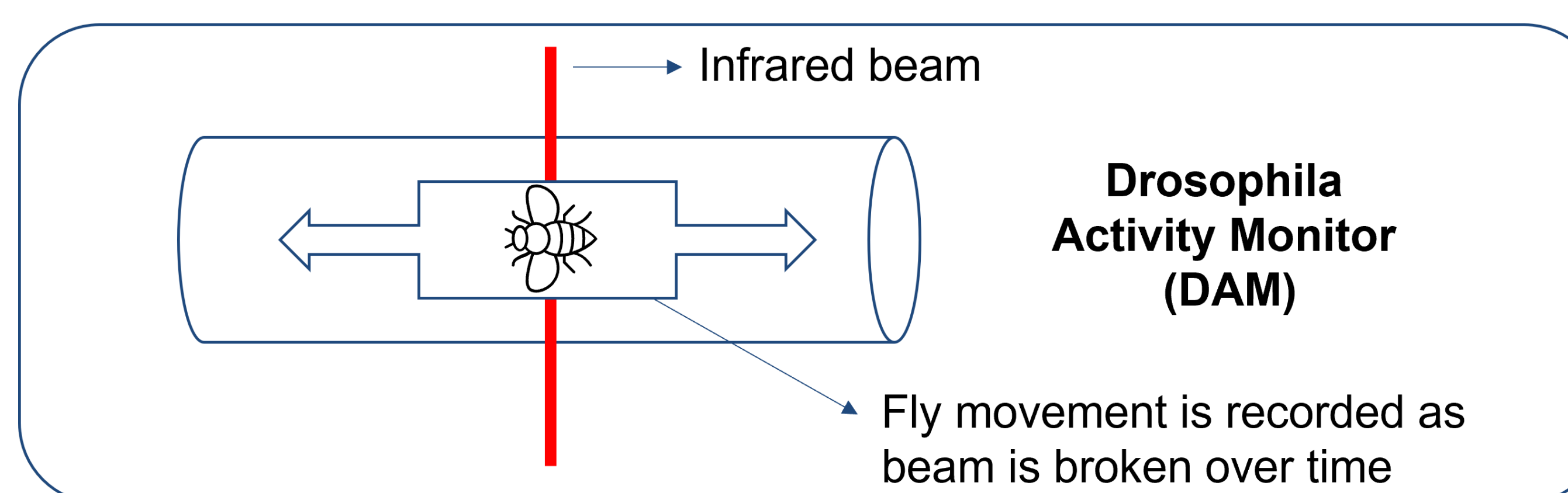


Figure 3: DAM Single unit. A full DAM system contains 32 units

## Preliminary Results

- We hypothesized that exposing the flies to MMP will result in a shortened life span

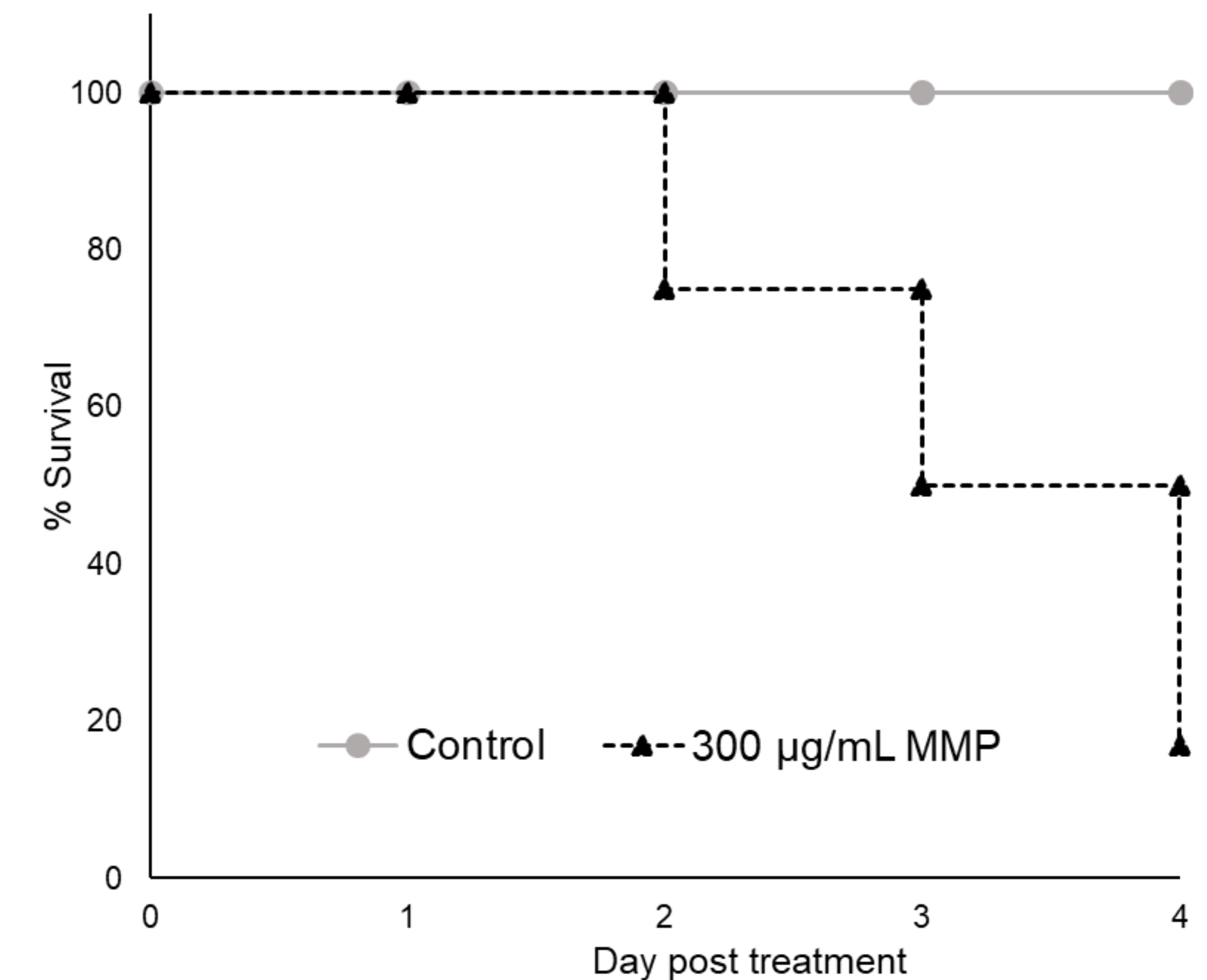


Figure 3: Death curve of flies on phthalates compared to flies on regular food (n=12-24 flies)

## Future Directions

- Using DAM system for hyperactivity
- Additional research that can be collected includes sleep cycle, activity, and eating habit analysis
- Assess potential limitation that phthalates are sticking to the sides of glass or the vial
- Investigate route of phthalate exposure in flies

## Acknowledgments

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